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CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

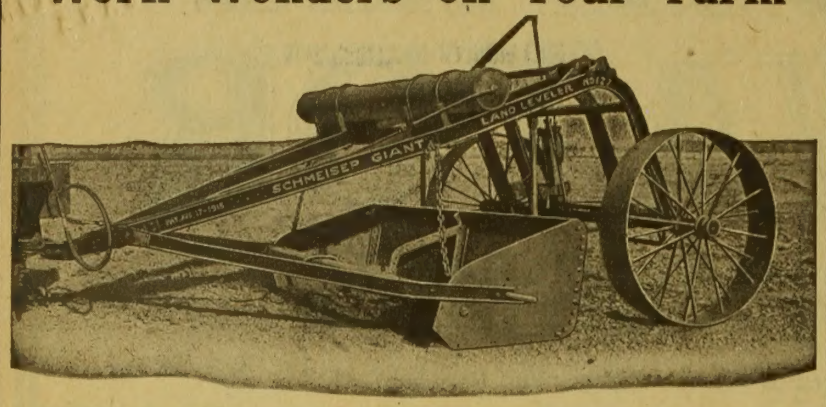
An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES January 6, 1917 SAN FRANCISCO

Yosemite in Winter

We manufacture levelers for all sizes of tractors

A Schmeiser Giant Leveler will Work Wonders on Your Farm



MOVING IMMENSE AMOUNTS OF DIRT DAILY, and working on ground too tough for horses and Fresnos to tackle, SCHMEISER POWER LAND LEVELERS are now being used with utmost success on the larger ranches of California, saving their owners time, labor and money.

Three Sizes—"Giant," "Junior," "Midget"

SCHMEISER "GIANT" LEVELER—Bucket 11 feet wide, 3 feet high, 4 feet sides; capacity of 3.5 cubic yards. With 2 men and tractor does the work of 9 men and 36 horses with Fresnos.
Price, f. o. b. Davis, Calif.....$900

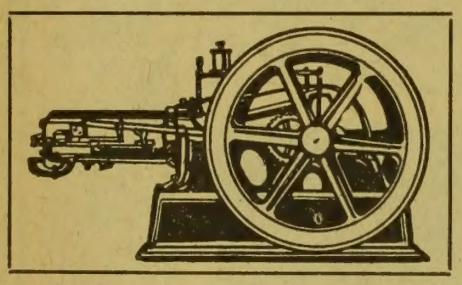
SCHMEISER "JUNIOR" LEVELER—Bucket, 8 ft. wide, 3 ft. high, 3½ ft. sides; capacity 2.43 yards.
Price, f. o. b. Davis, Calif.....$650

"MIDGET"—Bucket, 8 ft. x 7½ x 2½ ft. Capacity 1.45 yards.
Price $350

SEND TODAY FOR FULL INFORMATION

Schmeiser Manufacturing Co. 22 Mechanic St. DAVIS, CALIFORNIA

We Are In Business To Stay



That ought to help convince you that we are mighty particular about the construction of

COMMERCIAL ENGINES

We are building good pumping engines and a good reputation at the same time—so you see we can't afford to take chances by turning out engines that would in any way reflect discredit on the builders.

Long after the cheaply constructed engines have been consigned to the scrap heap

Commercial Engines

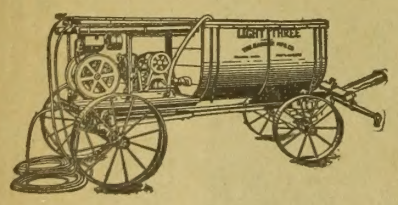
will be on the job—faithful, steady and efficient.

Commercial Engine Co.

2416-32 Porter Street, Los Angeles, Cal.
Branch: 1228 "H" Street, Fresno, Cal.

With "war prices" on most everything it is a pleasure to be able to quote a price on the

HARDIE LIGHT TRIPLEX



that any grower can afford to pay for the best made, medium capacity rig on earth. Catalog? We make several sizes.

The Hardie Mfg. Co. Portland, Ore.
Theo. Poindexter, State Agent, 338 Brannan St. San Francisco

STUART PRUNE

ORIGINATED BY J. F. STUART, RIPON, CAL.

Twenty-seven dried prunes to the pound.

This prune is a cross of the French prune and the Tragedy prune into the Silver prune—the Silver being the mother-prune.

The market price of this prune is 12½c per pound.

The University test is 53.5 per cent sugar. It drops from the trees and processes like the French; has a very delicious flavor; is black when dried; the wood is hard like the French; is a prolific bearer and dries down very heavy. Small pit.

We are exclusive owners. 5000 budded trees in stock for sale this season. Also plenty wood for grafting.

A large and fine stock of Almond, Pear, Peach, Apricot and Prune trees for sale. Write for prices.

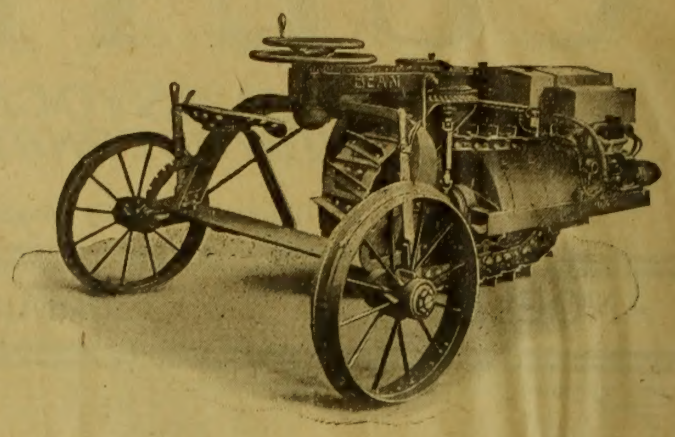
RIPON NURSERY AND IMPROVEMENT CO.

J. F. STUART, President. RIPON, CAL.

Why Use *Horses*

When This Great Little 2800 lb.
BEAN TrackPULL Tractor Makes It

Pay to Get Rid of Them



BEAN TrackPULL SIX HORSE Tractor

Watch For Our Demonstrations

Horses are great pets! BUT, you are running your orchards or your vineyards to MAKE MONEY and horses are MONEY EATERS—a fact that the wonderful patented BEAN TrackPULL 6-horse Tractor proves absolutely. Sooner or later every orchardist and vineyardist is going to find out that paying out $225.00 a year just to feed one team, and $675.00 a year to feed three teams whether they work or not IS TOO MUCH! When a simple little tractor that "eats" only when it works and that does the work of three teams costs to buy only a little more than it costs just to feed four teams for one year isn't it time to think of getting that tractor?

No Other Works Like This In Vineyards and Orchards

This Tractor works between five-foot rows in a vineyard and under tree boughs only four feet off the ground in an orchard; and it will plow within an inch of the vines without breaking off young shoots, and closer to your trees than any horse can go.

The BEAN TrackPULL Tractor pulls anything that six horses can pull. Especially adapted for cultivating. Enjoys working in the hot weather when your team sweats, loafs and pokes.

The BEAN TrackPULL is by far the simplest of all tractors. Its constructions (covered by basic patents) permits greater friction with lighter weight, and light weight means low operating cost and ease in handling. A boy can operate it. The BEAN doesn't pack even the loosest soil. You should see it work in soft ground!

Note that the BEAN pulls itself over the ground instead of pushing itself. It's the only light tractor that "gee's" and "haws" like a team. When you hit soft spots you simply swing the whole track to right or left and pull out.

Other features are: Turns clear around inside a ten-foot circle. Gets into corners like a team. Pulls as strong on turns as on straightaway. Motor is simple four-cylinder automobile type—but for heavy duty. Power goes through only four big gears and simple friction clutch. Hyatt Roller and New Departure Ball Bearings throughout fully dust protected. You can remove grousers and wheel flanges and run on boulevards. Works night and day when necessary. Has pulley for stationary work.

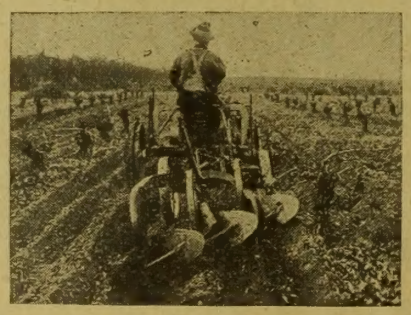
Send RESERVATION Coupon

Sending in coupon below doesn't obligate you to buy. It simply reserves one of these tractors for you. If you don't buy in a reasonable time after coupon is received by us the tractor is sold to some one else. That's all there is to it.

We'll send you big descriptive folder and tell you name of nearest dealer who can demonstrate tractor for you.

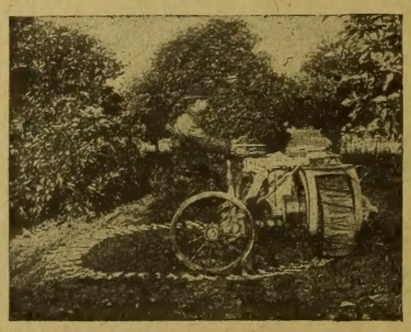
Don't wait. Thousands want this patented tractor and no other, and soon we will have sold our entire year's output. We are sold a long way ahead now.

The BEAN TrackPULL Tractor will save you big money. If you don't reserve one now you may have to wait another year.



IN THE VINEYARD

IN THE ORCHARD



TURNING IN TEN-FOOT CIRCLE

Bean Spray Pump Co.
212 W. Julian Street,
San Jose, Cal.

This coupon does not obligate me to buy a Tractor, but is simply a request to reserve one for me for a reasonable time. Please also send prices, terms and the big folder with the complete story of the BEAN TrackPULL. Also name of nearest dealer who can demonstrate.

Name .....

Street .....

City ..... State.....

California Cultivator

Vol. XLVIII No. 1 LOS ANGELES: January 6, 1917 One Dollar Yearly

California State Dairy Cow Competition

New Year Expected to Bring New Entrants in the State Competition which Prof. Woll of the University of California is Conducting. Two Months Longer for Entering the Competition

WHILE California producers of beef have been electrified by the great showing which this state made at the recent International at Chicago, dairymen have likewise occasion to feel proud of the position this state is taking along dairy lines. Only a few years ago a world's record for milk production was held by a Yolo County cow. True, it was only a few days or weeks before the laurels were taken from her, but during the past year a Colusa County cow won the world's ten months' record, and she still holds it, but owing to unfortunate circumstances she failed in finishing the year at the wonderful stride she had set during the first ten months. The best of dairy experts say that Winnie Korndykè Cornucopia de Kol will yet produce 32,000 pounds of milk within the 12 months, and while she has failed in making the record anticipated, she has still shown that California is producing along dairy lines some wonderful stock.

California prefixes to nearly everything she undertakes "biggest and best in the world", so when the state university proposed a dairy cow competition open to every cow in the state, "biggest in the world" had to go. Purses in excess of $7400 were raised and the competition is now on. The contest began the first day of November and will continue through 1917 and the first two months of 1918. Entries may still be made. It has taken some time for dairymen to grasp the opportunity which is offered.

The $7400 in premiums will be a small factor of the reward secured. Even with grade herds these awards will add dollars to the selling value of the stock; with pure bred herds it will mean almost incalculable benefit.

Regarding the competition we may quote from circular 153 issued by the state university. "Open to all kinds of cows. The competition is not restricted to pure breds, but is open to all kinds of cows, including grades and cows of mixed breeding. Cows of the latter classes do not come into competition with pure breds in the awards of most prizes, since a considerable number of the prizes are awarded for records made by such cows only. The value of the cash prizes to be competed for by grades alone amounts to over $1000, and a large number of special prizes will be awarded for records made by grade or common cows, or by cows irrespective of their breeding. It is hoped that the provisions made for liberal prizes for this class of cows will appeal to many farmers owning common dairy herds and that they will enter cows in the competition in large numbers."

Details of the prizes offered were given in a former Cultivator, but every dairyman should write at once to Prof. F. W. Woll at the University Farm, Davis, and ask for Circular 153 or for entry blanks.

It may be recalled that amongst the prizes offered were three prizes of $100 each offered by the California Cultivator to owners of herds, members of cow testing associations. One purse of $100 cash for highest average production of butter fat for one year by herd of ten to 25 cows; purse of $100 for highest average production of butter fat for one year by herd of 26 to 50 cows; purse of $100 for highest average production of butter fat for one year by herd of over 50 cows.

Almost a World Beater

Winnie Korndyke Cornucopia de Kol, California record holder for one year and world record holder for 305 days' production. At that time she had to her credit 27,443.3 pounds milk and 827.3 pounds butter; seven days' butter 28.73 pounds, milk 789.1; 30 days' butter 117.7 pounds, milk 32,217.0 pounds; 100 days' 10,097.2 pounds milk. Owned by J. S. Gibson Company.

Every member of a cow testing association should take advantage of the opportunity to win one of these prizes. There is no entry fee nor expense connected with this contest. The university, which is conducting the contest, felt at first that certification of the performance of each animal should be made by a representative of the university, but now it has been deemed unnecessary to impose this condition, and from a circular which is being mailed to cow testing associations by the university we note; "the only requirements being that copies of the complete records of production of milk and butter fat by the individual cows by months be made out and transmitted to the university on completion of the testing year, at any rate prior to March 1, 1918, and that the correctness of the records be certified to by the president, secretary and tester of the association."

Dairymen, bear in mind that every herd, member of a cow testing association, is eligible to this class, whether the herd be made up of pure breds, grades or just scrubs.

Membership in a cow testing association has been recognized as a purely money making proposition. "Weed out the boarders" is the slogan, and the older associations have found wonderful profit in them, yet many dairymen refrain from conducting these tests. The Cultivator purses will encourage these organizations to make more thorough tests and to bring the averages of their herds up to the highest possible point.

Who has the best practical dairy in California? Let us find out through this state dairy cow competition.

Imperial Valley Live Stock Fair Makes Good

Written for California Cultivator by F. F. Stonerod

WHEN the officials of the county farm bureau first proposed a live stock show to be held at El Centro this year consisting of live stock and poultry exhibits only, and doing away with the usual horse races and other side attractions, the business men expressed misgivings that the show would not be a financial success. At first it was a difficult matter to raise money to hold the show, but through persistent effort on the part of Paul I. Dougherty, director of live stock, and A. M. Nelson, manager of the fair, the necessary money was raised or pledged.

The show was held in the center of town. Canvas was stretched between buildings; tents erected on several acres of vacant lots; and swine pens, horse stalls, cattle accommodations, etc., installed in such a practical and satisfactory manner that visitors marveled at the smoothness with which the large number of entries was handled.

As the show was held for the most part out in the open it was subject to irreparable damage from the elements, and the heavy rain two days before the fair opened almost wrecked the ambitions of the promoters. Considering the long chances the difficulty of raising money to finance the show, and various other drawbacks which would have discouraged the average, the management of the first real Imperial Valley Live Stock Show deserves commendation.

Professor E. W. Major of Los Angeles judged the dairy cattle classes. Professor Major has been a conspicuous figure in the 1916 show ring. Professor R. H. Williams of the Arizona University judged swine and sheep. Both judges placed the draft classes. Their work was highly satisfactory in every way.

The Holstein classes in the cattle, and the Duroc-Jersey classes in the swine divisions outnumbered the other breeds considerably. No less than eight two-year-old Holstein bulls lined up for the judge. The Timken Ranch Company had three entries in this class and captured first and third places. The first prize youngster then took the grand champion over all ages. He is a Morris bred bull, Goldstone Sir Alcartra Pietertje and is one of the classiest young bulls we have seen. The second prize bull in this class is a Hollywood, Washington, bred bull which was highly fitted but fell just a trifle short of first prize requirements. The Holstein cow class was replete with surprises to ring attendants. Both in quality and quantity they surpassed expectations. A. M. Draper of Holtville, a new breeder, brought out the grand champion cow in Nancy Mercedes DeKol, a nine-year-old matron of excellent type and conformation. Dr. W. O. Johnson brought out a fine string of young females. Allison Peck had the only aged bull in the show.

The Jersey class was a disappointment in that there were but two exhibitors on hand. F. H. Van Derpoel won practically everything in sight. In Fern's Silver Ray, who just finished making the second highest California state butterfat Jersey record, Mr. Van Derpoel had the sensation of the show. She attracted large crowds of visitors. Incidentally Fern's Silver Ray captured first and grand champion Jersey cow.

The swine classes took down the bulk of the show prize money, which was divided between Duroc-Jerseys, Berkshires and Poland-Chinas. The two latter breeds were in the minority. Timken Ranch Company showed a dandy lot of both Durocs and Berkshires. One of their Berkshire sows was a champion at San Francisco last year and looks as good today as she did one year ago. Model A. D., their mammoth Duroc boar, ran away with first and grand champion. This boar is good enough to get second prize at the 1916 National Swine Show. J. E. Peck had the champion sow in the Duroc class and also won the largest number of premiums in the show. W. R. Warne won everything in the Poland-China class.

Coming at a time when so many Imperial Valley farmers are going wild over cotton, this fair will serve its greatest economic good if it will impress the community with the fact that animal husbandry is the most stable and sure of all agricultural pursuits. The state that neglects its live stock industry or lays it aside for a crop that is more or less in the nature of a speculation, is playing with fire and will sooner or later get burnt.

383408

TALKS ON

Nitrogenous Fertilization

Number 6

When should Sulphate of Ammonia be applied?

SULPHATE OF AMMONIA

For ORANGE groves in regular bearing the ideal way is to divide the total amount, say 8½ to 10 pounds per tree, into several portions distributed over the growing season. One may be applied about six weeks before blossoming, one when the petals begin to fall, and subsequent ones in June and in September. If labor cannot be spared for this, the first and last periods will probably give the best result.

For LEMONS, as they are in continuous bearing, even more frequent applications are advised —say, six or even eight—after irrigation.

For GRAPEFRUIT, the special requirement is that they shall size up well, hence a large portion of the total amount may be applied when the fruit is half grown.

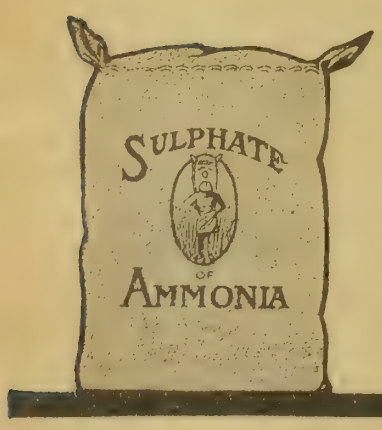
For TRUCK CROPS, broadcast Sulphate of Ammonia, 100 to 300 pounds per acre, before seeding or setting out the plants, or divide into two portions and apply one before planting, the other between the rows when the crop is well started.

For FIELD CROPS, apply broadcast by hand or machine at time of planting.

The Barrett Company

New York City, N. Y.

ASK YOUR DEALER



or in car lots through
A. P. PARKER & CO.
Western Representatives
1206 Merchants Exchange Bldg.
SAN FRANCISCO, CAL.

For advice as to application write
THE BARRETT COMPANY
AGRICULTURAL DEPT.
Box 248 Sta. C, Los Angeles, Cal.

Spraying and Citrus

Written for California Cultivator

MILLIONS of dollars has been saved to California citrus orchards by the spray pump. Formerly sprays offered the only means of reaching either insect or fungus pests. Fumigation came, and it was felt on the part of some that a cure-all was found, and indeed it has proved for most insect pests of citrus trees a most effective means of control.

But there is the red spider and all the fungous troubles yet to be handled by the spray pump. Dust "sprays" have been used to some extent on red spider. The application by the dusting method is more economical, and under right atmospheric conditions often effective, but the liquid sprays are much more generally used. In early spring it is perfectly safe to assume that red spider will appear. Give a thorough application of lime sulphur—which may be home mixed, or a regular commercial mixture, or some of the sprays which are known to control this pest. Repeat this treatment occasionally through the summer if perfect immunity is desired.

Another insect handled satisfactorily with the spray pump is the mealy bug, though some have found double fumigation effective—that is, after one hour's exposure to the ordinary dosage the same dose is repeated. When spraying is followed the usual mixture is of carbolic emulsion, consisting of carbolic acid, five gallons; whale oil soap, 40 pounds; water, 40 gallons. This is a stock solution. For spraying trees dilute 1-20. Army worms, beetles, etc., are best handled with tree tanglefoot or similar sticky material or other mechanical methods, or with arsenical poisons. The treatment most generally used with fungous troubles of the citrus is Bordeaux mixture.

No Cyanide

But this year many other pests will necessarily be controlled by the use of the spray pump. Cyanide has been at a premium, and is in fact impossible to secure. We understand plans are making for a full supply for another year, but "because of the war, etc.," the available supply has been greatly reduced. How may these pests be temporarily handled? There are several commercial sprays, some of which are economical and effective. For those who may prefer to mix their own we have asked for information from Prof. H. J. Quayle, who gives us the following excellent advice:

Prof. H. J. Quayle

It is not easy to recommend with satisfaction any particular spray for black scale on citrus trees, for the reason that no one spray is so greatly superior to all others as to merit its unqualified recommendation or approval. Probably one that would be as satisfactory as any is a distillate-soap emulsion, using distillate of approximately 30 to 32 degrees Baume at the rate of five or six gallons to the 200-gallon spray tank, with the addition of five or six pounds of whale oil soap or six or eight pounds of soap powder to the same tank.

The black scale at this season of the year is considerably more resistant than soon after hatching in August or September. For this reason it is necessary to use a rather stronger spray.

There is no uniformity at the present time in regard to the distillates available for spraying. Our conclusions, after testing out various fractions of oils of different gravities, are that the oils containing the least of the so-called "smoky hydrocarbons" are the least injurious to plant foliage. These so-called smoky hydrocarbons form the part of the oil that is largely removed by the acid treatment. Therefore, acid-treated oils which have the injurious products removed, other things being equal, are preferable for spraying plants.

In some sections a lighter distillate is often available, this running around 34 gravity. The recommendation as to the strength of distillate given above is based upon a distillate of 30 to 32 gravity. If a distillate of higher gravity is used it should be used at a greater strength, and on the contrary, with a distillate of lower gravity the strength should be decreased somewhat.

If kerosene is used, which has a gravity of about 42 degrees, this may be used at a strength of 10 per cent or 20 gallons to the 200-gallon tank. The kerosene oils are the least injurious of all oils to citrus foliage, but at this season of the year, when the hot weather is passed, there should not be very much tendency to spotting the fruit by the use of the oils. Of course, oil sprays and soap sprays, too, for that matter, if the use is continued, will be detrimental to the general vigor of the tree.

The application is a very important phase of the spraying process. The one feature to be kept in mind is the fact that black scale is largely on the under side of the twigs or leaves and that the spraying should be applied from below. In the case of scale spraying it seems best not to use too fine a mist spray as would be desirable in the case of applying poison sprays or fungicides. It is necessary to hit the scale with more or less force, so that a nozzle throwing a fairly good volume of spray, and at the same time with not too great a pressure, seems most effective. It is not necessary to go above 200 pounds' pressure. In fact, 150 pounds is satisfactory with the proper nozzle.

MEALY BUGS CONVEYED BY TENTS

By Burr R. Jones Los Angeles County Horticultural Commission

Considerable anxiety has been felt this year by growers whose orchards were free from the mealy bug pest lest the insects be brought to them on the tents of fumigators coming from an orchard which is more or less infested, perhaps without the knowledge of the fumigator. No doubt special care should be exercised that this is not done. If there is any possibility that the tents would carry the bugs, they should be hung on a line and thoroughly washed with good hose pressure; or perhaps they can be spread upon the ground and washed in that position, both sides, of course, being treated alike. Some contrivance might be arranged for fumigating the tents with sulphur or a very strong dose of cyanide, but the preparation

The Life of Chilean Nitrate Deposits

A. D. 1917

Total Nitrate deposits in Chile	720 million tons
Estimated life of deposits at present rate of World's consumption	300 years

For Reliable Information Write

Dr. WM. S. MYERS, Director
Chilean Nitrate Propaganda
25 Madison Avenue, New York

CARSTEN TRUELSEN
NURSERYMAN
HEMET, CALIFORNIA
APRICOTS-OLIVES-PEACHES

Budded Avocado Trees

Write for new, descriptive, illustrated catalog. Largest and most complete stock in California.

Newbery-Sherlock
R. D. No. 2 Pasadena, Cal.

for such treatment would be quite expensive, and probably the washing would be the most practicable.

PICKLING OLIVES

Written for California Cultivator
By J. W. Mills

OLIVES should be well colored before pickling but not so ripe as to be soft. They should be as near the same size as is practicable for a small olive cures in a shorter time than a large one.

When curing for home use, candy buckets lined with paraffine or asphaltum make good receptacles for small batches.

To Remove Bitterness

Dissolve concentrated lye in boiling water in the proportion of one pound to one gallon of water. Pour into a vessel one measure of the lye solution and six measures of water. This makes a solution in the proportion of one pound of lye to seven gallons of water. Cover the olives with this solution so that a slight pressure of a cloth will hold all the olives under. Stir the olives two or three times a day, working the top olives to the bottom. Withdraw the liquid at least once a day and pour it back. As the lye enters the olive it discolors the flesh, and by slicing the fruit the action of the lye is easily determined. Do not use the first lye longer than 58 hours as after that it ceases to act, and when the second lye is placed on the fruit examine carefully twice a day till the discoloration extends to or within one-sixteenth of an inch of the pit, when the lye should be drawn off and replaced with fresh water. If this can be changed three or four times a day the removal of the lye will be very rapid. By biting into and tasting a few olives it can be easily determined when all the lye is removed.

It will sometimes require more than two batches of lye to remove the bitterness. Mission olives picked after a moist spell of weather cure faster than those picked after a period of north wind.

Salting

After the lye is removed, place the olives in a solution of six ounces of salt to one gallon of water; after a day or two remove this and add a solution of the same strength, which is poured boiling hot over the olives which should first be dipped quickly in boiling brine; the olives should be placed in glass jars or tins which can be sealed. Seal immediately, just as you would in canning fruit, and the olives will keep indefinitely.

Should a dark even color be desired, leave the olives exposed to the air twice for 12 hours between changes of lye or rinsing water. Exposing them but once will leave light colored spots where they touch.

Messrs. McKay and Schuster of the department of agriculture, who have been studying the citrus situation, especially in regard to ripeness of oranges in Central California citrus sections, are now investigating as to refrigerator car service and to learn as to conditions within the car in transit and are installing self-registering thermometers. It is expected that some electrical heating system may be installed in cars which will be automatically controlled and prevent injury when blizzard weather is encountered.

NOT FOR RASTUS

"Deed, no, sah, I can't jine no army."

"But your country needs you, Rastus."

"Can't help dat. It's onpossible."

"Why impossible, Rastus?"

"Well, you see, my o' woman has been ovah to de police co't an' put me unner bonds to keep de peace. No, sah, I can't do no fighting, nohow."

DO YOU KNOW THAT

Dishes may be easily washed by setting them out in the rain. To dry, leave them in the sun.

OTHERS LIKE HER

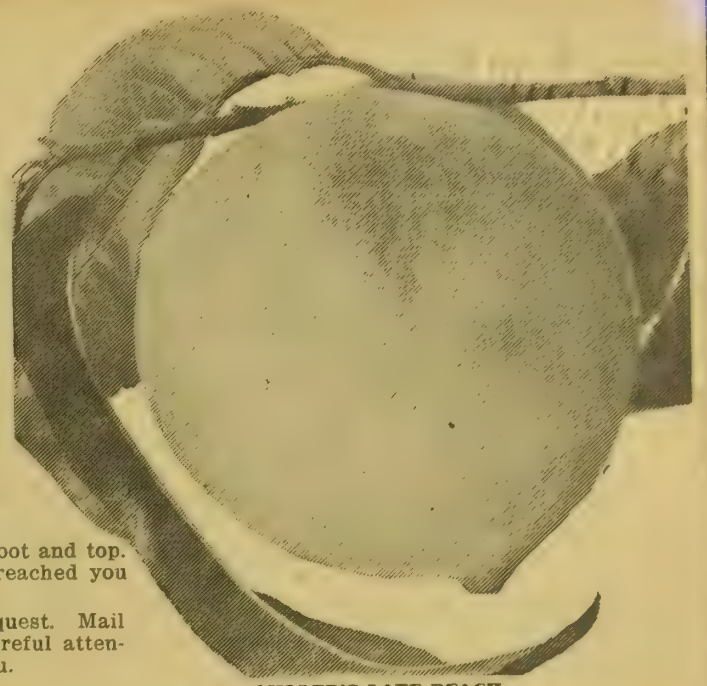
Parson—Do you, Liza, take Rastus for bettah or for wuss?

Bride—Well, if Ah got to tell the truth, pahson, Ah's takin' him 'cause he's de fust man what eveh axed me.

Plant

Peach Trees

Early



MILLER'S LATE PEACH

Prepare your land, order your trees and plant early for best results.

Can supply choice trees of 32 best varieties—all true-to-name. An extra fine lot of **Tuscan** and **Phillips Cling, Lovell, Muir, Miller's Late** and all others, at right prices. Clean, thrifty trees both root and top. Order from my 1917 catalog. If a copy has not reached you write for same at once—it's FREE.

Special prices will be quoted on large lots, on request. Mail orders, and all correspondence receive prompt, careful attention. All shipments made on date specified by you.

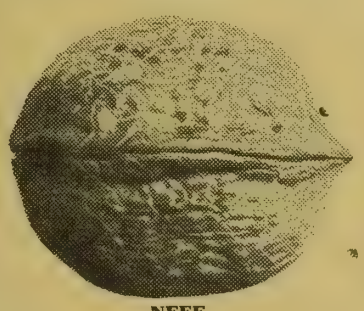
Apricot Trees

Let Us Supply You with Extra Fine Stock—the Best to be had

In buying fruit trees, you should not be governed alone by the "price"—then wait 3 to 5 years to find out that they are not perhaps what you bought—but buy trees with an undisputable reputation behind them; then rest assured that they are what you paid for.

Can supply six best standard varieties—all choice trees. My Royal Apricot trees are propagated from the choicest "strain", carefully selected from the best producing trees in Southern California.

Special prices will be quoted on large lots, on request. Write, stating your "wants"—or, mail your order and the lowest prices for choice trees will be charged you.



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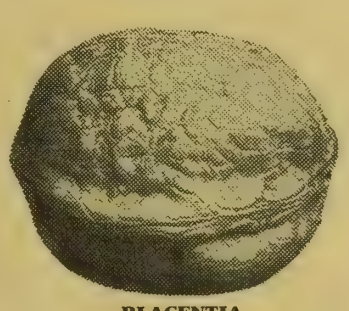


PLACENTIA

—other Fruit Trees

Apple, Pear, Plum, Prune, Cherry, Persimmon, Olive, Avocado, Guava, Loquat, Etc.

Plant "ARMSTRONG TREES":—the best trees. Trees with a reputation. They cost no more than "ordinary" trees. By my method of digging, you receive trees with a root system which enables them to make a quick start and a vigorous growth the first season.

No delay through inspection: All stock CLEAN; both root and top.

Walnuts

Plant More Walnut Trees

It's a good Investment

My Walnut Trees are free of "blight" or other diseases. "Stocky", thrifty, well rooted; carefully dug, retaining a "sure" root system.

Attractive prices on FIRST CLASS trees will be quoted on any number, size and variety wanted. Placentia, Neff, Eureka, Mayette, Franquette, etc. All trees ready for immediate shipment. Mail us your order and lowest prices will be charged you. My Placentia trees are pronounced by experts to be the finest in the state. All sizes, 4 to 10 feet.

Citrus Trees

and other Tropical Fruit Trees—All Varieties

Navel Orange Trees
Choice, thrifty stock; one and two-year buds. Only a limited number to offer. Write for present low prices.

Lemon Trees
Eureka, Villa Franca, Lisbon and Seedless. Clean, thrifty trees, one and two-year buds. Get my prices before placing your order. State number and size desired.

Other Citrus Trees
Pomelo, Tangerine, Lime, Kumquat, etc.
All trees guaranteed to pass Inspection

Roses--Ornamentals

Shade Trees, Vines, Etc.

Largest stock and most complete assortment in the state. Over 250 distinct varieties of Roses; Many new and scarce varieties; latest introductions. Catalog Free.

DECIDUOUS AND EVERGREEN

Ornamentals and shade trees: Every variety adapted to Coast and interior climatic conditions.

Will gladly advise with you on request, relative to your requirements; will make an estimate on the same, and assure you of CHOICE trees, plants, vines, etc. Descriptive Catalog and price list FREE.

Plant AVOCADO TREES Write for FREE descriptive CATALOG and Price list

Armstrong Nurseries

ESTABLISHED 1889

John S. Armstrong, Prop.

404 Euclid Avenue

Ontario -:- -:- California

$10 Model Home Orchard for $5 Write for list of Trees and Varieties

ESTABLISHED 1878 INCORPORATED 1905

Leonard Coates Nursery Co.

MORGANHILL, CALIF.

"We Grow Everything Worth While"

Send for Catalogue

"ROUGH ON RATS" ends RATS, MICE, Bugs, Don't Die in the House. Unbeatable Exterminator. *Ends* Prairie Dogs, Gophers, Ground Hogs, Chipmunks, Weasels, Squirrels, Crows, Hawks, etc. The Recognized Standard Exterminator at Drug & Country Stores. Economy Sizes 25c. 50c. Small 15c. Used the World Over. Used by U. S. Gov't. Rough on Rats Never Fails. *Refuse ALL Substitutes.*

WE wish the thousands of our customers and friends a Happy and Prosperous New Year, and take this means of thanking you for the confidence and courtesy you have shown us and our representatives.

Western Soil Bacteria Company

Breeders of "Westrobac,"
Pure Culture Bacteria.

FIG GROWERS' INSTITUTE

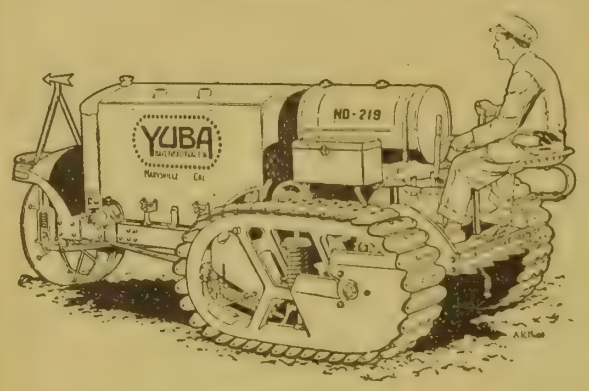
There will be a two days' institute of fig growers at Fresno January 12 and 13.

Several well known fig growers will address the gathering. Also, there will be a number of experts, including Prof. Condit, Roullard, Frisselle, Geo. Roeding, A. E. Beers, horticultural commissioner of Merced County; R. M. Roberts, Santa Fe agricultural expert, and Henry Markarian. Thomas F. Hunt, dean of the college of agriculture, will speak, and G. P. Rixford, plant physiologist of the United States department of agriculture, will talk on "The California Fig Industry." W. F. Toomey of Fresno will speak on the industry from the packers' standpoint. Other papers of practical importance to the grower will be read during the two days' gathering.

The following is the program:

Friday morning, 9:30-12, Sites and Soils for the Fig Orchard; the Fig Tree from the Nursery to the Orchard, W. T. Kirkman; Smyrnas vs. Adriatics, R. M. Roberts; Smyrna Type of Fig, Henry Markarian. Afternoon, 1:30-5, Automobile trip to orchards around Fresno with demonstrations. Evening, 7:45, Some Fundamentals of Agricultural Economics, Thomas F. Hunt; the California Fig Industry, Prof. I. J. Condit.

Saturday Morning, 9:30-12, the United States Department of Agriculture and the California Fig Industry, G. P. Rixford; Problems and Opportunities for the Fig Industry, Prof. J. E. Coit; Caprification and Varieties of Capri Figs, George C. Roeding; My Experiences and Methods in Drying and Packing Figs, H. Newby. Afternoon, 2-4:30, the Kadota Fig in the San Joaquin Valley, Sam Clark; Marketing Fresh Figs, Discussion; the Fig Industry from the Standpoint of a Packer, W. F. Toomey; Nematodes and Their Effects on Fig Trees, F. P. Roullard; Canning and Preserving Figs, Prof. Wm. Cruess.



Price Advance

January 15

1917

THE rising cost of material used in the construction of the Yuba Ball Tread Tractors has reached such a point that we are no longer able to maintain the prices heretofore charged.

It has been our hope that the increased output, the utilizing of improved mechanical devices in the manufacturing, the introduction of greater efficiency, the standardizing of factory practice, would enable us to continue supplying the tractors at the present prices.

But recent sharp increases in the price of steel necessitate an advance of 5% to 6% on each model.

All orders received before January 15, 1917, will be accepted at the present prices

The Yuba Construction Company
433 California Street, San Francisco
Factory at Marysville, California

Models 12-20 and 20-35

The Yuba Construction Company
433 California Street
Department **B205**
San Francisco, California

Gentlemen:—I have been thinking of buying a Tractor some time—possibly next year—but may decide to buy before the advance.

Please send me your Catalogue. I have.....acres. Yours truly,

.....

.....

FIGURES WON'T LIE

There is an old saying that while figures will not lie, liars will figure. There are times when we all find it wise to exaggerate in order to make a point more prominent. This we have done, at times, though only to a very slight degree, in referring to the magnitude of the citrus industry of California, making the statement that a carload of citrus fruit goes forward practically every ten minutes during the year. In our citrus article last week, "Practical Suggestions", we repeated this same statement but through the perverseness of the compositor the three letters t-e-n were left out, making it read "a carload every minute." Alexander Craig, an observing subscriber at Fair Oaks has figured out that a carload every minute means some 525,000 carloads a year, which of course is going some, even for California. This is a case somewhat similar to that of the man who by mistake had been published as dead, and who called upon the editor for an apology, to which the editor replied:

"Well, sir, you know this paper never takes anything back."

"That may be your policy, but, by heck, you will take this back," said the infuriated man. "I'm not dead, sir, and I won't stand for any blamed paper that's printed saying I am!"

"As I said before," calmly returned the editor, "this paper does not take back anything. If you insist, however, that you have been misrepresented, we will put you among the births in our next issue. That ought to square it."

Like the other publisher, we are not able to recall the misinformation which has gone out but through the "referendum" of Mr. Craig we are re minded to make this correction.

GLENN COUNTY FARM BUREAU MEETINGS

January 8 and 9, Codora, night meeting Tuesday, 9; 11-12, Larkin, night meeting, Friday, 12; 15-16, Orland, night meeting Tuesday, 16; 18-19, Jacinto, night meeting Friday, 19; 22-23, Germantown, night meeting Tuesday, 23; 25-26, Plaza, night meeting Friday, 26.

The monthly meeting of the directors will be held at the farm adviser's office in Willows on Saturday at 10 a. m., January 6.

A number of farm loan associations are being organized in various farm centers and members are urged to bring such organizations to completion early as practicable.

SOUTHERN VEGETABLE GARDEN FOR JANUARY

Written for California Cultivator
By D. F. Reichard

PRESUMING that the ground to be allotted for the vegetable garden has been prepared by thorough and deep tillage, as has been suggested under this heading since last October, we can be assured of a luxurious and productive garden during the approaching spring and summer.

The first thing to do for a successful garden is to make a list of the things you wish to grow, then draw a diagram or plan of the plot, allowing places for trees, if there are to be any, and along the fences or at the boundaries provide space for the perennials, such as asparagus, artichokes and rhubarb and berry plants.

When planning the garden keep in mind the local weather conditions, that the temperature is affected by the elevation and by slopes of the land. Low lands are always first to be frosted in the fall and last to get frosts in the spring, while the foothills, and especially slopes that face the south are the warmer sections, often being entirely frostless. The soil condition too must be taken into consideration when planning, and the irrigating possibilities also. If the soil is friable, located on a gentle south slope on the foothills with a good water supply the conditions are ideal for the year around garden.

The weather throughout the last six months has been so cool generally that the ground is colder than usual and we will find that all things put in the ground will start much slower than usual on account of the coolness, so it is well to plant only the hardier varieties during this month, except in

very favorable places where the soil has warmed up.

Using the flat system is much more satisfactory than either the ridge or raised bed methods of planting garden. The flat culture keeps the soil in better tilth and conserves the moisture better.

On light soils where the recent rains have drained off sufficiently to leave it in condition for working, plantings of Crosby Egyptian beet, early varieties of cabbage, carrots, semi-dwarf peas, White Six Weeks turnips, New York Special lettuce, onions, radishes and early potatoes may be made.

Horseradish, rhubarb, asparagus and such may be planted now on well drained soil. On the low land it is still too cold and wet to attempt planting.

Start seed beds, in protected places, of tomato, pepper, celery, eggplant, also start cabbage and cauliflower for later plantings.

Cultivate the whole garden after each rain storm to retain moisture. Prune all trees and berries not already pruned.

A GREAT CLINIC AND LECTURE

Written for California Cultivator
By C. L. Hughes

The eminent authority on cattle diseases, Professor W. L. Williams of Cornell University, held an interesting and instructive clinic on the ranch of Henderson Company, Sacramento, on December 26. At the invitation of J. M. Henderson Jr. a number of leading breeders and veterinarians were present, and at the close of the clinic everyone present united in declaring it one of the most instructive and interesting demonstrations they had been privileged to attend.

In the evening Prof. Williams gave an illustrated lecture at Travelers Hotel on the subject of contagious abortion in dairy cattle. A good sized crowd of breeders was on hand and listened to an excellent talk.

Professor Williams emphasized the fact that contagious abortion is not only a cause of great economic waste through lessened production in dairy cows, but that scientfic research has abundantly demonstrated the fact that the same contagious abortion is a prime factor in calf diseases, such as scours, pneumonia, etc.

The big idea back of Prof. Williams' advice to breeders and dairymen in reducing the destructive power of contagious abortion is cleanliness. This includes the proper care of yards and stables; the most painstaking sanitary precautions in the case of cows that show the slightest evidence of disease; and scrupulous care in washing the fresh cow and protecting the new-born calf against possible infection. That these measures will produce results that pay many times over for the trouble was well illustrated by some tables shown of the records in large herds that had been properly handled after becoming highly infected with contagious abortion.

Following the lecture Prof. Williams made replies to a large number of questions asked by breeders present, and the information contained in the replies was of a most helpful nature.

REORGANIZATION OF CALIFORNIA HOLSTEIN ASSOCIATION

An enthusiastic crowd of representative California Holstein breeders met at Travelers Hotel, Sacramento, on the evening of December 26 and effected a reorganization of the California Holstein-Friesian Association. Fred W. Kiesel, cashier of California National Bank, Sacramento, was elected president. Mr. Kiesel is building up a very large herd of highly bred registered Holsteins along lines that indicate unusually high ideals. Kenneth W. Abbott, Milpitas, was elected secretary-treasurer and is particularly well qualified to fill the position.

A number of important committees are yet to be appointed by the president, but each of these will have a well defined line of activity mapped out, and the rejuvenated association is going to work on broad lines, not only for the advancement of the black and white breed but for the good of the whole dairy industry in California.

Following the election of officers a number of important matters came up for discussion and the session lasted into the small hours.

Plant Apricot Trees

THE commercial planter—the man who plants in large quantities—knows that he must get a profit on his crop. The high prices paid for apricots this past season is but a mere indication of what is almost a certainty in the years to come—and that means profit in a large sense for every grower.

As California has practically a monopoly on Apricot Culture—due to climatic and soil advantages—there are enormous possibilities before the man who plants now.

Be Safe—Be Sure—Plant GOOD Trees

The best prices are always paid for the fancy fruits—and you know that it is folly to expect fancy fruit from inferior trees. Therefore plant the best.

Roeding's True Trees are the Best

Thousands of successful growers all over the West will testify to the exceptional quality of our stock. For a third of a century we have been supplying fruit and ornamental trees and vines—and our stock this year comprises a magnificent assortment not only of Apricots, but everything that the planter wants.

Let Us Advise With You

Tell us what you propose to set out this season—the nature of your soil, etc., and let us advise with you as to what is best suited to your locality. We are always glad to counsel with planters as to the outlook for not only this season, but the coming years, and what are going to be the probabilities of your receiving a profit when your trees come into bearing.

APRICOTS
PEARS
PEACHES
PLUMS
WALNUTS
PRUNES
OLIVES
ORANGES
LEMONS
PECANS
GRAPES, ETC.

Send for FREE Catalogue

Our 1917 catalogue is the most complete we have ever issued. It lists and prices over 2000 varieties of citrus and deciduous fruit and ornamental trees, vines, shrubs and plants. It is attractively illustrated, and contains much that will be of interest to every planter. If you have not already sent for a copy, it will pay you to write for it today.

Fancher Creek Nurseries

Geo. C. Roeding
President & Manager

230 Holland Bldg.
Fresno, Cal.

Gets Every Weed

Mulches and pulverizes, with greatest ease in handling and working. The

"Acme" Foot Lift Weeder

destroys all weeds, cutting deep as desired, and tills perfectly. It's knife edges, presented to the ground at a slicing angle, make draft easy. Foot lift lever clears off the weeds and lifts the blades for transportation. 5 sizes, cutting 5 ft. to 12 ft. wide. Write today for book, *"The Acme Way to Crops That Pay"*. Describes the entire "Acme" line.

DUANE H. NASH INC., 651 Brannan St. San Francisco, Calif.

Disc Harrows

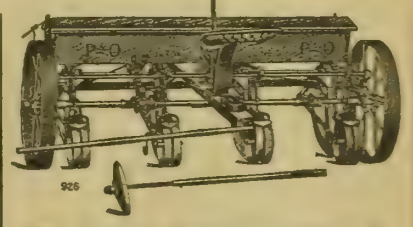
THE ARNOTT DOUBLE DISC HARROW

We have nine distinct styles of Disc Harrows. A Harrow for every use. 3 feet to 12 feet in width of cut. 14 to 20 inch discs, solid or cutaway. No assortment so complete. Call and see them or write for catalogue. We are headquarters.

FIELD HARROW 4 TO 12 FT. WIDTH

ARNOTT & CO., Inc., 112-18 S. Los Angeles St., Los Angeles

P & O
Beet Seeders



926

To Get a Perfect Stand of Beets use a P & O

Will plant any required depth. Independent Steel Runner and Press Wheel. Press wheel can be converted into open or closed wheel. Deep feed roll. No cracking of seed. Can furnish 4 and 8-row seeder.

Dixon & Griswold
146-148 N. Los Angeles St. Los Angeles

Established 1888. Twenty-eighth Year.

The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, Jan. 6, 1917

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Those of us who have seen Yosemite only when the primroses are in bloom find little that is familiar in the photograph on the cover page, but now the Valley is open summer and winter, and excepting during heavy storms travel in and out is easy. It is indeed a great privilege to be able to visit that wonderland when the trees are bending under the weight of snow.

SEED FAIRS

Canadian agricultural interests and seed growers are uniting in carrying out a series of seed fairs where seeds, plants and even nursery trees are exhibited. It appeals to us that this is beginning at the right end of the production proposition and is a movement well worth encouraging in this country.

PEACHES PROFITABLE

Peach orchards in California have this year brought to the state more than double the amount of gold they did last year. In fact, last year's returns were $1,800,000, while this year's will be in excess of $3,000,000. There is a seeking after desirable trees. In extensive planting stand by the staples. This holds good in fruit production as well as in other farming operations.

SWINE BREEDERS

Southern California swine breeders are making preparations for a royal good time as well as an opportunity to talk shop at the annual meeting of the California Swine Breeders' Association to be held in Los Angeles January 18. In addition the Western Berkshire people are planning for their congress and sale, to be held in Davis in February. The Berkshire people are surely alive to the fact that it is going to prove a great meeting. The sale will be managed by Mr. Frost of the Swine World of Chicago. In preparations for the coming convention in Los Angeles the breeders are joined by the meat packers.

California proposes to become more self supporting in this matter of production of pork. We venture a guess that the million a month now going out of the state for meat products will be cut in half before many years.

RICE LEASES

Those who expect to lease lands for rice growing are being urged to incorporate in their leases a clause that gives the land owner the power to force the tenant to sell his share of the crop through an association. It is stated that the failure to perfect selling arrangements by the rice association this year was due to the fact that the Hindu, Japanese and Chinese tenants would not join. The result is a low price for the product.

We presume that a copy of a form of lease embodying the sale clause can be secured by writing to Ernest Behr, Willows, secretary of the Rice Growers' Association.

A number of the large land owners in the Sacramento Valley have agreed to insist upon a clause in their leases by which they may control the sale of the entire crop on their lands. Not only the landlord and tenant, but the entire industry, should be benefited by this arrangement.

LIMAS

There are over a half a million, or possibly 600,000 sacks of lima beans in coast warehouses. Practically all of these are in Ventura County. At present prices, $7.50 per hundred, which is the highest ever, this would mean an immense sum to be paid to California bean producers, but there is one fly in the ointment for many producers will not get these long returns. In fact, it is even feared that because some growers who had contracted with the cooperative marketing organization to dispose of their product have failed to keep their contracts, selling to outside buyers, that the association may be compelled to cover its shortage by purchasing at a higher price. Presumably the association will hold those who have violated their contracts for this loss, but many of them may be irresponsible. Every cooperative organization should make its contracts ironclad in order to protect those who are true to cooperation from those who are simply looking for momentary advantage.

BETTER QUARANTINE.

The fruit growers of the state are thoroughly alive to the need of a revision of the horticultural laws. Live stock interests do not appear to be so much in earnest as to their situation. In one particular, that of prevention of hog cholera, there has been lethargy in protecting the interests of the swine breeders. One county might have serious infections of hog cholera and yet shipments of hogs be permitted from that county to others. There is no quarantine against other states, and it appears that more power should be given to the state veterinarian or to some other body of the state in the control by quarantine where necessary.

If California is to become, as now appears, a great live stock state, there must be greater care in these particulars. Other states where the live stock industry is important are much more careful than is California.

GOOD READING.

Some of the best "copy" in this and every issue of the California Cultivator is to be found in the advertisements. Is there a new implement?—it is advertised. Has the nurseryman discovered a new and improved fruit?—it is advertised. Has the dairyman a cow which is beating all other cows in the world and making a record which shows her to be a money-maker for her owner?—it is advertised, for the owner knows that other dairymen will wish her kind. Does the grower of pork find a prize-winner which the best of judges have declared shows all the marks of turning a small amount of feed into a large amount of profitable pork?—it is advertised. Any agricultural accomplishment of worth is sure to appear in the advertising columns of the Cultivator, and be assured this class of reading matter is always of an optimistic nature, so as a mere suggestion this Christmas season, read from the first to the last advertisement in this issue of the Culitvator and see if you do not enjoy the reading. The up-to-date producer does this. He is impelled to by his desire for success, and success comes with the adoption of the most efficient methods.

Agricultural Notes

In citrus canker control in the Southern States the federal Department of Agriculture has in the past year employed 634 people.

Manchuria is expected to export 2,000,000 tons of beans of its 1916 output. The crop in some districts is 50 per cent larger than in 1915.

All orchardists of New Zealand are required to register all fruit trees so that they may be inspected by government officials for disease or insect pests.

Much study is being given in New Zealand to finding most profitable beef cattle to raise. The marketing of young beef is a large industry there and steadily increasing.

Exports of 1916 cotton from the United States up to December 9 have amounted to 2,715,265 bales. This is almost 1,000,000 bales in excess of amount exported in the same period last year.

A lot of Porto Rican and Jamaican oranges were last week destroyed in New York by the health department because they were "much too ripe for consumption." The loss to shippers is $50,000.

The export of frozen meat from South Africa is assuming large proportions. The total export of frozen meats amounted to 3,000 tons in 1915; this amount was equaled this year by one shipment.

Under a farm loan act, passed March, 1915, 464 farmers of British Columbia have received loans from the government amounting to over a million dollars. Long terms loans may run 20, 30 and 36½ years and on the amortization plan.

Depredations of predatory animals accompanied by outbreaks of rabies among them in parts of Oregon, California, Nevada, Idaho and Utah resulted in the shooting, trapping, and poisoning of over 11,000 coyotes during the last fiscal year by hunters in the employ of the biological survey of the United States department of agriculture. Altogether over 15,000 noxious animals, including wolves, coyotes, mountain lions and bobcats were destroyed.

Big Ben

A Westclox Alarm

FIVE A. M. for factory men who beat the time clock at the works.

Big Ben gives 'em their breakfast call long before the whistle toots. They used to pound the pillow right up to the last dot—until they learned a better way—as the paymaster soon found out.

Give Big Ben a trial, *yourself;* make *your* roll-over-time pay.

You'll like him face to face. He's seven inches tall, spunky, neighborly—downright good.

At your jeweler's, $2.50 in the United States, $3.50 in Canada. Sent postpaid on receipt of price if your jeweler doesn't stock him.

Western Clock Co.
La Salle, Ill., U. S. A. Makers of *Westclox*

Other Westclox: Baby Ben, Pocket Ben, Bingo, America, Sleep-Meter, Lookout and Ironclad

WOOD TANKS
for Water, Oil, Wine, Mining and Cyanide
Pacific Tank & Pipe Company
Manufacturers
WOOD TANKS and PIPE
Wood Pipe for Irrigation, City Systems, Mining, Power Plants
Let Us Figure on Your Requirements. Address Nearest Office
Pacific Tank & Pipe Co.
Factories: San Francisco, Los Angeles
Offices:
310 Market St., San Francisco
907 Trust & Savings Bldg. Cor. 6th & Spring Sts., Los Angeles, Cal.

Contract Orchard
BLASTING
John R. Stafford
COVINA - - - CALIFORNIA

CHUBBUCK'S IDEAL GOPHER TRAP
Larger than runway; jaws pull rodent in; catches large or small gopher and holds it. Farmers say it's worth dozen other makes. Big sales. Price 50c. If not at your dealer's will send it to you postpaid; 2 for 95c; 6 for $2.70; 12 for $5.10. Money back if you are not satisfied. Free circulars.
E. J. Chubbuck Co., Dept. A San Francisco, Cal.

Every time you buy an article, advertised in the California Cultivator, at the local store you do your town some good.

Agricultural News Notes of the Pacific Coast

Northern California

Market Director Weinstock has begun working on the stock marketing problem.

The California Swine Breeders' Association will hold its annual meeting at the University Farm at Davis in May.

Dr. Keane, state veterinarian for many years, has been reappointed by Governor Johnson for another four years.

Potato growers of Fruit Ridge are forming an association. They are giving special attention to producing certified seed potatoes.

Orland orange growers are considering the necessity of planting eucalyptus windbreaks along the windward side of their orchards.

The university farm will consign several Berkshires to the sale held during the meeting of the Western Berkshire Congress at Davis, February 15.

The Alameda Sugar Company will plant nearly 10,000 acres of sugar beets in District 70 of Sutter County. The beets will be shipped to Hamilton and Alvarado factories.

The prospect for a very heavy 1917 crop of both almonds and prunes in the Lodi district is good, as all the orchards are very heavily set with fruit buds at this time.

A letter from Paradise, Butte County, states that last week's frosts apparently did no injury to Paradise olives and that the olive harvest will go on without interruption.

The Citrus Association of Orland, Glenn County, has its grader installed and is packing oranges. Considerable fruit is reported to have been blown off the trees and made unfit for shipment.

The Loomis Fruit Growers' Association, at its annual meeting, elected as directors: J. Ferguson, B. Mehl, G. Brown, C. Mazal, N. Hansen, R. Nixon, R. T. Cook. Manager Nagel of the California Fruit Exchange addressed the meeting on the subject of marketing.

Central California

The Tri-state Poultry Breeders' Association had 900 entries.

Three dairymen of Hughson, Stanislaus County, were fined for maintaining unsanitary dairies.

It is rumored that the Santa Fe will build a branch across the mountains from Porterville to Johannesburg.

The annual state convention of the farmers' union opened December 18 at Hotel Hughson, Modesto. President C. S. Barrett of Georgia is one of the principal speakers.

The Tulare County exhibit at San Diego will be removed to Los Angeles, where part of it will be installed at Exposition Park and part of it at the chamber of commerce rooms.

Stanislaus County maintains her lead as the biggest butter producer in the state with 9,980,021 pounds of butter the past year. Imperial is her nearest competitor with 6,780,552.

The Acampo Fruit Growers' Association has this season shipped 52 carloads of grapes, which averaged $1308.84 per car. The shipments were considerably cut down by the frosts of the early part of May.

The Turlock Merchants and Growers' Association handled about 50 per cent of the cantaloupes, peaches, Egyptian corn and beans of the Turlock section. The balancing of the association books shows a most successful year.

A large dairy ranch is being developed on the old Gray Brothers ranch between Oakdale and Knight's Ferry, in Stanislaus County. Six hundred acres are being seeded to alfalfa and 500 head of pure-bred Holsteins will be installed.

Beans in Stanislaus County are 95 per cent harvested, only slightly damaged by fall rains. They made an average yield of 18 to 25 sacks per acre. One farmer reports at $120 yield of teparies to the acre. According to present outlook, there will be over a 50 per cent acreage increase in this crop in the county next year.

Southern California

Ventura orange growers used smudge pots last week during the cold weather.

Chula Vista, San Diego County, reports having so far escaped all damaging frosts.

The Covina Heights Groves Association expects to ship 150 carloads of oranges the coming season.

It is announced that the Italian Vineyard Company is planting a large part of its vineyards to English walnuts.

Ventura County supervisors are reconsidering their action in refusing to appropriate funds to continue the farm adviser work.

The Almond Growers' Association of Banning held its annual meeting on December 5. It has shipped out for the season 240 tons of almonds.

Over a half million bags of Lima beans are estimated to have been stored in local warehouses in bean districts of Southern California on December 1.

Imperial County, for the year ending September 30, produced 6,780,552 pounds of butter, a gain of nearly 450 pounds over the production of the previous year.

The recent annual meetings of the Covina Orange Growers' Association and the Covina Citrus Association show profits to the growers to have been the largest in 11 years.

The Covina Heights Groves Association is rebuilding the packing house destroyed by fire the last of October. It will be thoroughly up to date, equipped with the most improved machinery.

At the recent annual meeting of the Placentia Orange Growers' Association it was reported that 214 more carloads were sent out than during 1915. The estimate for the coming season is 1050 carloads.

More than 60 orange growers attended the orchard demonstration on Rancho Sespe recently when Manager Fleet took the growers all over the citrus orchards, explaining cultural methods.

The Coast

The Idaho Honey Producers' Association will hold its annual convention at Twin Falls, January 8-9.

Twelve of the largest dairies of Seattle have incorporated as "The Seattle Milk Dealers' Association."

Farmers of the district about Puyallup, Washington, recently held a farmers' public sale which was most successful.

The Colorado Farmers' Congress will be held during the week of January 15-20 at the agricultural college at Fort Collins.

There are 200 entries of laying pens in the egg laying contest being conducted at Pullman, Washington, by the state college.

Nine big wells are to be sunk on the 10,000-acre cotton plantation of the Goodyear Tire Company, near Chandler, Arizona.

The annual Farmers' week of the University of Idaho will be held at the college buildings at Moscow, Idaho, January 25-27.

The agricultural college of Colorado reports many cattle dying that are pastured on fields of corn stalks and given insufficient water.

A sugar factory will be built at North Yakima, Washington, during the coming summer. It will be equipped with a dryer for beet pulp.

Some complaint has been made from the Seattle market of frost-bitten potatoes received from California. The potatoes decay almost as soon as received.

There was a grain convention at Pullman, Washington, January 2-4, when grain growers, shippers and millers gathered to discuss bulk handling of grain, control of smut, use of tractors, etc.

Seattle egg dealers say that the Chinese eggs being received this winter are practically all white shelled, whereas formerly they were dark shelled. The Chinese have very quickly caught on to the American preference for white shells. Also, it is harder for the purchaser to detect their Chinese origin.

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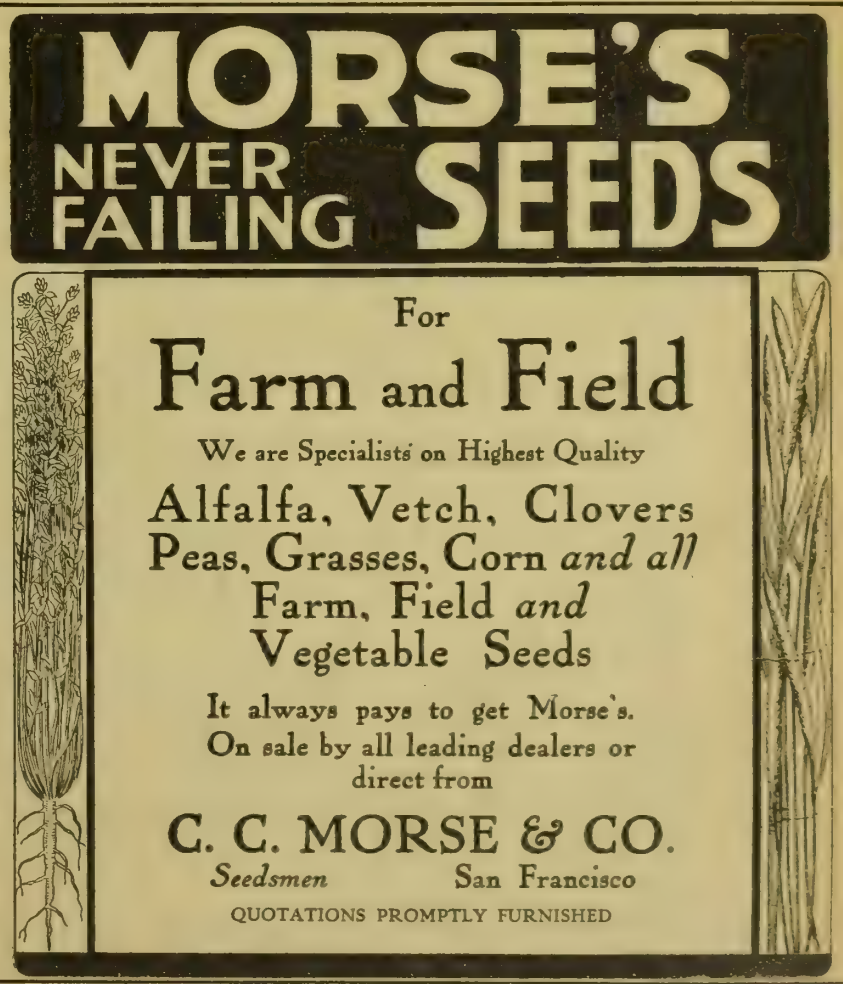
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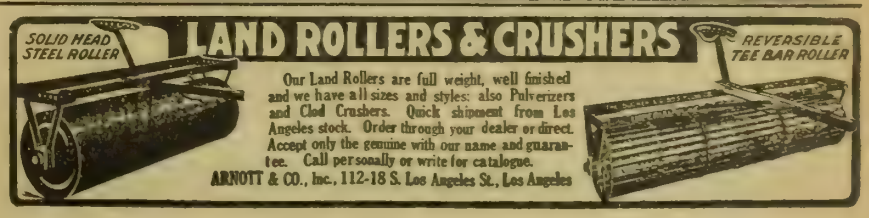
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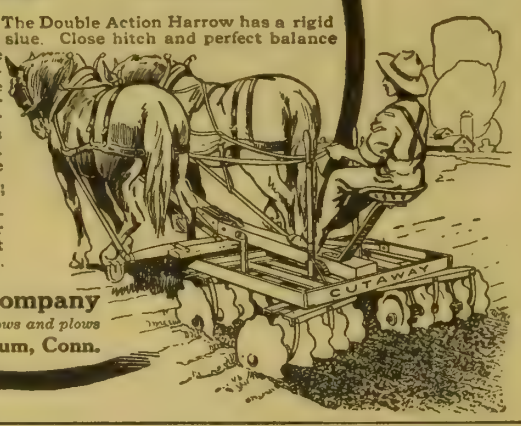

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Silos in Stanislaus County

Written for California Cultivator By C. M. Conner

STANISLAUS County will produce nearly 10,000,000 pounds of butter this year, which places her in the foremost ranks as a dairy county. The silo being an important factor in economical feeding of dairy cows, a campaign was started through the farm bureau centers to encourage the construction and use of silos. At the close of the season of 1915, 130 silos were in use in the county. At the close of the present season we have 306. These vary in size from 40 to 150 tons, but the average tonnage is about 83. The average cost of filling a silo in this county, counting the cost of cutting, hauling and running through the cutter, is about $1.07 per ton. Eighty per cent of the farmers last year filled their silos with Indian corn.

Silos in Stanislaus County

Below the cheaper type of resaw, not so enduring as the type in upper illustration.

The silo provides a means of preserving food for cattle in such a state that it remains palatable and easily digested. It does not increase the amount of digestible matter in corn or barley or whatever the silos are filled with, but preserves it in a state similar to the green forage. The materials are preserved by their own heat and the formation of acids. When the silage has once reached the proper stage of fermentation it will keep for a long time provided air does not get in. Henry reports that instances are on record where silage 12 and 14 years old has been found in good condition.

There are many forms of silos and many kinds of materials used in their construction, but the main essentials are that the walls be air tight and perpendicular and of such strength that they will not be pushed out of line by the weight of the silage.

The dairymen in this county are beginning to appreciate the value of the silo in keeping the production of the farm up to the top notch and in keeping their animals in better health. This is particularly true in the irrigated sections where alfalfa only lasts about six or seven years. When the alfalfa is plowed up it takes about two years' cropping to get the land in shape to reseed to alfalfa. If no silo is available the crops grown on this land must be grain or hay crops. If these are sold as grain this of necessity reduces the number of animals that may be kept on the farm during the time the land is being put in shape for reseeding to alfalfa. If the dairyman has a silo he should adopt a sort of rotation, that is, he should plan to plow up about one-sixth or one-seventh of his alfalfa each year. He should also aim to get the most out of his stable manure by putting it on the land that is to be plowed, in order that it may be incorporated into the soil where the plant can make full use of it. The old alfalfa land may be plowed in the fall and sown to barley or oats. If this can be done early enough, say by the first of November, vetch may be sown with the grain crop. This crop may be cut with a binder and put into the silo. Do not cut too green, let the straw get a little color. Plow the land well, water after plowing, cultivate thoroughly and plant to Indian corn. If the land is of average fertility and the water supply is right this practice should give more feed per acre than would have been obtained from the alfalfa. Some of the dairymen in this section are getting ten tons of silage from the grain crop and 15 to 18 tons from the corn crops.

On the drier lands sorghum may be grown during the summer as it makes good silage and will grow with less water than field corn. It should not be put into the silo until the seed is ripe. With the double cropping system it sometimes happens that the frost catches the corn, but little or no losses have occurred on this account as the frosted corn makes very good silage provided it does not stand too long after being frosted.

When the corn has dried out considerably on account of the hot winds or from any other cause, water should be used to restore the material to the normal condition. If there are no dry leaves or dry stems no water need be used. Some have poor success putting first cutting of alfalfa into the silo. Most of the failures may be attributed to the use of too much water, which causes the formation of too much acid and may also cause the silage to become soft. Alfalfa is one of the few plants that is better cured as hay than made into silage whenever the weather conditions will permit.

Working the Auto

The silo cutter on the ranch of Mr. Barton at Escalon being operated by power furnished by the auto. The lower picture shows method of transmitting the power.

When the dairyman feeds his cows on alfalfa hay exclusively he is feeding an unbalanced ration; for example, a thousand-pound cow giving one pound of butter fat per day will eat about 30 pounds of alfalfa per day; this will contain 3.2 pounds of digestible protein and 12.8 pounds of carbohydrates. The cow actually required

2.5 pounds of protein and 14.1 pounds of digestible carbohydrates. By feeding 20 pounds of alfalfa and 30 pounds of corn silage you get a more nearly balanced ration. Not only do you gain in this way but you induce the animal to eat more by providing a change of diet. Very few dairymen feed grain and then only to heavy producers.

Only a few of the farmers have their own engines and cutters. Most of the filling is done by contract. The corn binder is coming into use for cutting the corn in the field and binding into bundles, which makes it easy to handle. I has also been found profitable to cut oats and barley with a binder as it can be fed through the cutter much more economically than if cut with a mower. One dairyman has rigged up an attachment to his auto and used it to fill a 150-ton silo. He extended the crank shaft far enough in front to clear the wheels, and by providing another bearing and braces he was enabled to use all the power of his engine. Rigged in this way he ran a 12-inch cutter and blew the silage over a 30-foot silo.

Vegetable Planting in North California

Written for California Cultivator By A. R. Gould

THE timely rains have been of greatest assistance, putting much of the land in shape for plowing or digging later on. This is a busy month for extended sowings of many subjects started in December, and we also endeavor to get as much available ground in shape for cropping.

Peas

Make successional sowings of those mentioned last month, also sow the following: Telephone, Stratagem, Senator, Alderman and Horsford's Market Garden.

If you have an orchard and wish to have plenty of peas to pick later on, providing this has recently been plowed and put in shape as it should have been ere this, you would serve a double purpose by sowing a few long rows through the orchard three or four feet apart. It will take two pounds of seed for a 100-foot row. Such a leguminous crop will leave the soil much better than before and will come in useful as a food crop. Since the more recent rains the orchard may be in some situations too wet for this but watch for the opportunity which may come later.

Onions and Leeks

The following varieties of onions may be sown this month; Ailsa Craig and Prize Taker, both large fine flavored onions and good keepers, Australian Brown, a fairly early type, Brown Globe (Morse selection), a very fine market onion, and Southport Yellow Globe, good cropper. Remember that half an ounce of seed will sow 100-foot row.

Leeks are not nearly so popular as they might be, and used in soups or served up in other styles they are a first class vegetable. Seeds of these should be sown now in boxes or in a small seedbed in the garden. Sow the seed in rows or broadcast, and when the seedlings are six to eight inches high transplant or thin out to four inches apart. Trenches 18 inches deep should now be prepared for the leeks and manure well mixed in with the soil at the bottom of the trench which can then be filled up to within ten inches for planting. The best varieties are Dobbie's Champion and American Flag. For cultural hints on producing fine well blanched leeks follow these monthly notes.

Carrots

A sowing of the French forcing variety and Danvers Half-long may now be made. See that your soil is fairly rich and not too heavy. One ounce of seed will sow a row 100 feet long. Do not sow your seed too thick.

Cabbage, Broccoli and Kale

Seeds of all these may now be sown on a well prepared seedbed and in a few weeks sturdy plants will soon be ready to plant out. Sow the following varieties for cabbage; Early Jersey, Wakefield and Early Winningstadt; Broccoli, Early Large White; kale, Dwarf Curled Scotch, Tall Green Curled and Jersey. Plant plenty of the later variety for chicken feed.

Turnips

Sow now for early use on well manured soil the following varieties: Early Snowball, one of the very best and not too large; Early White Milan and Early White Flat Dutch. Sow half ounce to 100-foot row.

Lettuce

Make further sowing of Big Boston, Early Curled Simpson and White Paris Cos.

Herbs

Secure plants of the following and plant in a corner reserved for them: Mint, thyme, sage, sweet marjoram and chives, all useful flavoring agents.

Parsley

Make a sowing of this and if sown around the borders of your garden it will also help to beautify. Best varieties are; Champion Moss Curled and Double Curled. Sow quarter of an ounce to 100 feet.

Ornamental Planting in No. California

Written for California Cultivator By Albert R. Gould

Roses—New Varieties

The rose beds should have ere this been dug, manured and the roses pruned and any vacant places should now be filled or new roses added to the collection. If the above work has not yet been attended to through pressure of work in other sections of the garden, get on with it as soon as possible, and if you have any very old roses of bush habit and you have not been getting good blooms from them or maybe they are developing rose rust, then grub them out and burn them. The ashes of these are more valuable as manure than the roses.

Now we will assume that the reader has a fairly good collection of the older varieties such as La France, Maman Cochet, Paul Neyron, Alfred Colomb, Capt. Hayward, Ulrich Brunner, Mrs. J. Laing, Magna Charta, Gen. Jacqueminot, K. Augusta Victoria, Baroness Rothschild, Gruss an Teplitz, Frau K. Druschki and Caroline Testout, all good roses, and that the desire now is to secure some of the latest and above all those that are unique in color and beautiful in form.

Keep your roses in a vigorous, healthy condition and spray early in spring with lime-sulphur, discard old bushes and prune when necessary and you will have prize blooms. Do not think, however, that you could prevent your roses from being attacked altogether by mildew. If you could control the sudden changes in the climate you could also control mildew, but we have no such power and we can only fortify our plants against these things. Such is our practical experience.

In the extreme northern part of the state and those other sections where the frosts are severe it is advisable to cover the ground around the roots with manure having plenty of straw in it and straw or some hay may be used to cover among the branches as a light protection.

Flowering Trees and Shrubs

Plant these now or secure for planting next month a few of the best for early flowering; Cercis Canadensis, "Judas Tree", Cornus Florida, large white flowers; Cerasus Japonica rosea pendula, weeping cherry; Cerasus, James H. Veitch, large double pink flowering cherry; Andromeda Japonica, drooping white blossoms; azaleas and rhododendrons in variety. We hope to deal with a larger selection of hardy shrubs, also conifers next month.

Continued on Page 19

Bigger Crops by Blasting

"The O'Connor prune orchard in the Santa Clara Valley was blasted in 1913," says the California Cultivator. "Its largest crop in six years was 3,900 pounds. After blasting the crop was 8,000 pounds—more than double—in a dry year. The prunes from the blasted orchard were much larger and the trees made a better growth." By using

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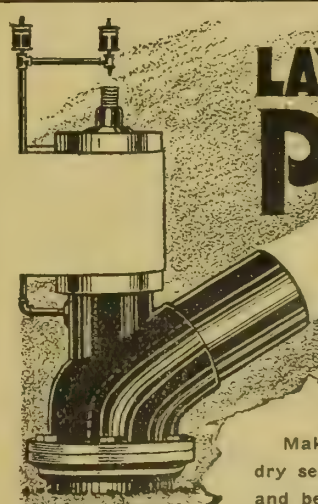

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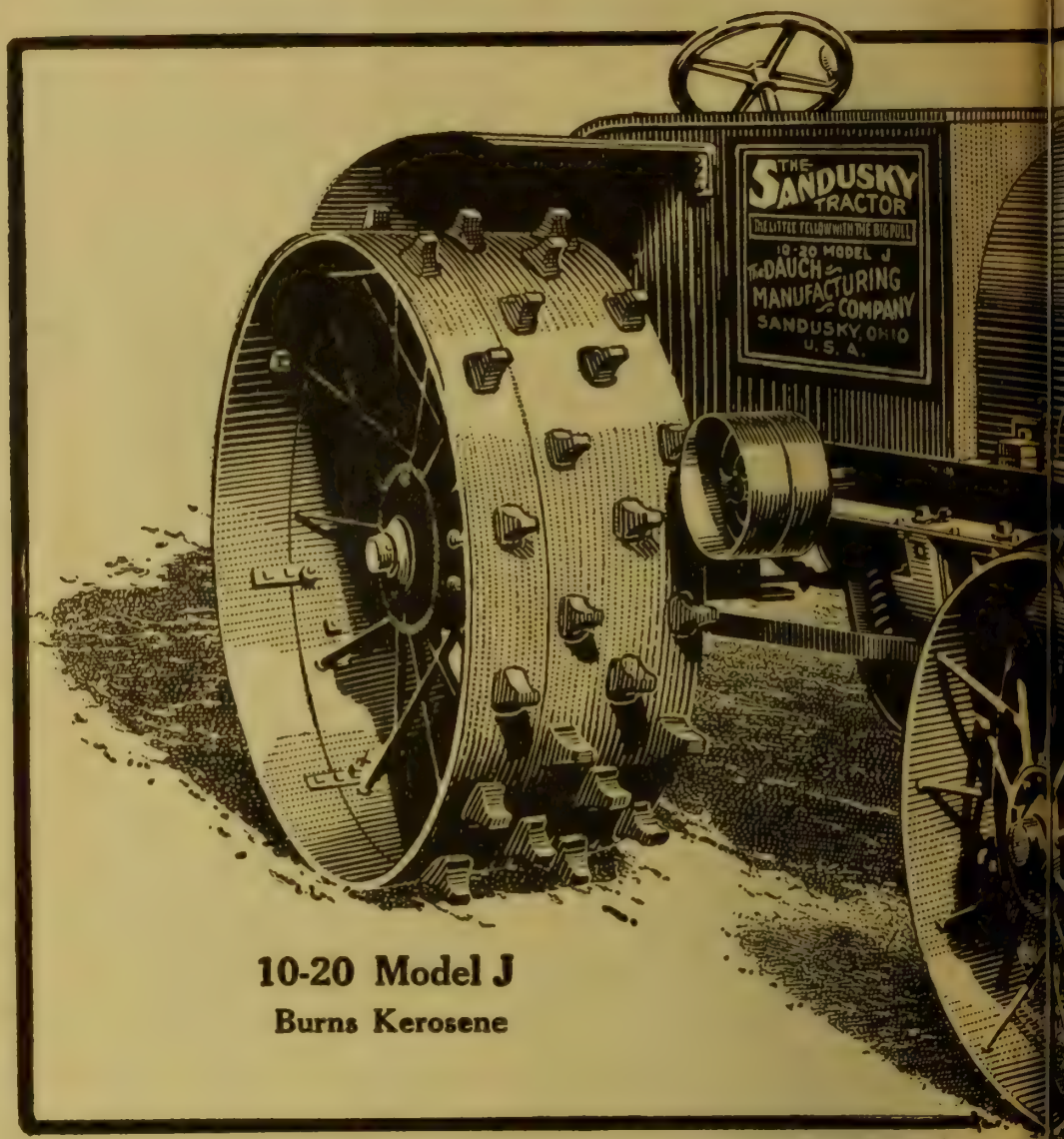
At our first conference, three years ago, covering such plans the argument was advanced: "Why not build a small *cheap* tractor which will sell itself on account of its low price?"

Our *manufacturing facilities* would enable us to do this on a large scale, But this did not accord with the *policies of our President,* Mr. J. J. Dauch, who personally controls seventeen large manufacturing establishments throughout the United States and Canada, each operated on the basis of "quality always."

This point having been determined, our first small tractor was designed and built. Farmers who saw this model wanted it; so it was with the second. From every indication these machines were far ahead of what was then being marketed. But they did not measure up to our ideal—a small tractor that we could afford to back with a binding guarantee; one that we knew would maintain the reputation thoroughly established by our larger machine.

The result is a tractor embodying our utmost efforts—not toward reaching a low price machine, but one to fill the need for a good tractor capable of real service at as low a figure as modern manufacturing facilities can produce and an efficient organization can market.

Engineers of world renown have approved its design, incorporating the famous Timken worm and gear drive, as representing the ultimate standardized small tractor. Years will prove that this Company has again set the pace of leadership in the Model J, as has been true in the case of our Model E.



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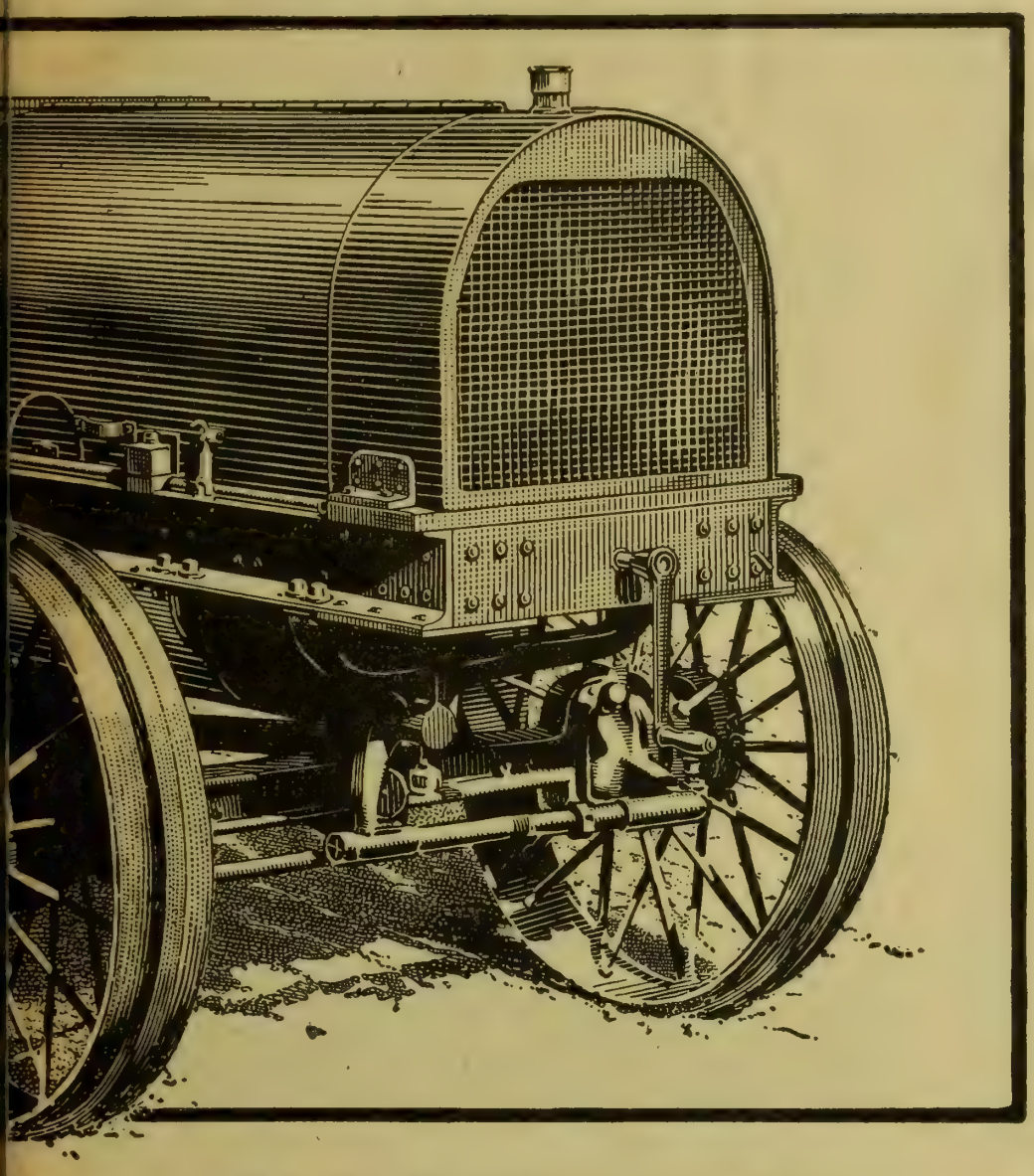

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TO his engineers Mr. Dauch said: "We are not interested in the manufacture of a *cheap* tractor. Our manufacturing and sales organizations are imbued with the *quality* idea embodied in our Model E. We cannot afford to demoralize these influences by putting out an inferior product merely to meet price competition."

These thoughts, together with the fundamental principle that this tractor must be adapted to the widest possible range of usefulness, dominated the development work in all its stages.

As a consequence the service which this tractor will render, the results it will produce in dollars and cents, the economies of labor which it will effect on your farm, make its purchase a profitable investment. The brief specifications below, and the more detailed description in our booklet, prove to any man that this machine offers a greater value per dollar than elsewhere obtainable.

Compare the Model J power plant with others. Consider its light weight—only 4,000 pounds; its Timken worm and gear drive, which actually increases in efficiency with use; its Hyatt Roller Bearing equipment. Remember that bevel gears and ordinary bearings mean friction, wear and loss of power. Remember our guarantees are based on the use of kerosene as fuel. Think! The result will draw your good judgment to this tractor like a magnet.

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It will be physically impossible to meet the tremendous demand of those who wait until their field work is in progress. We therefore urge you to write us at once, fully outlining your requirements. This will not obligate you in any way.

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Continuing the policy created by us in the sale of our 15-35 Model E Sandusky Tractor, we will put the 10-20 Model J on your farm, demonstrating its ability to fulfill our guarantees under your own local conditions, and personally instruct you in the handling and care of this machine. It must prove itself profitably adapted to *your* requirements before you buy.

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The 10-20 Model J Sandusky Tractor offers an exceptional opportunity to high grade dealers who will stock this machine on protected territory contracts. We want men of quality to represent us—men who are abreast of the times, in position to give service to our customers, and willing to give the time and energy required to build up a real business. For such men we have an attractive proposition.

Look for this announcement in the principal farm papers. It will be followed by the greatest big-space advertising campaign ever put back of a tractor. This in itself will create a big demand for you. Send for our dealers' prospectus. It outlines in detail the policies underlying this establishment; also our complete plans for such co-operation as will rapidly develop this account into a good-paying, permanent business for you with ever-increasing opportunities.

Write today—better still, wire territory reservation.

Get Rid of Worms!

Many animals, especially hogs, are troubled with worms. When your hogs are unthrifty, you hear a little cough now and then, suspect worms.

Dr. Hess Stock Tonic

Keeps Hogs Healthy **Expels Worms**

So sure am I that Dr. Hess Stock Tonic will keep your hogs healthy and expel the worms, that I have authorized my dealer in your town to supply you with enough Tonic for your hogs and, if it does not do all I claim, just return the empty packages and get your money back.

My Stock Tonic is not a feed, but a true conditioner and tonic, highly concentrated, which contains blood purifiers, laxatives and drugs which are powerful worm expellers. Feed in small quantities, watch your hogs improve.

NEVER PEDDLED. SOLD ONLY BY DEALERS.
28,000 reliable dealers in U. S. handle it. Why pay the peddler twice my price?

25-lb. Pail, $2.25; 100-lb. Sack, $7.00

Smaller packages as low as 65c. Valuable stock book mailed free, if you write for it.

DR. HESS & CLARK, Ashland, Ohio

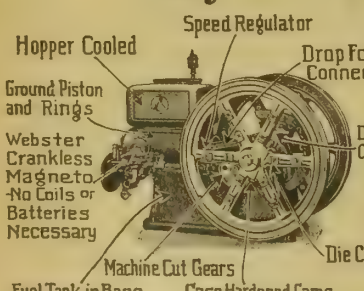
Dr. Hess Poultry Pan-a-ce-a conditions fowls, makes hens lay and is a great help at moulting time. Valuable for chicks, for pullets starting to lay and for all grown fowls. Costs a penny for 30 fowls per day. 1½ lbs., 25c; 3 lbs., 50c; 7 lbs., $1.00; 25-lb. pail, $3.00. *Guaranteed.*

Dr. Hess Instant Louse Killer A reliable lice killer, very quick acting. For use on poultry and stock. Use by dusting and sprinkling. Destroys bugs on cucumber vines, cabbage worms, slugs on roses. In handy sifting-top cans, 1 lb., 25c; 3 lbs., 60c. *Guaranteed.*

Write Dr. Hess about any sick animal or live stock trouble, enclosing 2c stamp. He will advise you free.

When you Buy a GAS ENGINE

—see that it has these features.



This is the HERCULES FUEL OIL ENGINE

made in sizes 1½ to 12 H. P.

Write or call for complete literature

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SMITH-BOOTH-USHER CO., Los Angeles

Machinery, Supplies, Pipe and Fittings

A Guernsey Grade Cow in Springfield, N. Y., PRODUCED in one year 13,388 lbs. of milk and 755 lbs. of butter fat, EQUIVALENT TO 878 lbs. of BUTTER.

USE A GUERNSEY BULL on your grade herd and you can produce such cows

Write us for booklets and names of breeders

THE AMERICAN GUERNSEY CATTLE CLUB
BOX P.C. PETERBORO, N. H.

There are many reasons why you should always buy advertised goods. They are guaranteed.

Live Stock Prospects

Written for California Cultivator By W. S. Guilford

IT seems to me that there are very bright prospects for the pure-bred live stock industry in California.

We certainly have the greatest feed and climatic conditions on earth for this business, and all classes of people are rapidly coming to a full realization of the great need for more and better live stock.

There is great activity in many of the breeds, and the time when the East will come to the West for breeding stock is nearing a reality.

The winning of the University of California steers and wethers was worth thousands of dollars to the live stock industry of the state, and it should be followed up another year by a big show of fat stock and breeding animals at the International.

California Shorthorn Breeders' Association

The California Shorthorn Cattle Breeders' Association was organized December 11, 1916, at San Francisco. The following officers were elected: A. W. Foster, San Francisco, president; A. N. Hawkins, Hollister, vice president; Daniel Stollery, San Francisco, secretary-treasurer. Among the charter members are Geo. Murphy, H. L. Murphy, E. H. Murphy, Thos. Gibson Estate, Wm. Bond, T. S. Glide, A. W. Foster, A. N. Hawkins, Paicines Ranch, and others.

The annual dues will be five dollars and the annual meetings held in San Francisco the second Monday in December. Publishers and editors of farm papers will be associate members of the association.

The advisability of a big live stock show for San Francisco in 1917 was discussed at some length, and it was the concensus of opinion that it is essential to the industry that such a show be held. It was also considered advisable to hold a consignment sale of Shorthorns in the near future.

There is a big field for Shorthorns in California and there is need for many more good herds.

Pedigree Stock Guarantees

I spent a day in Sacramento recently with Chas. L. Hughes, who is the live stock representative of the Cultivator and manager of the big pedigree stock sales organization organized this year at Sacramento. And as we discussed California live stock conditions in general and the affairs of this sales organization in particular, I wondered if every Cultivator reader fully realizes what this may mean to the pure bred live stock industry of California.

In the first place those who founded the organization; Fred Kiesel, Jim Henderson, the Morrises and the others, are as big men as there are connected with the live stock industry in America today. All of these have not only a full realization of the needs of the state in the way of pure bred stock, but they know the responsibilities of the breeder and seller of pedigreed animals.

They know that an animal must be right in every way, that it must be the one the pedigree calls for, that it must be absolutely healthy insofar as it is possible for the state veterinarian to determine, and that the records must be correct. No animal will be accepted for sale that cannot comply with these requirements no matter who the breeder or the owner may be.

I was very glad to learn that the plans of the organization contemplate the conducting of sales of all classes of pure bred animals, cattle of all breeds and horses, sheep and swine. There is need for this work, and it will soon be one of the big factors in California agriculture.

Tramp Dogs

There are a lot of ownerless tramp dogs in almost every rural community and particularly around small towns. They are half wild brutes, and necessity makes them very smart in rustling food. And when they get started to killing sheep they are very effective agents of destruction.

I know a sheepman who makes a business of locating all such curs and killing them. By so doing he is doing a great service for himself and for his neighbors.

There are plenty of other dogs, owned by townspeople and farmers, that are of no use and that because of their idleness frequently become sheep killers. But these worthless dogs are often highly prized as pets. Owners should be required to look after such animals carefully.

Well Groomed Dairy Cows

Cleanliness is essential in the dairy.. Where one keeps pure breds in which he takes pride cleanliness and best of care comes as a matter of course.

Feeding Rice and Rice Straw

There is a good deal of inquiry about the feeding of rice and rice straw, and there are reports in circulation to the effect that these feeds are dangerous. It is stated that both cattle and sheep fed rice and rice straw have died as a result.

Bad results have occurred when cattle have been fed nothing but rice straw for a considerable period. They simply become "plugged up" with this dry, woody substance, causing constipation and sometimes death.

Then sheep have been lost by turning a hungry band on rice stubble on which there was a large quantity of heads and kernels of rice. Animals not used to grain are often lost when put on full feed too quickly, and this is what happens in the rice field. It also happens when sheep are given all the corn they can eat at the beginning of a feeding period, and it happens when sheep are turned on rice, barley or wheat stubble.

But thousands of tons of rice straw and thousands of sacks of paddy rice are being fed now in the Sacramento Valley. Paddy rice is the threshed grain before the outer husk or shell has been removed by milling.

Horses, mules, cattle and sheep eat the straw quite readily, and there seems to be no reason why it cannot be used as a part of the ration of work stock and cattle the same as any other kind of straw.

And in this capacity it is helping out a great many farmers who are short of rough feed. Hay is scarce and high in price.

Farmers who have to buy grain are feeding rice to hogs, turkeys and chickens because it can be bought for less than barley or corn.

Hindus and Japs who raised large

"Gee!
But I Have an Appetite!"
A cow that eats poorly usually milks poorly, and any poor milker is a loss. Lost Appetite is only one of the common cow ailments that quickly disappear after judicious use of Kow-Kure, the great cow medicine.
Kow-Kure has a record of over twenty years' success in the prevention and cure of such diseases as Abortion, Barrenness, Retained Afterbirth, Milk Fever, Scouring, Bunches, etc. Most of these diseases spring from disordered digestive or genital organs, and Kow-Kure has strong medicinal qualities which tone up and permanently strengthen the entire system.
A trial is convincing. Kow-Kure is sold by feed dealers and druggists, in 50c and $1.00 packages. Write for free treatise, "The Home Cow Doctor."
DAIRY ASSOCIATION CO.
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KOW-KURE
FOR COWS ONLY
KOW-KURE

GERMAIN SEED & PLANT CO., Los Angeles, Cal.
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Raise Your Calves on

Blatchford's Calf Meal

and Sell the Milk

More calves have been raised on Blatchford's Calf Meal than on all other milk substitutes combined.

100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk. Prevents scouring and insures the early maturity of sleek, handsome calves. It is steam-cooked and no trouble to prepare or use.

Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or Blatchford Calf Meal Factory, Dept. 5 Waukegan, Ill.

AGENTS FOR

Blatchford's Calf Meal

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HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families. Some of serviceable age.

REGISTERED BERKSHIRE PIGS

Masterpiece, Longfellow and Robin Hood Strains. Fine individuals of both sexes—we pay registration fee. Careful attention given to mail orders.

Whittier State School
Whittier, Calif.

erkshire Hogs—Milking Shorthorns
Breeding Stock For Sale
. A. Murphy, - Perkins, Cal.

Every time you buy an article, advertised in the Illfornia Cultivator, at the local store you do your rn some good.

acreages of rice are selling it at around $1.65 per hundred, making it cheaper feed than barley and corn at two dollars per hundred or better.

Rice in the bundle as it comes from the binder, threshed rice and rice straw has been the exclusive feed of many mules and horses used in the rice harvest, and I have heard of no bad results from it.

Since the rain a couple of weeks ago rice harvesting has been a slow and expensive process. It has been hard to bind, because the straw has been weakened by the rain and frost, and a big percentage has been left in the fields. In some places the fields are so muddy that it has been necessary to haul the bundles in to the machines on sleds, 15 or 20 bundles to the load. Threshers have increased the price of threshing to 30 cents per sack, the hauling cost has been increased, and some of the late rice will not sell for enough to pay the harvesting and handling cost. And much of the rice straw that is being threshed now is so nearly rotten that it is of little value. The lesson in this for next year is that the crop should be in early so that it can be harvested early. And any who want rice straw should fill their barns with the first threshing of the season before the fields are impassable and the rain rots the straw.

SAVED BIG MONEY IN BUYING DAIRY FEED

The following we find in "The Extension News," published by the Oregon Agricultural College at Corvallis. It is certainly worth considering.

Members of the Turner, Marion County, Cow-Testing Association let their association make them some easy money. They have known for a long time that feeding dairy cows makes them money, but they have just learned by practice how to make $5.37 more than ever before on a ton of mill feed. It was done this way:

Each of several men needed a few tons of mill feed and each knew that the others needed it. The tester for the association, Mr. Hanneman, took the lead and found out how much feed was needed, and despite their own excuses, such as "no place to store feed" and "no money to buy feed," they got together an order of 40 tons of bran and shorts. The local mill man was able on this large cash order to supply the feed at $25 for bran and $26 for shorts, while he charged $31 to the man who took a few sacks at a time and wanted 90 days in which to pay. The feeder who buys bran at $31 never gives the cow the amount of feed she would pay for, because he is paying 24 per cent interest on the $25 the feed could have been bought for. The man who had to go to the bank and borrow $75 in order to buy three tons of bran cooperatively with his neighbor, if charged 10 per cent interest for a 90-day period, saved $5.37 on each ton of feed bought and made it easier for the dairy cow to show a substantial gain over her cost of keep.

SUCCESS TO THE SHORTHORN ASSOCIATION

A much needed organization came into being when the California Shorthorn Breeders' Association was recently formed in San Francisco. The Shorthorn interests are more extensive in California than the average man realizes, and it is high time that some concerted action be taken by the breeders of the state to still further spread the good influence of the Shorthorn breed throughout the farms of the state. The new association begins its work under the direction of a particularly strong directorate and its work should prove of high value to California agriculture.

AYRSHIRE ANNUAL MEETING

The 42nd annual of the Ayrshire Breeders' Association will be held in New York, January 11, at Hotel McAlpin. C. M. Winslow of Brandon, Vermont, is secretary.

A reasonable degree of diversity is necessary for successful farming. Unless special or unusual conditions justify a highly specialized type of farming, a farm should have several sources of income to depend on. A man who is depending entirely on the sale of hogs is in bad shape if the cholera gets his hogs one year.

Time to think about a silo!

This is the month when a lot of men decide to order silos. They see how the cost of hay and feed *puts a crimp* in their bank-account. Around them neighbors with silos are *living easy.* They have a big fat cream check coming in every month.

Look around—talk with men who have an

INDIANA SILO

Have them tell you how the Indiana *saved* their frosted corn last Fall. How the *sweet,* succulent silage is keeping their cows *sleek* and *contented.* They don't worry over the high cost of feed, and there's no drudgery connected with the feeding.

Write for the Indiana Book—*free* to responsible farmers. Learn about the Special Discount to Early Buyers.

Sign and mail the Coupon—or a postal—*today!*

The Chas. K. Spaulding Logging Co.
Salem, Oregon U. S. A.

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I am tired of paying high feed prices every Winter. Send me your free Silo Book.

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Santa Anita Rancho
Anoakia Breeding Farm

ARABIAN-THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle stallion. These horses are mostly three-year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars, Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent Santa Anita, Cal.

Another Shipment of **Shorthorns** Just Arrived

35 Registered Scotch-Topped Bulls
15 Registered Scotch and Scotch-Topped Cows and Heifers

All This Stock is Tuberculin Tested.
They are Large, Rugged Individuals with Excellent Bone and Quality

A Few Choice Berkshire Boars and Gilts For Sale

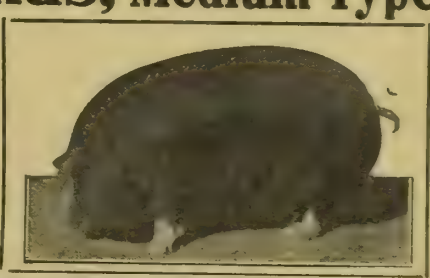
H. L. & E. H. Murphy, Perkins, Sacramento Co., Cal.

Poland Chinas, Medium Type

Choice breeding stock, both sexes, from Panama-Pacific International Exposition prize winning strain. 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows. $2145 cash awards. Write to

M. Bassett

Hanford, Kings County, Cal.



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Best protection obtainable from fire, lightning, and storms. Made from the well known APOLLO-KEYSTONE Copper Steel Galvanized Sheets.

These sheets are the highest quality and most durable Galvanized Sheets manufactured, and are unexcelled for Culverts, Silos, Tanks, Roofing, Etc. Sold by weight by leading dealers. Look for the Keystone added below regular trade mark. Owners of farm buildings should have our "Better Buildings" booklet. Sent upon request.

AMERICAN SHEET AND TIN PLATE COMPANY, Frick Bldg., Pittsburgh, Pa.

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OR PAIN KILLER FOR THE HUMAN BODY
Gombault's
Caustic Balsam
IT HAS NO EQUAL

For the Human Body —It is penetrating, soothing and healing, and for all Old Sores, Bruises, or Wounds, Felons, Exterior Cancers, Boils Corns and Bunions, CAUSTIC BALSAM has no equal as a Liniment.

We would say to all who buy it that it does not contain a particle of poisonous substance and therefore no harm can result from its external use. Persistent, thorough use will cure many old or chronic ailments and it can be used on any case that requires an outward application with perfect safety.

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Sore Lungs
Rheumatism
and
all Stiff Joints

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Cornhill, Tex.—"One bottle Caustic Balsam did my rheumatism more good than $120.00 paid in doctor's bills." OTTO A. BEYER.
Price $1.50 per bottle. Sold by druggists, or sent by us express prepaid. Write for Booklet B.
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FULLY GUARANTEED
CREAM SEPARATOR

A SOLID PROPOSITION to send new, well made, easy running, perfect skimming separator for $16.95. Closely skims warm or cold milk. Makes heavy or light cream. Different from picture, which illustrates larger capacity machines. See our easy plan of
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Bowl a *sanitary marvel*, easily cleaned. Whether dairy is large or small, write for free catalog and monthly payment plan.
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TRADE MARK REG. U.S. PAT. OFF.
Reduces Bursal Enlargements, Thickened, Swollen Tissues, Curbs, Filled Tendons, Soreness from Bruises or strains; stops Spavin Lameness, allays pain. Does not blister, remove the hair or lay up the horse. $2.00 a bottle at druggists or delivered. Book 1 M free.
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Live Stock Field Notes

ITEMS PICKED UP BY CULTIVATOR FIELD MEN

W. F. Holt has purchased a 5000-acre tract in Ventura County which he plans to stock with Hereford cattle.

J. A. Clark of San Joaquin County has sold this fall several high grade Holsteins and about $500 worth of pure bred Poland-China swine.

H. I. Marsh of Stanislaus County has just sold seven gilts to H. E. Carr, vice president First National Bank of Porterville, for the Boys' Pig Club.

M. M. Holdridge of Stanislaus County has erected a 90-ton Indiana stave silo. Has recently sold a bull to Shore Acres Dairy Farm and a bred heifer and a bull to Dr. L. Clark.

The Milk Products Company of Delaware, which installed a casein factory at Modesto some months ago is installing another plant at Crows Landing. The company recently made its first shipment of two carloads of casein to paper mills in Maine.

H. L. and E. H. Murphy are having their usual heavy demand for registered Shorthorns and a number of good sales have been made recently. It is likely that Harry will make another trip East soon to bring out two or three cars, mostly to fill orders.

raising hogs are realizing more and more the benefits derived from using good boars.

Hale I. Marsh reports sale of Poland-Chinas; four boars to Red River Lumber Company, of Lassen County; one boar to R. E. Spong, Fresno County. Mr. Marsh says that he is receiving considerable inquiry for breeding stock. He built a 67-ton silo the past fall and filled it with good old Yellow Dent corn which went about 15 tons per acre.

Butte City Ranch starts in the Shorthorn game by a purchase of 17 head of top notchers from G. A. Murphy and H. L. and E. H. Murphy, sixteen head of females and a finely bred herd sire, Violet's Coin. His sire, Gold Coin, by Secret Sultan, by Missie's Sultan with an equally high quality of dams tracing back to his great grand dam, Imported Roan Ribbon.

Thornton S. Glide, proprietor of Hillcrest Stock Farm, recently made an important addition to his herd of registered Shorthorns by the purchase of two new herd sires. One of these was bought in the Portland sale, topping the sale at $1350. The other bull is a splendidly bred fellow of Cumberland type and Villager breeding and was bought at a long price in the Middle West.

Waiting for Dinner
Youngsters on the ranch of Mrs. M. M. Holdridge, owner of one of Stanislaus County's successful dairies.

F. A. Herroux and Mrs. M. A. Haupert of the Buenna Aalta Ranch have just added eleven head of registered Holsteins to their herd. They all came from the herds of Wm. Bishop and other Washington and Oregon breeders.

Arlington M. Smith has just bought a bred Berkshire sow of the Murphys. Her name is Clementina and she was the champion sow at Modesto, at Pleasanton, at Fresno, at Hanford and the second aged sow at Sacramento 1916.

The Utah Milk Company, manufacturers of Sego Condensed Milk, have selected Galt as the location for their first California plant. It is expected that this company will install several other condensaries in California later on.

Winona Ranch of Oregon announces it will consign to the Western Berkshire Congress sale one of its prize winners of the last fall show circuit. This is Winona Laurel Violet 2nd, winner of many blues. Other noted consignments will be made from this same ranch.

When one looks about for junior two-year-old Holstein heifers that have produced over 500 pounds milk in seven days hnder official test, he appreciates better the great record of 505.1 pounds milk in seven days, recently made by McCloud De Kol Parthenia, owned by the McCloud River Lumber Company.

Changeling Tidy Abbekerk Wayne, the latest Holstein cow to make over 40 pounds butter in seven days under official test, is by the same sire as Tidy Abbekerk Princess Pauline, the dam of King Alcartra Abbekerk, the great young bull heading the registered Holstein herd owned by Bridgeford Company.

H. E. Cornwell of Stanislaus County reports that his Holstein cow, Abbie De Kol of East Bank 2nd, has completed a seven-day test with a record of 26.26 pounds of butter. She is on a yearly test and entered for the University Dairy Cow Contest. Mr. Cornwell plans to make other entries in this contest.

Fred W. Kiesel, who is building up a fine herd of registered Holsteins, will have a good bunch of young cows and heifers to go on official test within the next few months. He now has his feed growing well in hand and when official testing commences in this herd there is a promise of some good records to report.

J. A. Crawshaw announces the sale of two boars to Frank Pelissier & Co. and W. Zindars, the latter through the Cultivator advertisement. He also reports numerous inquiries from various parts of the state for boars, showing that those

H. H. Gable of Yolo County has purchased a two-year-old Shorthorn bull, Prince Arthur, from the Gudgell & Simpson, Missouri, herd. He is of strong Anxiety breeding and is a fine outstanding individual. Mr. Gable's stock is all in fine condition. He now has 24 breeding cows. He says his calves are the best he has ever raised. He will fit a show herd for the 1917 state fair.

W. A. Young of San Joaquin County has recently purchased of Hale I. Marsh of Stanislaus County a boar and sow whose breeding is from Thos. F. Walker & Son's Blue Valley herd of Nebraska; also an almost perfect gilt from Isaac Overton, Iowa. She is a splendid individual, Alpha Big Knox. Mr. Young reports a recent sale of a bred sow to A. A. Quackenbush of San Joaquin County.

The Fifteenth Holstein Cow to produce over 40 pounds butter in seven days is now reported by M. H. Gardner, superintendent of Advanced Registry. This record was made by Changeling Abbekerk Wayne, whose sire is Changeling Butter Boy, and whose dam is Tidy Abbekerk Princess Aline, a daughter of Tidy Abbekerk Prince. Her seven-day official record is 588.3 pounds milk and 40.62 pounds butter.

Four Purebred Guernsey Cows are now on semi-official yearly test at the stock farm of A. B. Humphrey. Some remarkable showings are being made. Fairy of Alfalfa Farms, a senior four-year-old, made a 7.33 per cent average test for her last six milkings. Golden Maid of Maple Lane has made over 400 pounds of fat in eight months, carrying calf the last five months. These are just a few of Mr. Humphrey's good ones.

Jay Dutter, manager of the Henderson Company, reports that they now have 170 head registered Holsteins. The company has sold to the government school in Honolulu a two-year-old bull, grandson of Colantha Johanna Lad. They also have herds of O.I.C. and Duroc-Jersey swine. A recent addition is a Duroc-Jersey boar of great quality that was grand champion at the Oregon State Fair this fall.

Butte City Ranch of Glenn County is one of the leading pure bred live stock establishments on the Pacific Coast. In addition to the Berkshire hogs this institution now has a herd of 40 registered Shorthorns, a flock of registered Shropshire sheep and a number of Shetland and Welsh ponies. The individuals in all of these herds have been selected with great care and represent some of the best blood lines in the respective breeds.

A visit to Rucker & Coppin's Ranch 13 last week found Mr. Rucker busy as a bee making new quarters for his fine Duroc-Jerseys. He has recently sold some fine hogs for foundations at good prices; to A. A. Trueblood a junior yearling sow that was second prize at Omaha National

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of Merit find Favor Among Discriminating Buyers
-:- We Have Them -:- Write for Prices -:-
E. S. SATTISON - Strathmore, California

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are being used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface.
ONE PUMP
WILL DO YOUR WORK
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IRRIGATION GATES and VALVES
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Hogs Grind Grain
THE HOG MOTOR is both a grinder and feeder. With it your hogs will grind their own grain, saving you money and labor. This machine will care for 30 hogs on full feed at a saving of 25% of the grain, and a pig of 40 lbs. can operate the grinder. Grinds all kinds of grain, coarse or fine, separate or mixed. No waste—grain always dry, clean, fresh. We will keep the machine in repair one year Free, and refund money if not satisfied at the end of sixty days.
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HOG MOTOR CO.
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Treat Every Cow With
HOOD FARM BREEDING POWDER
Every day for twenty-one days before service, and every day for twenty-one days after service and you will have very little trouble from Abortion, Failure to Breed or Retaining Afterbirth.
Write for prices and particulars, mentioning this paper.
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My Herd is all Register of Merit Stock---Averages as High in Butterfat as any Herd on the Coast
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All the latest jokes on the Ford Auto. Hundreds of them and all good ones. Spring a new one on your neighbors. Large book with colored cover by mail. 10c
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Stock Show, 1916, $400; a March boar at $400; to H. P. Eakle Jr. a junior yearling sow $240; to Henry Elson a May boar pig $200, a junior yearling sow, $185, and two spring gilts at $200 each.

Guy H. Miller reports that Lorita of Venadera has just completed a yearly test with a record of 603 pounds butter. Aldine of Venadera, junior four-year-old, has also finished her year's test, making 480 pounds butter with a 4.07 average per cent of fat. This is the largest yet made in the herd. Mr. Miller has recently sold a heifer to A. J. Morey of Glenn County; two cows to E. J: Wilson of San Joaquin County, and a bull to Geo. A. Foote of Stanislaus County.

W. J. Higdon can rightfully wear a wide smile these days. It will be remembered that Mr. Higdon recently purchased Prince Riverside Walker, son of Prince Gelsche Walker and out of Aaggie Acme of Riverside, the dam of Aaggie Acme of Riverside 2nd, who recently established a new state record by producing 35.36 pounds butter in seven days in the Morris herd. A son of Prince Gelsche Walker out of a 28-pound dam with a 35-pound daughter is some bull in this day.

The registered Shorthorns at Roselawn Stock Farm, owned by the estate of T. B. Gibson, find great favor in the Northwest where there is a real appreciation of quality. At the recent Pacific International at Portland, Roselawn Shorthorns won a liberal share of prizes, and in the public sale ranked among the leaders in selling price. The breeding herd at Roselawn is being gradually increased in size, but it has not yet sufficient capacity to meet the demands for breeding stock made upon it.

Lottie Walker Spofford 3rd, whose sire was the King of the Blacks and Whites and whose dam was Lottie Walker Spofford, has just made records on the Henderson Company ranch of 21.06 pounds butter for seven days and 82.21 pounds butter for 30 days. Bessie Oakes Segis, a junior two-year-old, in eight milkings gave an average test of 6.3 per cent fat; the record for five days showed a test of 5.33 per cent of fat. Under the rules of the association this record is such as to call for a retest.

Official Production of registered Holstein cows has been advanced another notch by the latest performance of the South Dakota cow, Hester Aaltje Korndyke. This cow was recently credited with an official seven-day record of over 42 pounds butter, but has since increased her record to 46.77 pounds butter in seven days and was still on test. She thus displaces Ormsby Jane Segis Aaggie, 44.42 pounds butter in seven days, as the world's champion butter producer for the seven-day period.

Aaggie Acme of Riverside 2nd, the great young Holstein cow that recently established a new California record by producing 35.36 pounds butter in seven days, has now broken the state record for 30-day butter production by a wide margin. Up to date her best 30 days' butter production is over 141 pounds and she is still gaining. This exceeds by over 11 pounds the previous record held for some years by Riverside Sadie De Kol Burke. Aaggie is owned by A. W. Morris & Sons.

A. B. Humphrey of San Joaquin County is building a model hog house for his Berkshires. It is 126 x 32 feet with a 26 x 26-foot wing for a feed house. It is well built with concrete floors, feed and water troughs. There are 22 10 x 12 pens, breeding pens, platform scales, dipping tank. An eight-foot alley gives ready access to all parts of the house, which is well lighted with modern non-draft windows. Charlie Maurer, Mr. Humphrey's able herdsman, reports recent sales; one sow to L. H. Smith, Stanislaus County; two sows and boar to F. G. Krauss, Hawaii; one boar to J. S. Gibson Company; one boar to John S. Craig; one sow to H. K. Hammond; two sows to Arlington Smith, Tulare County; one sow to Dallas Baches, San Benito County; one boar to Superior California Land Company.

J. H. Harlan Company of Yolo County have a corking good lot of heifers coming on in their herd of registered Holsteins. These are practically all daughters of Prince Gelsche Walker, King Korndyke Pontiac and King Mead of Riverside, the latter being the sire of Aaggie Acme of Riverside 2nd, who has broken two California butter records by producing under official test 35.36 pounds butter in seven days and over 141 pounds in 30 days. Most of these heifers are out of dams with creditable A.R.O. records and plans are being made to do official testing in a thorough manner in this herd hereafter. The splendid breeding of these heifers, their high individual excellence and growthy appearance all indicate some real doings when they freshen. The Harlan herd is now headed by a son of King Valdessa out of a 30-pound four-year-old. He is an outstandingly good individual, almost white in color. His half brother, Finderne Mutual Fayne Valdessa, sold at public auction in Portland, Oregon, recently for $21,500, the highest price ever paid for a bull calf at public sale anywhere in the world.

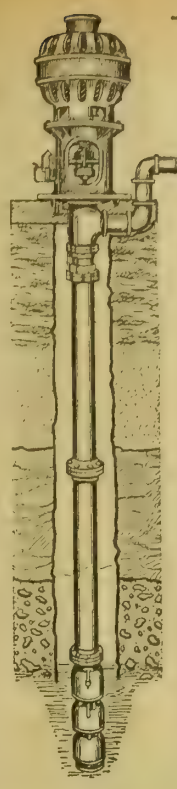
Alexander and Kellogg write regarding the importation of English Milking Shorthorns which arrived at Innisfail Farm December 17 that they are a fine bunch of cattle. The shipment consists of six young cows, six heifers, one bull and four calves. The cattle were selected with great care by Frank Peer, the importer, and are from the best milking Shorthorn herds in England. All the six cows have good milk records, one, a five-year-old, having a record of 9952 pounds, another, a four-year-old, having a record of 8360 pounds with first calf. They are large framed cows, showing beef as well as milk. These cattle are from the north of England with the exception of the bull and two heifers. In his description of them Mr. Peer writes; "These north country animals have had no special care or feeding to enable them to produce big records. Most of the records are made on grass alone. They are to the dairy born, tough and hardy, can stand hard work, are good and know how to grub for a living. They will improve with any kind of a fair chance and treatment." The bull, Kelmscott Viscount 19th, is from the famous herd of R. W. Hobbs Sons and is a fine type of the dairy Shorthorn bull, with good back and spring of ribs. He is splendidly bred, his pedigree showing large milk records for several generations on both his sire and dam's side.

Calf at World's Record Price, $21,500

A new world's record price for a bull calf at public sale was established when J. G. von Herberg of Kent, Washington, paid $21,500 for Finderne Mutual Fayne Valdessa, a ten-month-old Holstein-Friesian bull calf, at the Portland Sixth Pacific International Livestock Exhibit, Friday, December 8.

The buying of Finderne Mutual Fayne Valdessa was not a two-handed affair. More than a half dozen breeders came to the sale for the express purpose of buying this bull. When he was led into the tent the buzz around the ring quieted in anticipation of the coming sensation. Colonel Gue recited briefly the outstanding features of the young bull, referring to his pedigree, which he said was considered to be a record of marvelous achievement in production lines, records back of every ancestor of the 14 constituting the three generations shown in the pedigree. Before he had gotten half wound up on calling for bids to start the calf, a breeder broke into the oratory with a bid for $1000. The price quickly climbed under the spirited bidding to $16,000, when the field narrowed down to two. At $21,500 Mr. von Herberg bought the coveted bull calf and hung up a Pacific Coast record for a bull (of

Finderne Mutual Fayne Valdessa
A ten-month Holstein-Friesian bull calf sold at Portland for $21,500.



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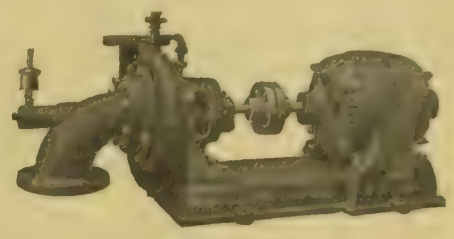

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Built to last and to hatch every fertile egg. Safest. Cheapest and easiest to operate. Fume and fire-proof. Gas-tight.

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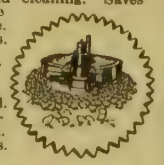

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Limited Number of Chicks from Hens That Laid 194 Eggs Each Last Year

Wishing to help poultrymen to get high grade stock for building up their flocks, we have made arrangements so as to offer a small number of chicks from F. M. Molby's famous 194-egg hens.

So long as they last we make this offer: With every order for 500 White Leghorn chicks we offer FREE 25 Molby chicks and with every order for 1000 chicks we offer 50 Molby chicks free.

SCHOFIELD and OLSEN AT VAN NUYS will sell choice pullets 10 weeks old, all broken to roost at 55c each. This is for a short time only. Address all communications to

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The food with the punch. Gets the eggs. Highest analysis, cheapest price—$2.10 per 90-lb. bag. Special price on quantities. Write for free feeding sample and descriptive circular. At your dealers or

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any age) and an international record price for a bull calf at public sale.

The dam of Finderne Mutual Fayne Valdessa is Finderne Mutual Fayne, who has the world's record for butter for year (1200.64 pounds) as a junior two-year-old, exceeding the previous record by over 200 pounds. Freshening as a three-year-old, she produced almost 37 pounds in one week.

The sire of Finderne Mutual Fayne Valdessa is King Valdessa, whose two nearest dams average 43.03 pounds butter in seven days, the world's highest average.

Poultrymen Organize

Live Bunch of Poultry People Financing a Strong Marketing Organization

POULTRYMEN are looking forward to a more successful year. The casual observer may ask, "Why?" at a time when poultry products are lower than usual and poultry feeds are higher than ever before. We may say that the why lies in this that organization offers opportunity for cheaper production and better returns. Under the leadership of the state market director poultrymen of the Northern end of the state have organized with a membership representing nearly 1,000,000 hens, and now comes the organization of poultrymen of the Southern end of the state with a representation of 500,000 hens. But the best feature of this organization is that the members are not marketing the product of their hens through these associations as outside organizations but as organizations to which their own energy and best effort is essential to success.

We attended the final meeting of the Southern California Association held in Los Angeles December 28, and it was an inspiration to see the unity of action and the deep interest taken by every member in every vote. Poultrymen of Southern California have been organized for the past two years. They have conducted a business on Boyd Street which has been of material advantage in the purchase of supplies, but the association has not been strong enough. It is undercapitalized and its principal object up to the present has been simply the purchase of supplies. But with the great increase in poultry production the demand is more insistent for careful distribution of the product. A strong board of directors has been elected. Now comes the working out of details.

One detail already arranged is that the Stanley Produce Company of Los Angeles will handle all of the eggs of the Southern California producers. The old association has operated during the past year through the Simpson Fruit & Produce Company. The transactions have been entirely satisfactory but the Stanley Company offered a rather more advantageous contract.

The ten directors elected are: J. M. Davidson, Riverside County; Wm. Brandt, San Bernardino County; Thomas Hurley, San Diego County; W. R. Grubb, Orange County; C. G. Ross, Frank P. Smith, M. A. Schofield, B. R. Holloway, W. L. Trewitt, Elliott Brett, all of Los Angeles County. After the adjournment of the general meeting the directors met and elected J. M. Davidson, president; C. G. Ross, vice president; Frank P. Smith, secretary and treasurer; M. A. Schofield, chairman executive committee. Other members of the executive committee are Austin Martin, credit manager for the First National Bank of Los Angeles, elected to represent Mr. Weinstock on the board, and G. W. Belden of Los Angeles.

Mr. Weinstock was present and referred to the fact that consumption at the present moment was not up to production. This assocation must take hold of the situation and minimize the ills and approach as nearly as possible to the ideal, and in approaching this ideal he passed the problem directly to the producers and endeavored to show wherein a cooperative organization meant the best thought and the best work of every individual member. There will be opponents who will do all in their power to lower the efficiency of the organization. The outsider may possibly get better immediate returns than those in the association but the more long-sighted must hold the organization together and make every appeal to the fairness of the other producers not to lessen its efficiency. Above all, be patient. Your directors and your members will make mistakes. There is no one but does and complete success can only be secured by patience and determination to win in the face of opposition.

Wonderful Egg Producer

Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and make hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs" and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this year's production of eggs, so if you wish to try this great profit maker, write E. J. Reefer, poultry expert, 4261 Reefer Bldg., Kansas City, Mo., who will send you a season's supply of "More Eggs" Tonic for $1.00 (prepaid). So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied your dollar will be returned on request and the "More Eggs" costs you nothing. Send a dollar today or ask Mr. Reefer for his Free poultry book that tells the experience of a man who has made a fortune out of poultry.—Adv.

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right by the Coulson Method
full particulars in free book
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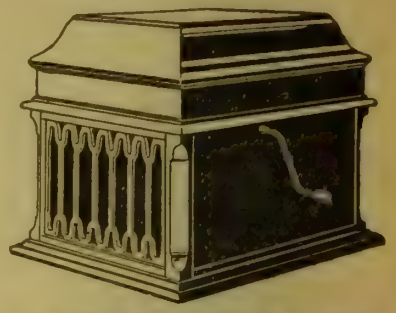

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Exclusive CASH dealers in Poultry.

For highest prices and quickest returns send your poultry to us.

We are the largest Poultry house on the Pacific Coast.
We buy direct from the producer and sell direct to the consumer, thereby giving each the full advantage of the market.

Come and see us
Visiting hours
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313-315 Washington St.
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Correspondence Solicited

ORNAMENTAL PLANTING

Continued from Page 11

Perennial Border

Clean and prepare this for planting. Violets may be secured or existing roots divided and planted out. These will do well in partial shade: Princess of Wales, Marie Louise and Double and Single White make a pleasing selection. Violas may also be planted out now. They make a splendid edging plant in one color, or used for carpeting beds of roses, etc., are unequalled. The best varieties are Mauve Queen, Purple Queen, Lutea grandiflora (yellow), and White Perfection.

The double form of Bellis Perennis, or daisy, may also be planted for borders and Myosotis (forget-me-not), primroses and polyanthus, etc. Arabis alpina and aubretia are also beautiful early spring flowers which may be planted this month. Secure choice varieties of all types of iris, English, Spanish, German and Japanese, not forgetting the Mourning Iris.

Climbers

Tie up all climbers and cut out dead wood.

Queries

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Storing Butter

Answering an inquiry as to putting down or pickling butter, S. L. Denning of the university farm writes:

"From your subscriber's letter I would judge that he wishes to store unpasteurized butter either by putting it in a brine or by packing in tubs. Unpasteurized butter does not give satisfactory results when stored for any length of time, but if it is to be stored it should be made out of the best cream possible, preferably sweet cream. It is often hard to make butter out of sweet cream by the methods used on the farm. The butter should contain not more than two and one-half per cent of salt for this purpose.

"Butter is pickled by putting it in wooden kegs or stone jars and covering with a salt brine. Butter for this purpose should be from the best cream. It is churned, washed, salted and worked in the usual way and then made into one or two-pound prints which are wrapped in parchment paper. The prints are then packed into the keg or jar and covered with a 20 per cent salt solution. This solution would be about one pound of salt to five pounds of water. It is well to line the keg with cheese cloth before using. This butter should then be kept in as cold a place as possible and the butter kept well under the surface of the brine.

"The ordinary method of storing butter is to pack it in tubs or cubes and place in a cold place. The tubs or cubes should be covered with a thin coat of paraffine on the inside and well lined with parchment paper. We would not expect this butter to keep perfectly, as the subscriber wishes, on account of the bacteria it will contain, due to not being pasteurized and also to the high temperature of ordinary farm storage. We are informed that some degree of success has been met with in the pickling of farm butter, but just how long it will keep we are not at present in a position to say."

Permanent Exposition

A subscriber writes asking the location of the permanent exposition grounds pictured in a recent issue. Will say these occupy the grounds held for years by the Sixth District Agricultural Fair Association, within the limits of the city of Los Angeles. The Grand Avenue or Jefferson Street yellow cars or the Interurban Gardena line all pass the grounds. The exposition is well worth a visit and no admission is charged.

Rabbits Eating Beans

Please advise how to prevent depredations of rabbits to Lima beans planted on an unfenced hillside. Last year I sprayed with Paris green, but only succeeded in killing the beans.—Subscriber, Santa Ana.

Beans do not take kindly to arsenical sprays. Where rabbits cannot be readily shot, snared, or trapped, they may be destroyed over limited areas by means of poison. A few small crystals of strychnine should be inserted in pieces of sweet apple or cabbage leaf and these pieces impaled on stakes two or three inches above the surface of the ground along the runways. Some find it is cheaper to feed the rabbits than to try to trap or destroy them. In such case winter prunings or refuse corn, cabbage or other products are left for them to eat in the hope they will take it in preference to more valuable crops.

DON'T DESTROY YOUR CROPS and Ruin Your Trees
BY
Grafting in This Manner

Use the Modern Method of Side Grafting
—
Saves Wax
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No Split Limbs Left to Decay.
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IS DISTRIBUTING NEW CATALOG

Aggeler & Musser Seed Company
OF LOS ANGELES
Issue 24th Annual Book

One of the largest seed houses in the West, the Aggeler & Musser Seed Company, Sixth and Alameda Streets, Los Angeles, have just received the first edition of their new 1917 catalog and are giving it broadcast distribution. This is their 24th annual catalog, and it certainly surpasses any previous edition.

It contains many new features, such as hints to the home vegetable gardener, how gardening may be made easy, etc. In fact, the supplementary booklet called the "Garden Manual", which heretofore has been printed separately, is this year incorporated in the big annual, and it is claimed to be one of the most complete seed books published. It contains answers to more than 1000 questions and gives information regarding all varieties of plants listed and is fully illustrated. Not only does it tell all about seeds, but gives full data concerning the correct tools and implements agriculturists should use to obtain the best results. Valuable hints on poultry, fertilizing and the use of insecticides are also given.

The Aggeler & Musser Seed Company will gladly send this descriptive, illustrated and interesting catalog, free and postpaid, to anyone writing and requesting it.

LUITWIELER PUMPS

2 irrigation booklets free. Install this famous pump. Eliminate trouble. Cheaper water. Perfect service. Luitwieler Pump. Eng. Co., 707 N. Main, Los Angeles.

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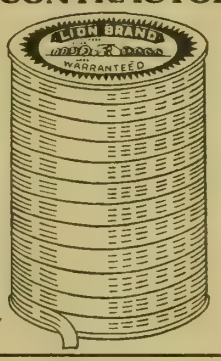

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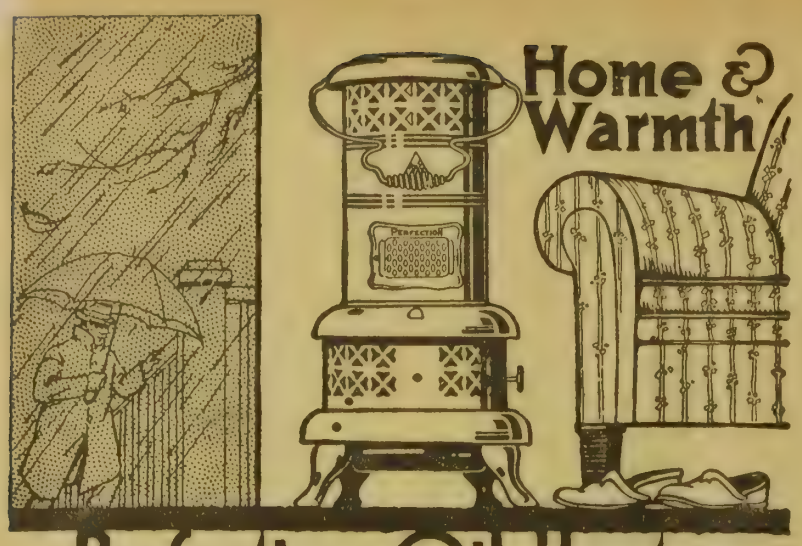
NILES, CALIFORNIA
Fruit—Shade—Ornamental
Send for our 1916-17 Price List

Seeds

Planting time is nearly here. Phone or write for our Catalog and "Hints on Gardening" and be prepared.

Morris & Snow Seed Co.
439 S. Main Street -:- -:- Los Angeles



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Ready and glowing at the touch of a match—giving a cheery, odorless warmth. Burns PEARL OIL, the clean, cheap fuel. In blue or white enamel or plain black—harmonizing with the finest surroundings. Dealers everywhere.

Prices: $3.75 to $7.75

STANDARD OIL COMPANY
(California)

Worn Out Soils Made Productive

by using

Hauser's Organic Fertilizers

Science and practice both indicate that Nitrogen and Phosphoric Acid are necessary to produce the best results from the Citrus Orchards, and these two essentials are most prominent in organic fertilizer. Hauser's Organic Fertilizer is a concentrated soil builder and fruit producer. Put back into the soil at least a portion of the natural elements the orchard has taken out.

Home Products

Send for booklet "Good Reasons," tells you why "Natural Fertilizers" fertilize and return you many times the money spent for this unexcelled plant and tree food.

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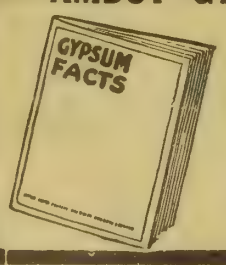

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Household Department

THE CRY FROM THE CONSUMER

Grasshoppers roam the Kansas fields and eat the tender grass
A trivial affair, indeed, but what then comes to pass?
You go to buy a panama, or any other hat;
You learn the price has been advanced a lot because of that.
A glacier up in Canada has slipped a mile or two—
A little thing like this can boost the selling price of glue,
Occurrences so tragic always thrill me to the core;
I hope and pray that nothing ever happens any more.

Last week the peaceful Indians went a-searching after scalps,
And then there was an avalanche 'way over in the Alps;
These diametric happenings seem nothing much, but look—
We had to add a dollar to the wages of the cook.
The bean crop down at Boston has grown measurably less,
And so the dealer charges more goods to make a dress.
Each day there is some incident to make a man feel sore,
I'm on my knees to ask that nothing happens any more.

It didn't rain in Utah and it did in old Vermont—
Result: it cost you fifty more to take a summer's jaunt;
Upon the plains of Tibet some tornadoes took a roll—
Therefore the barons have to charge a higher price for coal.
A street car strike in Omaha has cumulative shocks—
It boosted huckleberries up to 20 cents a box.
No matter what is happening it always finds your door—
Give us a rest! Let nothing ever happen any more.

Mosquitoes in New Jersey bite a magnate on the wing—
Result: the poor consumer feels that fierce mosquito's sting;
The skeeter's song is silenced, but in something like an hour
The grocers understand that it requires a raise in flour.
A house burns down in Texas and a stove blows up in Maine,
Ten minutes later breakfast foods in prices show a gain.
Effects must follow causes—which is what I most deplore;
I hope and pray that nothing ever happens any more.—Wilbur D. Nesbit.

ECONOMY AND THE HIGH COST OF LIVING

Written for California Cultivator
By Mrs. A. Stainton

LET us suppose there are three women living in an immediate vicinity who have houses and families of the same size, move in the same society, etc. The same circumstances surround each, and the demands are the same on each. We assume there are two adults and three children in each family and no servants. Ten dollars and 50 cents a week is given the wife for the purchase of food for the family.

Family One has ample, is happy, well nourished, and has a general air of prosperity. Family Two has enough to eat, but there is little variety, there is less happiness, and the struggle to make both ends meet is apparent. Family Three is in debt. Father and mother are harrassed, nervous, and fretty, children not well nourished, and the doctor's calls are frequent, also there is more or less unhappiness. We have all seen this condition about us. What is the matter? The answer is simple. Number One knows her business. She has learned economy and knows how to use the money so as to obtain desired results, and she also knows what these results should be. She is using just as much money as the other two but she is getting more for it. Number Two has learned some things, but not enough before she entered this practical business of household administration. So she is having a harder time but, still learning, is accomplishing with difficulty what One does with ease. Number Three is a failure so far as her business is concerned. She is a loving wife and devoted mother, but she is the same kind of failure her husband would be if he failed to provide enough money to buy sufficient food. That the amount is enough One and Two prove.

All women ought to see that the use of money for or in the administration of the business affairs of the house differs in no way from that of its use in the business which supports the house. The man who knows how to buy can usually sell to advantage. He who does not know values cannot do this. What is it one must know in order to have the $10.50 weekly buy ample food for a family of five, and can it buy the kind of food anyone wants to eat? A warning is necessary at this point. Just because $10.50 is adequate in certain places does not mean it is in all and under all circumstances. Ten dollars and 50 cents a week may not adequately feed a family of five hearty, hard-working men. It might not provide food for five farm hands if everything had to be purchased at the market. It should, but it might not.

The second point to remember is that the amount given refers to the raw material, not to the finished product into which labor and fuel have gone. What selection of raw material and amounts must be purchased to feed the family of five on $10.50 a week? Space forbids touching foodstuffs and prices, what the body needs, energy producers, value of cereals, so we will take the three wastes: Waste in marketing, including purchase of inedible material; purchase for flavor and tenderness instead of nutrition; and sheer extravagance. Waste in supplies and cooked food and loss in storing foods which deteriorate. Waste in preparation, including preparation of too large quantity per meal a day; food made inedible by poor cooking; and food made unwholesome by wrong cooking.

Take the first. Food as purchased in the market is composed of an edible portion such as flesh of meat, the yolk and white of the egg, the peas in the pod, the corn on the ear, etc., and a nonedible portion, such as bones, skin, shells and so on. When the food reaches the house we again divide into edible portions, waste and refuse. The waste is that we may or may not use. We may pay for it and neglect to bring it home. We buy chops, a steak, or a rib roast and say we want them trimmed. We pay for the trimmings but unless we ask for them the butcher does not put them in the package, and there is good material in them, too. This is waste, for these trimmings are not refuse. They yield something which may be used in cooking even if not eaten just as meat or fat. Economy in buying. The purchase of canned good by the dozen at least saves the price of one can if you have a place to keep them purchased this way. The waste of peeling potatoes before cooking, or not using rice in place of potatoes when the latter cost so much, not knowing how to select meat, the waste caused by haste in cooking, hence the demand for very tender, quickly cooked materials; the rejection of many parts of vegetables which properly cooked make palatable dishes, and the leftovers, a spoonful of vegetables, any sort, a piece of cake, bread, pie, a tiny bit of meat or fish, nothing too small to save and serve in the thousand and one ways that suggest themselves to most housekeepers. The purchasing from day to day over the phone is a wasteful habit. All those may appear trifles and fussy but it is the little foxes that spoil the vines. The saving may seem small, but it is worth a trial and will amount to from 20 to 50 per cent of the yearly expenditure for food.

There is an unexplained idea that a cheap food is not delicious. This is a wrong attitude to the so-called cheaper foods perhaps caused by lack of skill in cooking. The first error in buying food materials is to buy the costlier articles when things much less expensive can yield as much nourishment, and buying food which is out of season. Food is actually in season only when it is being produced in the section where one lives

There is a frequent cutting down and out in the wrong place. Boycotting eggs or butter has never served the purpose for which it was instituted. It is an unintelligent way of attacking a problem which needs a wise adjustment rather than attempted force. When eggs are high plan those foods which require less. Muffins, cakes, and desserts calling for eggs in the making may become a luxury many times. There is far too little known as to which foods yield certain things to the body, and a consequent lack of balance. The bread and milk, and bread and molasses of our forebears developed some fairly lusty

specimens of men and women on limited means.

I could say a whole lot more but will only add a short illustration of how a leg of lamb weighing seven pounds can be stretched to provide at least four good dinners for our average family of five. First day. I have it freshly roasted and serve mint jelly, boiled rice, peas or asparagus. Second day. I have it sliced and cold but start dinner with a good hot soup and serve with the cold lamb a salad of lettuce and chopped mint with French dressing. Creamed potatoes usually accompany this dish and cheese and crackers or fruit follow. Third day. Neat slices of cold lamb dipped in a mixture of chopped parsley, bread crumbs and beaten yolks of eggs and fried to a golden brown. Meanwhile have ready either a puree of spinach or cucumbers very hot and poured on hot dish, lay meat on top and serve. Fourth day. The bones make a good soup with an onion and other vegetables cut fine (thicken soup with pearl barley). Remainder of the meat is minced. Line a slightly buttered bread pan or quart brick mould with hot and cooked macaroni and tomato, having walls almost an inch thick. Fill the center with minced and highly seasoned lamb, cover with macaroni and tomato, set in a pan of hot water, cover with buttered paper and bake one hour. Turn on to a hot platter and serve with tomato and okra with curry or plain tomato puree. I learned to appreciate the flesh of sheep in New South Wales. I used to look upon lamb and mutton as a homely sort of dish, but now I consider it delicious.

WINTER RECEIPTS

Butterless, Eggless, Milkless Fruit Cake.

One pint and one-half orange marmalade, one whole lemon, chopped, use juice also. One pint preserved figs, one pound strained honey, one cup sour grape juice, or any acid fruit juice, one glass hot water, heaping teaspoonful baking soda, dissolved in hot water, one cup ground almonds, one half- cup chopped peanuts, three pounds Thompson's seedless raisins, floured, one cup white sugar, one and one-half cups Crisco or Cottolene, two tablespoons cinnamon, three teaspoons allspice, one-half teaspoon each ginger and salt, enough sifted flour to make rather stiff dough. Bake slowly in medium hot oven till not sticky when tested with straw. Bake in long dripping pan, first making a dough of bran and meal to cover pan half inch thick, then cover with greased paper and spread on your cake dough. This will keep a year (if hidden away), and should be made at least four weeks before Thanksgiving or holidays.—Aunt Polly, Kerman, Cal.

Candied Violets

Mix half a pint of water and half a pound of granulated sugar, and cook until it spins a thread. Remove from the fire and set in a pan of cold water. When partly cool, beat rapidly until partly crystalized. Have a quantity of stemmed sweet violets and drop in a few at a time. Stir gently. Lift with wire tongs on to oiled papers and let harden.

SOUTHERN GINGERBREAD

One cup of molasses, one-half cup butter, one teaspoon powdered ginger, one-half teaspoon powdered cloves, two teaspoons powdered cinnamon, one-half teaspoon powdered allspice, two tablespoons baking soda, three cups flour, two eggs, one cup boiling water, one teaspoon baking powder. All measurements level.

Beat the butter and sugar to a cream, stir in spices, beat thoroughly. Then add the molasses and the hot water, to which the soda has been added. Add the flour and the baking powder, and lastly the well-beaten eggs. Turn into a greased and floured tin and bake in a moderate oven until it shrinks from the sides of the pan.

Divide the gingerbread into blocks while warm and serve with a whipped cream dressing.

MACEDOINE OF VEGETABLES

Clean carrots and turnips and cut into fancy shapes or cubes. Use one and one-fourth cups of carrots and one-half cup of turnips. Cook separately in boiling salted water until soft. Drain and add one and one-fourth cups of cooked peas. Reheat in a sauce made of three tablespoons of flour, one cup of chicken stock and one-half cup of cream. Season to taste with pepper and salt, and just before serving add the yolks of two eggs.

DATE TAPIOCA PUDDING

Three tablespoons minute tapioca, three tablespoons brown sugar, two cups boiling water, juice of one lemon, one-half pound stoned dates.

Cook tapioca, sugar and water in a double boiler for 40 minutes, or until tapioca is clear. Remove mixture from fire and stir into it lemon juice and the dates. Serve cold with cream and sugar.

BRAN BREAD

One cup cooking molasses, one teaspoon soda, one small teaspoon salt, one pint sour milk or buttermilk, one quart bran one pint flour. Stir well and bake for one hour in a moderate oven. It may be baked as a loaf, or in gem pans, as preferred. The bread should be moist and tender.

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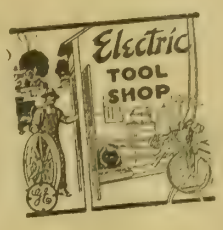

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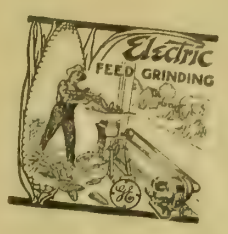

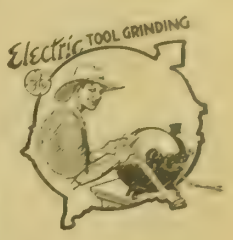

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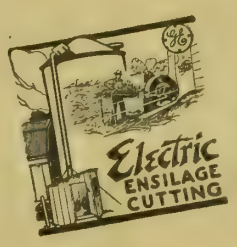

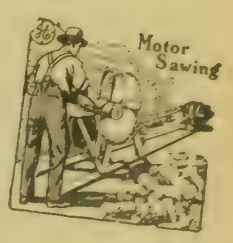

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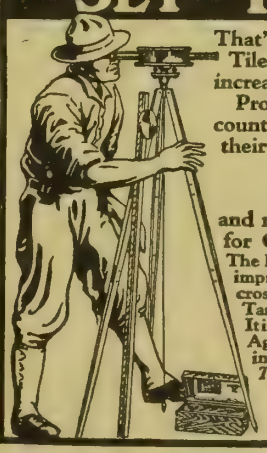

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Thirty Medium Big Type Poland-China boars for sale. Shipped on approval. We will send a good one for $30 and a crackajack one for $50. Bernstein Ranch, L. C. Trewhitt, manager, Hanford, Cal.

Butte City Shorthorns, Shropshires, Berkshires and Ponies. Stock of all ages for sale. Can supply one or a carload. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., Cal.

Choice Boar Pigs for sale. Sired by Superba 220620 champion Poland boar at San Francisco. Prices right. C. R. Hanna, Riverside, Cal.

Have a Nice Registered Holstein bull calf from dam with 18.025 lbs. record. Is 3 years old. J. W. Benoit, Route C. Modesto, Cal.

Choice Registered Berkshires—Exceptionally fine pigs $15 each, unrelated trios $40. Boars, sows and gilts at reasonable prices. W. H. Waugh, Riverside, Cal.

Venadera Jerseys, the herd with official yearly records. Calves of both sexes for sale. Guy H. Miller, Route 1, Modesto, Cal.

Large Yorkshires—The ideal hog for the progressive farmer. Young stock for sale. A. L. Tubbs Co., Calistoga, Cal.

Duroc-Jersey Boars, ready for service, low price. Sired by 800-pound boar. Ed E. Johnson, Turlock, Cal.

Carruthers' Farm Berkshire Hogs. Our herd won Premier Exhibitor prize at the P. P. I. E. Exposition. Mayfield, Cal.

Registered Shires — Blackhawk Stock Ranch. Importers and Breeders. Easton & Ward, Burlingame, Cal.

J. R. Carhart, Fullerton, Orange Co., Cal. Registered Jersey bulls for sale or will trade them for heifers.

For Sale—A1 jack, well marked, large bone, long ear. Price $700. F. T. Harris, El Centro.

Duroc-Jerseys — Some good boars and choice bred gilts for sale. T. J. Walker, Perkins, Cal.

LIVE STOCK

Poland-Chinas—Twenty good gilts and three 2-year-old sows for sale. Either sired by or bred to I. B. A. Wonder, reserve champion at P.P.I.E. A few good young boars ready for service, sired by I. B. A. Wonder. A fine lot of fall pigs. I please you or refund your money. W. A. Young, Lodi, Cal.

On Account of getting crippled I will sell my entire herd of registered Holstein tuberculin tested cows, calves and herd bull, Merci Segis Pontiac Burke, 8 cows, 3 calves; all young, at a bargain. V. W. Shore, Tulare, Cal.

Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P. P. I. E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

For 50 Years the use of an old horse remedy kept my horses free from distemper, epizootic and pinkeye. Very valuable to any stockman. Write me for information. O. H. Anderson, 306 Bryson Bldg., Los Angeles, Cal.

50 Bred Sows and Gilts, 50—Of true Berkshire type and quality; bred to grand champion boars are included in our private sale list now ready for mailing. Write for it today. Silver Birch Farms, Box C. C., Newport, Wash.

For Sale—Seven fine young Duroc-Jersey pigs, also gilts, open or bred. The dam from State Agricultural College. All fine healthy stock; all registered. A. B. Johnson, Newport Beach, Cal.

Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco, manufacturers of Calf Meal, Balanced Dairy Feed, Balanced Hog Feed. Write for samples.

Rancho Rubius Durocs all sold except a few extra good July and September gilts. Write for prices. Elmer Lamb, Ceres, Cal.

For Sale—Young registered Jersey bulls of splendid breeding. J. W. A. Off, Jr., San Juan Capistrano, Cal.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

FARM LANDS FOR SALE

Oregon & California Railroad Co. grant lands. Title to same revested in United States by act of congress dated June 9, 1916. Two million three hundred thousand acres to be opened for settlement and sale. Power site, timber and agricultural lands. Containing some of best lands left in United States. Large sectional maps showing lands and description. Price $1.00. GRANT LANDS LOCATING CO., P. O. Box 610, Portland, Oregon.

For Sale—320 acres fine sandy loam soil 5 miles northeast of Modesto, 1½ miles directly south of Riverbank in Modesto Irrigation District, average yearly water cost less than $1 per acre. Land suitable for alfalfa, grapes, deciduous fruits or farm trucking. Will sell as a whole or in 20-acre tracts. Average price $150 per acre. Will make suitable terms to parties buying for improvement. B. F. Kieruff, 757 S. Los Angeles St., Los Angeles.

California Land $1.00 Per Acre Cash, balance 90c per month per acre. Immediate possession given. No taxes, no interest. Level San Joaquin Valley. Only four hours from San Francisco. Five acres up. Clear; ready to plow. Open ditch irrigation $1 acre per annum. Particulars, maps, photos, free. Stevinson Colony, Desk E, 785 Market St., San Francisco.

$175 Per Acre, forty acres of rich, level soil, fine location on main road, 2½ miles from Manteca, the live growing town with its two million dollar sugar factory—now building—and numerous smaller factories, canneries, two railroads, etc. Full particulars and copies local newspapers free. W. S. Buchanan, Manteca, Cal.

46 Acres Sandy Loam soil near Tulare, unimproved, for sale on good terms, 164 acres well equipped dairy in Tulare County to trade for stock ranch in Middle West. Twenty thousand dollar income clear, to trade for orange grove or other ranch. Call on or address A. B. Sellars, Exeter, Tulare County, Cal.

For Sale—6-acre orange grove, near Placentia; a real snap; about 200 navels, 14-year-old; about 125 Valencias from 1 to 6-year old; one share Anaheim Union Water stock, only $6000; terms. Chas. Vogele, Placentia, Cal.

$350 Cash, $20 per month. No interest, no taxes; 4 years gives you deed to 10 acres planted to almonds, cared for by competent orchardmen. Balance can be paid from crops. E. Wiker, Arbuckle, Cal.

For Sale—A fine five-acre five-year-old lemon grove in frostless Yorba Linda. Small house, five shares of water. Only $1600 per acre. Terms. Chas. E. Vogele, Placentia, Cal.

Ask Joseph Clark, Sacramento, about your nine rights. Information—reverted State and Government land. Any County. Booklet Free.

For Sale—A well improved dairy ranch. Will give exceptionally good terms if sold soon. R. C. White, Turlock, Cal.

Money to Loan on Farms, city and suburban property. C. G. Paul, 407 Chamber of Commerce Bldg., Los Angeles.

MISCELLANEOUS

Second Hand Pipe For Sale—All sizes standard water pipe and screw casing, half inch to ten inches. Also valve and fittings. Guaranteed good as new. Cheap for cash. Write for our prices. Weissbaum Pipe Works, 169 Eleventh Street, San Francisco.

Buy Salmon at Wholesale—Fish world's famous Puget Sound Salmon 100 lbs., net salmon in brine $6.50; 20 lbs. smoked salmon $2.50; 20 lbs. net salmon bellies in brine $2.50. T. A. Beard, 4322 Winslow Place, Seattle, Wash.

Study Telegraphy, Stenography, Bookkeeping, Law, English. Board, room and tuition may be earned. Catalogue free. Mackay Business College, 911 Main St., Los Angeles.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

POULTRY

Our Baby Chicks are hatching every week now. Have you ordered yours? You know what you want and we think we can fill the bill. High quality, reasonable price and prompt service. Won't you write us for prices and circular describing our R. I. Reds, Barred Rocks, Black Minorcas, White and Brown Leghorns? We want your business and future good will—it takes a fair play deal to get that. Our hatchery is up to date, and we recken we know our business. Let's get acquainted. A postcard will introduce us. Roofden Poultry Ranch & Hatchery, Campbell.

Penn's Rocks and Reds—A Western bred strain that has been a consistent winner wherever shown, both in utility and exhibition lines. P. P. I. E. and 1916 state fair winners. Booking egg orders. Barred Ply. Rock and S. C. Rhode Island Red cockerels $3.00 and up. Free catalogue. Golden Rule Poultry Farm, St. Helena, Cal.

The Reliable Poultry Exchange invites your correspondence on the Baby Chick business. We can start you RIGHT with strong, sturdy chix from the best thoroughbred flocks in Southern California. Also the best of breeding stock in poultry, rabbits, pigeons, of all kinds, etc. 741 Los Angeles St., Los Angeles, Cal.

Baby Chicks — Get some of our good strong youngsters but order as far ahead as possible. Hatches every week. R. I. Reds, Barred Rocks, Black Minorcas, White and Brown Leghorns. Write for circular. Campbell Poultry Ranch, Campbell, Cal.

Baby Chicks, reasonable prices—White Leghorns, R. I. Reds, settings, 100's-1000's. Hatched right in our $60,000.00 brick and concrete hatchery from our quality heavy layers. Stock, hatching eggs. Pebbleside Poultry Farm & Hatchery, Sunnyvale, Cal.

The Santa Clara Valley Hatchery and poultry yard makes it a specialty in White and Brown Leghorns, Anconas and Barred Rock baby chicks. Satisfaction guaranteed. (Also other breeds). Joseph A. Bihn, San Jose, Cal., Lincoln Ave.

Baby Chicks from my carefully selected, thoroughbred flock of 1400 S. C. White Leghorns, $10 per 100, $95 per 1000. A first class chicken at a reasonable price. Write for information. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

White Plymouth Rock, White Leghorn incubator chicks, breeding stock, eggs high class. Scientifically bred. Awarded all first prizes California State Fair 1916. Make your arrangements for 1917 delivery of chicks. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

McFarlane Strain White Leghorn Eggs $1.50 per 15, $2.50 per 30, $5.00 per 100, $50 per 1000, chicks 12c each until March 1, then 10c. Big plant, lowest prices, best stock. Catalogue free. Newton Poultry Farm, Dept. 3, Los Gatos, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

Baby Chicks—We are now booking orders for spring delivery, in Barred Rocks, Reds, Black Minorcas, White and Brown Leghorns. The Orland Hatchery, Orland, Glenn Co., Cal.

S. C. Rhode Island Reds—Eggs for hatching from prolific laying strain, $1.50 per setting. Orders now being booked for baby chicks, 1917 delivery, $15 per 100. Rainescourt Poultry Ranch, Zelzah, Cal.

Baby Chicks—White Leghorn $10 per 100, Buff Leghorn and Ancona $12 per 100. Eggs for hatching. A. B. Chamberlin, Box 172, Route D, San Jose, Cal.

Incubators—Essex Model Incubators at factory prices. Write Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco, Poultry supplies.

Hatching Eggs—From high class S. C. White Leghorn hens. Wyckoff strain. $5 per 100. C. A. Hopkins, Lakeside, Cal. Route 1.

Day Old Chix—Barred Rock, R. I. Reds, White Leghorns, Black Minorcas, Light Brahmas, Buff and White Orpingtons. Enoch Crews, Seabright, Cal.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Rural 1, Sonoma, Cal.

Hatched Chicks For Sale—Barred Rocks, R. I. Reds and White Leghorns. Strong, vigorous chicks. Send for circular. G. L. Hawley, Madera, Cal.

Baby Chicks—Fall and winter delivery. White Minorcas and Golden Buff Leghorns. Sandridge Hatchery, Kerman, Cal.

When Your Poultry or pigeons are lousy, write for "Free" folder about "lice." Floyd, the Poultry Expert, 1772-4-6 Green St., San Francisco, Cal.

WANTED

Orchardman, experienced in all branches as pruning, budding, tree surgery, and scientific soil culture, desires position as foreman or manager. W. R. Wilson, San Fernando. Phone Green 142.

Wanted—Twenty-five hundred each of Franquette, Mayette and Placentia Walnut grafting wood. Must be very reasonable. Address T. F. McCarley, Route 14, Box 716, Los Angeles, Cal.

Foreman, experienced in walnut growing for ranch. Must bring references from former employers in that line; no children. 3028 W. 8th St., Los Angeles.

Sudan Grass Seed Wanted. This year's crop. Send sample and price and state amount you can supply to J. P. Cundell Lathrop, Cal.

Wanted, Sudan Grass Seed—Send samples. State how much you have and price wanted. Western Seed Company 116 E. 7th St., Los Angeles, Cal.

Wanted—Salesmen and Agents in every city and town on this coast to represent this company. A cracker-jack proposition for live wires. General Sales Agent, 414-424 9th St., San Francisco.

GEESE

White Embden Geese up to 5 years $3 and $4 each. White Rocks, White Leghorn chix, "quackless" White Muscovy ducks. White Star Hatchery, Kerman, Cal.

SEEDS AND PLANTS

*** * SEEDS * ***

Don't You Want pure home grown seeds? Of course you do. Ours are all tested and are good enough for anybody. Prices, information, samples, etc., upon application. Write, wire or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

*** MAKE OUR SEED YOUR SEED ***

Recleaned Alfalfa Seed, good quality, excellent color, high germination test; common variety 17c, Smooth Peruvian 24c, and the famous Hairy Peruvian 30c per pound your railroad station. Do not buy until you have compared my samples with seeds others offer. E. F. Sanguinetti, Yuma, Ariz.

Specially Selected Arizona Alfalfa Seed, the best there is, at wholesale prices. Shipping warehouses at Modesto, Fresno and in Arizona. You save at least $2.00 per 100 by buying direct. Send your address for sample and price. Bomberger Seed Co., Modesto, Cal.

*** * ALFALFA SEED * ***

As has been our custom in the past, we are offering alfalfa seed, both retail and wholesale. This is tested stock and up to our usual high standards. Samples, prices, ec., on application. Wire, write or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

ALFALFA SEED OUR SPECIALTY *

Sweet Clover—The best legume known for introducing nitrates into soil. A large-producing, non-bloating forage and hay crop. Stands alkaline conditions well. Seed 15c per lb. V. M. Shuey, Manzanar, Cal.

Strawberry Plants, Brandywine, Klondyke and Winner. The Winner plants the finest for home markets. Plants best ever offered. 12 years in business. E. H. Learned, Route 1, Burbank, Cal.

Celery Seed For Sale—Dwarf Golden Heart variety. Produced from seed purchased from C. C. Morse & Co. Strictly fresh and clean. Price per pound $1.50. James Mills Orchards Corporation, Hamilton, Cal.

Rhubarb — Wagner's Giant Rhubarb $2 per 100; Crimson Winter Rhubarb $3 per 100; Crimson Winter Rhubarb seed 3.50 per pound. Currier Bulb Co., Seabright, Cal.

Recleaned Alfalfa Seed, best quality. Common 16c per lb., Smooth Peruvian, 22c f. o. b. Bard or Yuma, Ariz. O. C. Nordahl, Bard, Cal.

Alfalfa Seed—Recleaned. Buy direct from grower. Get the best. Prices and samples on request. State quantity wanted. The Hollis Ranch, Thermal, Cal.

Alfalfa Seed—You know or should know our reputation for furnishing pure, reliable seeds. Write or wire for samples, prices, tests, etc. V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

Alfalfa Recleaned; no noxious seeds grown by me. My many users of it swear by it. 15c. lb. in ton lots. H. S. Garrison, Murrietta, Cal.

Thoroughbred Strawberry Plants—Early Ozarks, Gold Dollar, Wm. Belt, Kellogg prize, Magoons, Marshalls, $2.50 per 1000. C. Christiansen, Canby, Oregon, R. D. 2.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

Alfalfa Seed—The very best, guaranteed 16c. Wm. Stuthman, 1239 West Pico St., Los Angeles, Cal.

Avocado Seeds For Sale—By the thousand or less. Address H. E. Lyman, Carpinteria, Cal.

For Sale—18 sacks recleaned Pink Beans, 1916 crop. 7c f.o.b., Shafter. Address C. C. Goodrich, Shafter, Cal.

MACHINERY

USED RANCH TOOLS, WINDMILLS, TANKS, PUMPS, ENGINES

16-ft. steel windmill, fine for irrigating. Cost $250, for $125; 8-ft., $19.50; 10-ft. Aermotor, $27.50; 12-ft., $45. Complete windmill outfits or any part. TANKS, TANKS. New 1000-gal. galv., $24.50; 2000, $34.50; fine 1200-gal., $17.50, all sizes, new, used wood tanks, WAGON TANK, 650-gal., $37.50, cost new $90; 10-ft. wide by 3 high, new wood stock tank, $7.50; new 8-hp. boiler, fine for dairy, $75; 20-h. boiler, $100; 80-h. boiler, $195; 6-h. steam engine, like new, $350; 12x12 Union compressor, $250; $105 potato digger for $45; 14-in. Deere riding plows, $15 and $22.50; 14-in. tricycle mouldboard, $7.50; fine 2-gang mouldboard Bluebird riding plow, $47.50; fine 2-gang mouldboard Syracuse 14, 16-in., for tractor, cost $110, for $48; 3-gang Benecian Hancock disc plow, $60; 2-gang disc plow, $45; Fresno, $10; walking plows, all sizes; like harrows, $8.50 to $13.50; alfalfa renovator, $28; new manure spreader; fine FULL TRACTOR, $350; Boenker 4-cyl. gas tractor, 20-40 hp., cost $2200, for $600; standard well drilling outfit, mounted, with engine, $275; steel cable, 4c; cement mixer, $35; mounted barrel tree sprayer, $9.50; band saw, $17.50; mowers, rakes, feeders, corn cultivator, corn planter, one cutter. PUMPS SPECIAL: No. 3 SMES double acting, with 150-ft. 7-in. pipe rods, 6-in. double acting cylinder, $200, all complete (head alone cost $500), Fine Bulldozer single acting jack, $60; horizontal and vertical single and two-runner centrifugal pumps, all sizes. Fine steam deep well, double acting pump, good for 50 inches, $300; plunger pumps, all sizes, brass cylinders, pipe, rods to suit; 1½-hp. International engine, $25; 4-h. Fairbanks, like new, $55; 4-h. Original, $45; 6-h. Western, $79; many other sizes gas engines, power blower, horse powers, winches, sundries. Write for prices. Material guaranteed as represented. We buy machinery if in good shape. Trade us what you don't want for what you do, with little cash. DEMITT CO., UPSTAIRS 120 N. Main. CARDS 816 Yale, Los Angeles.

For Sale—One 8-16 Mogul tractor with extra rims and lugs. One three-gang engine plow, used one year. All as good as new. Inquire for prices. Markofer & Hatta, Elk Grove, Cal.

Holt Caterpillar Tractor, Midget 8-18; terms. John A. Whetstone & Son, Merced, Cal.

For Sale—50 h. p. Western engine and 8-in. Krogh pump. Nearly new. G. W. Hurley, Bakersfield. Phone 164.

LUMBER

AA—Lumber, New and Second-Hand; rough, $10 M; finished, $15; "A" R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St., San Francisco, Cal.

AGRICULTURAL IMPLEMENTS

For Sale—One orchard cultivator, 1 disc harrow, 1 cross reach orchard truck, 1 walking plow, 1 drag harrow and several other implements. Also one second-hand wagon, slightly used. Cheap for cash or time. Arnott & Co., Wholesale Implements, 112 to 118 South Los Angeles St., Los Angeles.

For Sale—Panel top wagons, 3 open delivery wagons, 2 buggies. Cheap for cash or time. Arnott & Co., Wholesale Implements, 112 to 118 South Los Angeles St., Los Angeles.

FARMS WANTED

If You Want to Sell Your Farm write for our cooperative plan to bring buyer and seller together and make their own deal. Absolutely no agent's commission. Write today. Interstate Farm Exchange, Exchange Bank Bldg., Spokane, Wash.

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

DUCKS

Four English Pencilled, unexcelled in U.S., three fawn and white, selected Indian Runner drakes, $20 for all. James McKee, Riverside, Cal.

PATENT ATTORNEYS

Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS".

Los Angeles Market

LOS ANGELES, Jan. 3, 1917.

BUTTER

Wholesale prices:

California extra creamery	.36
Prime first	.34

CHEESE

Brokers' prices:

California fresh, lb.	.20
Eastern Daisies	.27
Oregon Triplets, lb.	.25
Tillamook	.25

EGGS

Exchange quotations:

Fresh extras	.38
Case count	.36
Pullet	.34

POULTRY

We quote from growers:

Broilers	.22@24
Fryers	.20@22
Hens	.15@19
Roasters	.20
Geese, Young	.18
Ducklings, lb.	.18
Roosters, old	.10
Turkeys	.20@25

LIVE STOCK

CATTLE—We quote cwt. f.o.b. L. A.

Beef steers, av. 1000 to 1100 lbs.	8.50
Cows .....6.00; heifers	7.00

HOGS—

Heavy, av. 250 to 300 lbs.	9.50
Mixed, av. 200 to 250 lbs.	9.25
Light, av. 175 to 200 lbs.	9.00

Rough, docked 20 lbs.; piggy sows, 40 lbs.; stags, 40%.

SHEEP—

We quote per head f.o.b L. A.

Prime wethers, cwt.	9.00
Ewes, cwt.	8.00
Lambs, cwt.	12.00
Yearlings, cwt.	10.00

POTATOES

Wholesale selling price:

Northern	2.60@2.80
Local	2.40@2.50
Lompoc	3.00
Oregon Burbanks	2.50
Sweet, cwt.	3.35@3.50

ONIONS

Wholesale selling price:

White Globe, cwt.	4.25@4.35
Brown, cwt.	4.00
Garlic, lb.	.10

VEGETABLES

Wholesale prices:

Artichokes, doz.	.90@1.25
Brussels Sprouts, lb.	.10
Beets, doz. bunches	.35@40
Cabbage, fy. sack	1.75
Red, lb.	3½@4
Carrots, doz.	.30
Chicory, doz.	.40
Cauliflower, doz.	.75
Celery, crate	3.35@3.50
Cucumbers, Hothouse, doz.	1.00@1.50
Escarole, doz.	.35@40
Horseradish, lb.	.15
Lettuce, doz.	.25
Leeks, doz.	.40@50
Mint, doz.	.40
Onions, green, doz.	.17½@20
Oyster Plant, doz.	.40
Parsley, doz.	.20
Parsnips, doz.	.30
Peppers, Chili, lb.	.17@18
Bell	.18@20
Pimiento	.7@9
Pumpkins, lb.	.2@2¼
Radishes, doz.	.17½@20
Rhubarb—Strawberry	1.25
Crimson Wonder	1.15
Spinach, doz.	.20
Squash, lug, Sum....1.25; Chayote	85@90
Hubbard, lb. ..1¼ Cream, lug	.60
Turnips, doz.	.40@1.25

FRUITS

Wholesale prices:

Apples—	
Bellflower	1.10@1.30
W. W. Pearmain	1.25@1.60
Newtown Pippin, Yellow .....1.10@1.25	
Bananas, lb.	4½@4¾
Grapes—Cornichon cr.	2.00
Red Emperor, keg	3.75
Pears—Winter Nelis lug	1.50
Seckel, lug	1.40@1.50
Persimmons, lb.	.9@10
Pineapples, lb.	.9@10
Pomegranates, half box	2.00
Quinces, lug.	1.25

CITRUS

Navels	2.50@2.75
Lemons, $2.25@2.75 Juice	1.75
Grapefruit	2.00@2.25
Limes, basket	.85
Tangerines, lug	1.75

NUTS

Prices named by Cal. Walnut Growers' Assoc.

	1914	1915	1916
No. 1	16.50	13.60	15.50
No. 2	12.00	10.60	12.50
Pkgs., 16 oz. Net	.....	.....	16.50
Budded	20.00	17.00	19.00
Jumbos	18.50	16.60	17.50

HONEY

Wholesale prices:

Extr, lb. White	6½@7c; A. 8c; W.W. 9c;
Comb, lb. W.	12½c; Lt. A., 12½@14;
W.W. 14½ Lt. A.	12½@14
Beeswax, lb.	.32

BEANS

Wholesale Prices:

Lady Washington	11.50
Limas	8.00
Pinks	7.75
Manchurian Reds	7.80
Baby Mex	6.00
Small White	11.50
Blackeyes	5.90
Tepary	6.50
Garvanzos	6.00
Lentils	13.00
Idaho Pinto	5.00

HAY

We quote ton f.o.b. L. A. to producers:

Barley	12.00@16.00
Oat, tame	14.00@17.00
Alfalfa, local	15.00@18.00
Northern	13.00@15.50
Stock	9.00@12.00
Straw	8.00@10.00

GRAIN

Wholesale selling price f.o.b. L. A.

Wheat—No. 1	3.00
Corn—No. 2 yellow, 2.80; white	2.70
Oats—California feed	2.80
Standard	.45
Cal. Seed Oats	2.60
Barley—No. 1 bright feed	2.30
No. 1 dark feed	2.30
Seed	2.55
Milo	2.40
Egyptian Corn	2.50
Rye	3.25

FEED STUFF

Wholesale, cwt. f.o.b. L. A.

Alfalfa Meal	1.35
Bran, heavy	1.95
Shorts and Middlings	2.35
Alfalfa Molasses	1.55
Meat Scraps, accd. to quan.	3.20@3.30
Beet Pulp	1.30
Cracked Corn	2.75
Cracked Wheat	3.20
Cotton Seed Meal	2.40
Bone Meal	2.45
Feed Meal	2.80
Green Bone	2.25
Middlings	2.35
Oil Cake Meal	2.40
Fish Meal	3.60@3.70
Rolled Barley	2.50
Rolled Oats	2.50
Hulled Oats	3.30
Feed Meal 2.65; Scratch Feed	2.60@2.70

San Francisco Markets

SAN FRANCISCO, Jan. 2, 1917.

BUTTER

Dairy Exchange quotations, lb.:
Rcts. wk. ending Dec. 30, 340,900 lbs.

Fresh extras	34½
Prime firsts	.34
Firsts	.33

Extra Cr'y (Exch) past wk. & yr. ago.

Dec.	26	27	28	29	30
'16	34	34	35	35	34½
'15	..	26	28	28	28

CHEESE

Rcts. wk. ending Dec. 30, 10,316 cases.
Dairy Exchange Quotations:

Cal. Flats	.17	Y. Am.	.20½
Ore. Trip.	.20@21	Y. Am.	.21

EGGS

Dairy Exchange quotations:

Fresh extras	39½
Select pullets	33½

Fresh Ranch (Exch.) past wk. & yr. ago.

Dec.	26	27	28	29	30
'16	42½	39	37½	38	39½
'15	..	39	36½	36	35

POULTRY

We quote from producers, lb.

Hens, large 22@23; Leghorns	.20@21
Fryers, lb.	.24@25

Broilers—

Large .....24@25 Small	.27@28
Roosters, old ....12@14; young	.22@23
Turkeys, dr., 28@33; live	.25
Squabs, doz.	2.50@3.50
Hares, lb. live .....10@12; dr.	.15

LIVE STOCK

Prices gross weight:

Cattle:

Steers, lb., 6@7¾, cows and heifers, 4½@6½; calves, 6½@8½.

Sheep:

Wethers, 7@7½; ewes, 6¼@6½; yearling, 8½@9; milk lamb, lb., 9@9½.

Hogs:

Hard grain fed, 8½@9½; undesirable, 4@6.

POTATOES

Wholesale selling prices at wharf:

Delta Burbanks	2.00@2.25
Salinas	2.50@2.60
Oregon	2.00@2.25
Yakima Gems	2.30@2.40
Sweets, cwt., field	1.50@2.00
Cellar	2.50@2.75

ONIONS

Wholesale selling price on wharf:

Cwt.	3.15@3.25
Garlic, lb.	.4@5

VEGETABLES

Wholesale selling price:

Artichokes, doz., large 60-75; small	.40
Celery, cr.	3.50@3.75
Cucumbers, bx., hothouse	2.50@2.75
Lettuce, crate	.85@1.00
Mushrooms, bx.	1.25@2.00
Peas, lb., choice, 10@11; poor	.6@8
Rhubarb, box	1.00@1.25
Peppers, Bell, lb.	.8@10
Chili	.10@12½
Squash—	
Cream, box, 1@1.25; Hub, sk. 1@1.25	
Tomatoes, bx.	1.75@2.00

FRESH FRUIT

Wholesale selling price:

Apples, box—	
Bellefleur	.75@1.00
Newtown Pippins	.80@1.10
Spitzenburg	1.40@2.10
Bananas, bunch	1.25@1.50
Pears—	
Winter Nelis	1.25@2.00
Other Winter	.75@1.25
Pineapples, doz.	2.00@2.50

HAY

Scott, Magner & Miller say under date of December 30:

Receipts for the past week were 1230 tons; previous week 1924 tons. The majority of arrivals are of the better grades, the poorer and medium grades selling readily at prices higher in comparison than choice grades. Alfalfa demand has been quite good owing to the scarcity of cheap grades of grain hay and several round lots have been reported sold in interior districts during the week. Straw remains unchanged.

GRAIN

Grain Exchange prices, cwt.

Wheat, California Club	2.50@2.55
Wheat, No. Bluestem	2.80@2.85
Corn, Eastern Yellow, sk.	2.05@2.10
Corn, Egyptian White	2.10@2.20
White Feed	2.00@2.05
Red Seed	2.65@2.75
Barley, feed	2.17½@2.22½
Shipping	2.30@2.32½
Rye, cwt.	2.75

Citrus Fruit Market

LOS ANGELES, Jan. 3, 1917.

Weather conditions have been more satisfactory in most of the Eastern markets and the fruit, which had been sidetracked before Christmas, is now practically all cleaned up. Shipments would be going forward more liberally if it were not for the storms preventing picking. Prices prevailing are fairly good. Shipments of oranges from Southern California are more than twice as heavy as last year same date. Central California however does not quite reach last year's total. Butte, Sacramento and other Northern sections have made their largest shipments ever.

The lemon situation is very quiet, shipments only sufficient to supply regular trade going forward.

Shipments

Shipments of oranges from Southern California to date since November 1, 1916, 2470 cars, lemons 744, total 3214. To same date last year, oranges 1140, lemons 904, total 2044. From Central California to date this season, oranges 3645, lemons 106, total 3751; to same date last year, oranges 3761, lemons 68, total 3829. From Northern California to date this season, oranges 823. To same date last year, oranges 549 cars.

PROGRAM CALIFORNIA SWINE BREEDERS' ASSOCIATION

Thursday, January 18, Blanchard's Hall, Los Angeles. Headquarters: Hollenbeck Hotel.

9:30 a. m., business session; 10, "The California Swine Breeders' Association," C. B. Cunningham; 10:10, "The Swine Business," Hon. Jas. Mills; 10:30, "Feeding Growing and Market Hogs," Leon L. Lamson; 11, "The Breeding Herd and the Pure-bred Business," Wm. Bernstein; 11:20, Discussion: Feeding Problems, Self-Feeders, etc.; 1:30 p. m., "Why the Prices of Swine in California are Lower Than in Oregon or in the Middle States," F. I. Washburn; 2:15, "Why Strictly Grain Fed, Milk Fed, Alfalfa Fed, and Acorn Fed Hogs All Bring About the Same Price in California," Frank Hauser; 3, "How to Market Hogs in California," Harris Weinstock; 3:35, "What Is Being Done and What Should Be Done for the Good of the Swine Industry in California," D. O. Lively; 7:30, theatre party.

Friday—8:30 a. m., killing demonstration at Cudahy Packing Co.; 10, cutting display at Wilson & Co. packing house; 11:30, inspection of plant and luncheon at Hauser Packing Co.; 1 p. m., visit to moving picture studios and other points of interest in Los Angeles.

The railroads have granted a rate of a fare and one-third on the certificate plan. —J. I. Thompson, Secretary.

ENLARGED BUSINESS

After engaging in the saddlery and shoe finding business for the past 17 years, under the name of the Los Angeles Saddlery and Finding Company, this firm is reincorporating under the name Lichtenberger-Ferguson Company. The same individuals, who have been associated with the saddlery house for years past, will continue to share the responsibilities of the new firm and the re-elected officers are: Louis Lichtenberger, president; Clarence Ferguson, vice president; George W. Lichtenberger, secretary; Roy R. Meads, assistant secretary.

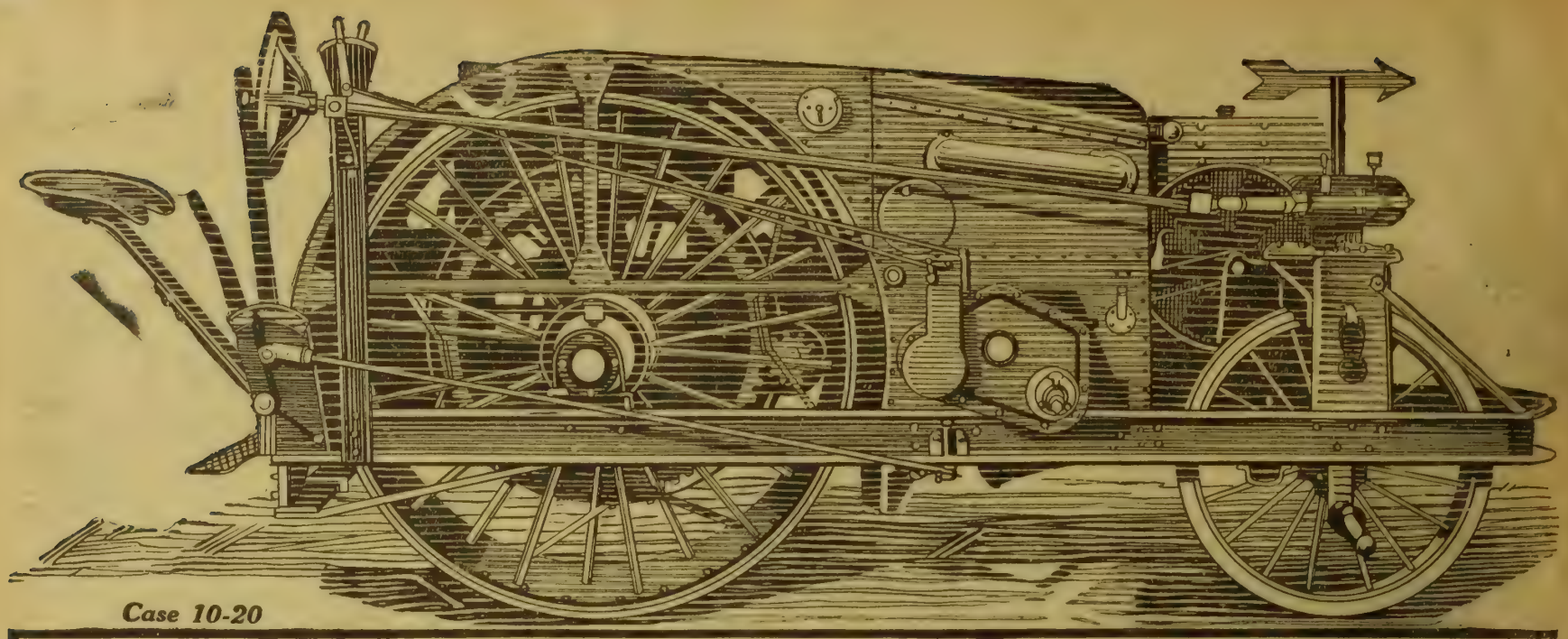
Several lines of automobile accessories have been added, including the factory distribution of Norwalk Tires. The Norwalk Tire Company, at the corner of Pico and Hope Streets, Los Angeles, which is a subsidiary company to the Los Angeles Saddlery and Finding Company, will also hereafter be known as the Lichtenberger-Ferguson Company, and will continue to be the Los Angeles service station of the head concern.

WEATHER CONDITIONS

For the Week Ending Dec. 30, 1916

Report from the various California Stations of the United States Weather Bureau by George H. Wilson, director, San Francisco.

	Rainfall Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	1.36	10.66	16.63	48	32
Red Bluff	.98	8.44	9.94	48	28
Sacramento	.62	4.77	7.02	48	32
San Francisco	1.47	8.10	8.17	50	38
San Jose	.48	4.68	6.13	52	30
Fresno	.98	3.55	3.48	52	32
Independence	1.90	3.02	3.44	..	..
San Luis Obispo	5.96	12.90	5.72	60	32
Los Angeles	2.93	7.20	5.11	62	36
San Diego	.93	2.31	3.10	62	40



Case 10-20

For Men Who Want a *Quality* Tractor

As farmers study and buy tractors more and more, the merits of Case Tractors are better appreciated. Quality is the first thing to consider, advise authorities. Wise men heed it. For quality means performance.

Careful farmers are more inclined than ever to turn to an old-established concern which has a record behind it, one that can afford to include construction superiorities. That was evident at the demonstrations.

From grandfather to father and son (this is our 75th anniversary) has passed the word that Case machinery may be depended upon. It is almost a farm proverb. This has decided hundreds to choose Case Tractors. Few can content themselves with lesser quality.

With 24 years of gas engine experience, Case has set the pace in the farm world for kerosene and gasoline tractors, of the higher grade, as it did in the steam engine field years ago, where it still dominates.

This preference for Case was proved last winter, when over 15,000 farmers wrote to us to inquire about these farm labor-savers. Hundreds of testimonials have come in from all over the country from satisfied, enthusiastic users. At the demonstrations, farmers saw for themselves the superiorities which Case can afford to put in its machinery, and made comparisons. Farm paper and agricultural college experts praise the performance and simplicity of Case Tractors.

Most people now concede Case leadership.

Announcing a Fifth Size

In addition to the four master tractors offered last season, Case now introduces the 9-18. This smaller size follows Case principles, and is built in the same honest and careful manner as the 10-20, 12-25, 20-40 and 30-60. All are made complete at the Case plant by Case workmen. The 9-18, though designed for smaller farms, is not too light, too small nor too cheap.

At the tractor demonstrations this summer the 9-18 created a profound sensation. Orders for hundreds were received from farm owners and dealers.

All know that Case Tractors have been approved after long and severe tests. Owners have the insurance that comes with owning a *proved* tractor, not an experimental one.

Announcing a Small Thresher

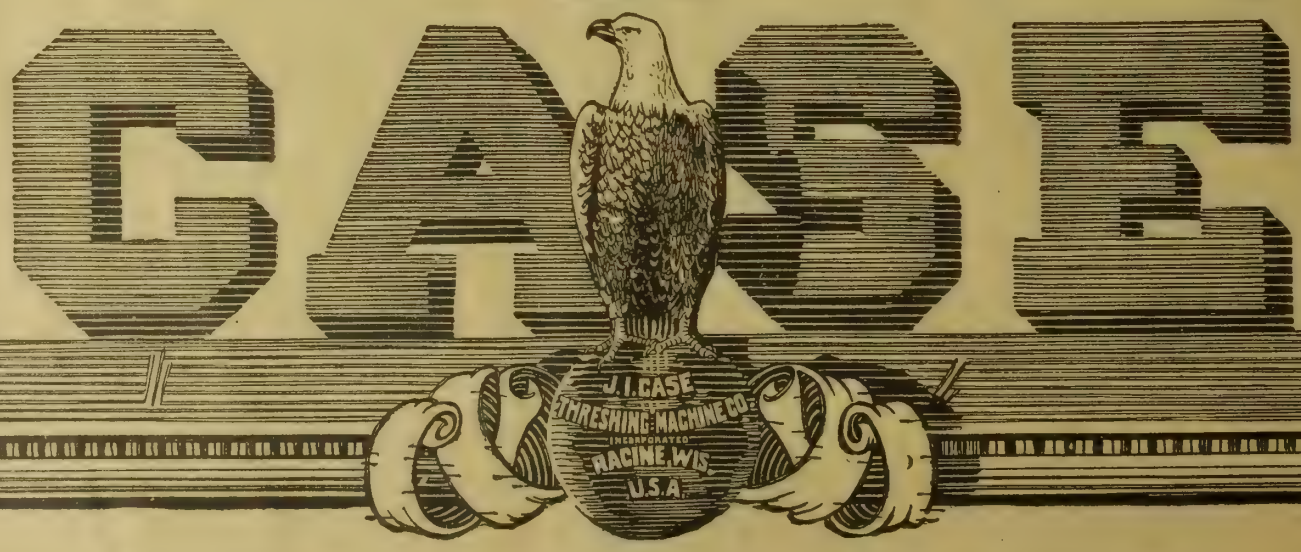
Another announcement of widespread interest is that Case now offers small, light threshing machines suitable for use with tractors. While these have all the well-known perfections of the larger Case Threshers, their capacity and price make it possible for each farmer to own his own thresher.

We have just prepared a new 1917 Case album in colors in commemoration of our 75th anniversary, which we think is the finest yet produced in the agricultural world. It is a book so replete with information of value to every farmer that no one can afford to be without a copy.

This catalog describes Case kerosene and gas tractors, Case steam engines, Case threshing machines, Case road machinery, Case automobiles, and every Case product. Write today for your copy. It is free.

J. I. CASE THRESHING MACHINE COMPANY, Inc., 161 Erie Street, RACINE, WIS.

FOUNDED 1842 (463)



1917

CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES January 13, 1917 SAN FRANCISCO

An Attractive Poultry Yard

There's Money in the J. H. Hale Peach Where Others Have Shown No Profit

The J. H. Hale Peach

It will ship a thousand miles farther, bears when others fail, and brings the highest prices. It has outyielded and outsold Elberta and other peaches in carload lots in the country's greatest market. Wm. P. Stark recognized its merits and has propagated and sold it to satisfied growers in every section. In a few years you, too, will be much pleased if you plant them now.

Size. Averages ⅓ to ½ larger than Elberta.

Color. Golden yellow, overlaid with bright carmine.

Flesh. Solid, fine grained, tender, delicious flavor; perfect freestone.

Shipping. Only peach ever shipped in a barrel like apples. One crossed the continent twice and was received in good condition. Has kept 53 days in ordinary ice-box.

Ripening Season. Three days to a week ahead of Elberta.

Picking Season. Extended at both ends. Colors before ripe and hangs long on the tree.

Hardiness. Fruit buds are hardier than any large, fine yellow peach. Has stood drouth and severe cold when others in same orchard failed.

Profits. Mr. Hale received $1,420 from one acre. It has always brought him the highest prices alongside of the highest grade Elbertas.

Exclusive Contract. After testing this wonderful peach for 12 years, Mr. Hale was at last willing to have it bear his name. He contracted with Wm. P. Stark Nurseries to propagate and distribute this peach. The genuine, registered, trademarked J. H. Hale peach trees can be furnished only by the Wm. P. Stark Nurseries.

Read These Letters From Experts

From California. "The J. H. Hale is a very handsome, shapely peach. The fruit is fully ripe and juicy and its control of its own decay in a close mail package is very significant of its keeping quality. It is a very heavy, fine-fleshed peach, coarse fiber almost absent. The flesh is solid yellow to the pit wall, no excess of red color at the pit and no cavities around it. The pit cavity has, however, a deep, rich red—a perfect beauty for varieties in which this coloring is desirable. If vigor and bearing prove satisfactory, I believe the variety will have exceptional value in this state. If, however, it persists in being as much larger than the Elberta as is claimed, it will be hard to hold with one hand in California."—Prof. E. J. Wickson, University of California.

29 Days in Storage. "J. H. Hale peaches picked 29 days and in common storage, still good."—A. V. Underwood, Dufur, Oregon.

Fully Up to Your Claims. "One of my J. H. Hale trees bore ten peaches, one of which weighed nine ounces. Beautiful they were, flamed with vivid red and clear yellow. Good? Be assured they were fully up to any claim made for them. I have the fullest faith in the J. H. Hale peach for the home orchard and commercial planting. Shall be very glad to refer any who come this way to the J. H. Hale peach."—Geo. J. Streator, 254 Seaside Ave., Santa Cruz, California.

The Export Peach. "Another peach season has passed, and has been a success from every point of view. I have watched my two-year-old J. H. Hale orchard with lots of interest and on the whole am now more enthusiastic than ever, for while the buds showed much greater winter hardiness than Elbertas as I wrote you in the spring, I did not tell you that this region had a bad attack of curl leaf in the spring and all Elbertas not properly sprayed lost their foliage and crop, while hardly a leaf was affected on the J. H. Hale. Also, the fruit which showed on many of the two-year-olds was fully as fine as our finest Elbertas, which is remarkable for two-year-olds.

I have tested its keeping quality and I am now sure that, as I have stated before, it will carry a thousand miles farther than Elberta, and I can see that the picking season can easily be extended about ten days in advance of Elberta, and as much later."—Roland Morrill, Benton Harbor, Michigan.

Fine Shipper. Our three-year-old J. H. Hale trees averaged fifteen to twenty peaches to the tree. These peaches were 10¼ inches around, and weighed 10 ounces each. Far better quality than Elberta. We are so far from the market, the J. H. Hale will make a fine shipper, and it is very hardy."—H. A. Budgell, Yakima County, Washington.

Remarkable Endurance. "But these peaches would have gone from California to New York, could have been sent back to California and again to New York—three times across the continent with a margin of three days for examination, admiration and sale! And no refrigeration called for."—Parker Earle, Pasadena, California. (Note—Mr. Earle is a director of the Redlands Heights Ranch Co. They set out an initial planting of 14,000 J. H. Hale trees.)

The Delicious Apple

Always Brings Highest Prices
More Widely Known

William P. Stark was the first to recognize the merits of this great apple. He named it "The Delicious" and had the foresight and courage to propagate it and to urge growers to plant it. Its great beauty, delightful flavor and fragrant aroma, make a lasting impression on the mind of the consumer.

Its vigor, hardiness, productiveness and shipping quality delight the grower. It is a consistent, top-notch money maker.

"The Delicious is in great demand here. One orchardist with 51 trees picked 259 boxes, for which he received $2.00 a box here at home. He could easily get $2.50 for them."—R. S. Purtee & Son, Paonia, Colorado.

"I have on hand a bushel of Delicious apples for which I paid the small sum of $4.00."—Alfred Bonsecours, Topinabee, Michigan.

Harvey Service on Santa Fe recently bought 300 boxes of Delicious at $3.00.

Expert Growers Endorse Our Trees

Our healthy, vigorous trees, with unusually heavy roots, have pleased large buyers in practically every fruit growing section of this country. Our trees are pruned in the nursery to suit your needs and often come into bearing a year or more sooner than ordinary trees. We guarantee true-to-name, safe arrival and the passing of the most rigid official inspection.

"Your trees are the hardiest, best rooted stock we receive, well packed and in good condition. Were I to order trees for myself, I would order them from your nursery."—H. B. M. Hall, Quarantine Inspector, California.

We Sell Direct-From-Nursery Only

We have no agents, but eliminate agents' commissions and many causes for dissatisfaction, such as mixing labels, delays in delivery, misrepresentation, etc. Our responsibility is not second hand. To secure reliable information, high quality and safe delivery at reasonable price, buy direct from our catalog.

1917 Catalog—FREE

Our catalogs are used in horticultural classes in many schools and colleges.

It describes the varieties whose worth has been proved by experience. You can find what you want easily and quickly.

"Your catalog has been received and read through with a great deal of interest. I like the direct way in which you describe the different items, and the method of appending the prices of each in plain figures. This will be a book that I shall refer to often, because the matter is so conveniently arranged and so complete."—W. S. Howard, Ass't Prof. of Horticulture, University of California.

WM. P. STARK NURSERIES
Box 313, Stark City, Missouri

Please send your new 1917 catalog. I have indicated below the number and kinds I am particularly interested in.

Name _____

Address _____
(Give Street Address or R. F. D. Number)

☐ J. H. Hale ☐ Apples ☐ Pears
☐ Delicious ☐ Cherries ☐ Strawberries
☐ Early Rose ☐ Peaches ☐ Bush Fruits

William P. Stark Nurseries

Box 313 ***Stark City Mo.*** ***Address and Name Are Both the Same***

California Cultivator

Vol. XLVIII No. 2 LOS ANGELES: January 13, 1917 One Dollar Yearly

Mid-Winter Poultry Show at Los Angeles

Poultry Breeders Association of Southern California Conducts a Most Successful Exhibition. Strong Showing of American Breeds. Mediterraneans Light in Number but of Fine Quality. Written for California Cultivator by Mrs. J. A. Koethen

CACKLES and crows and peeps and chirps, along with a sprinkling of gobbles and quacks, filled the two floors of the old Emporium at Tenth and Main for a full week and lured many an unwary passer-by to stop, look, listen, and if he was human, to lose his heart to one or more of the poultry queens on dress parade there. I watched one fancier—he

First White Leghorn Cockerel

At the Poultry Breeders' Association of Southern California show, first S. C. White Leghorn cockerel and A.P.A. special, best cockerel in Mediterranean class. Owned by Emerson and Mumford.

talked like an expert, and bystanders whispered that he was from Petaluma—holding a pretty Barred Rock pullet while he discoursed on her fine points, and he held her as tenderly as a man holds his sweetheart. She nestled comfortably in his arms, too, though he was a stranger, like one who knows she is loved and appreciated.

The great midwinter show of 1917 may not go down in history as the biggest show ever, but it was full of interest and significance. According to the official catalogue, 2036 birds were entered. Of these, the poultry (chickens, ducks, turkeys and geese) numbered 1481, rabbits, 190; pigeons, 350, and carriers, 15. In addition to these there are some very handsome pheasants, an interesting window exhibit of pet stock and a few fur-bearing rabbits, which looked extremely comfortable in the chilly show room.

As nearly always happens, the Rocks, all varieties taken together, outnumbered all other breeds, totaling 237. Barred Rocks led with 94 entries, and there were 71 White, 38 Partridge and 34 Buff, a decided increase in the proportion of Partridge Rocks. Rhode Island Reds came next, with a total of 221, Minorcas were next with 203 entries, 190 of which were Black, and Orpingtons and Leghorns were almost a tie (111 and 110) for fourth place. These figures are interesting merely as showing the relative popularity of the different breeds, and it is a question whether they can be depended on even for that, for the meeting of the national Black Minorca Club, held in the city on the same dates as the show doubtless added something to the Minorca interest, yet it was noticeable that practically all the birds exhibited were Southern California birds. There were some wonderfully fine specimens among them. More than one, in passing through Minorca Alley, commented on the unusual size of the birds. "I didn't know they ever grew so big" one man was heard to remark. The utility qualities of the breed were well advertised by one enterprising pullet that had laid her morning egg in her drinking cup, and stood eyeing it with evident pride.

White Leghorns were a small class, though there were some good birds among them. Indeed, if one might judge by the price set upon fourth and fifth cocks and on one cock which won no ribbon at all, they were very good birds indeed. It takes an exceedingly good bird to be worth $100. But, as the expert from Petaluma remarked, fanciers always think too highly of their own birds and should learn to keep their eyes on the defects rather than the good points of the stock they are breeding. That was a wise saying and applicable to other people beside fanciers.

This small size of the White Leghorn class—there were only 29 birds—seems significant. It means, if I read aright, that commercial poultrymen are coming to realize that the commercial and the fancy are two distinct things and cannot be mixed. The fancy sets the standard toward which commercial poultry must struggle, though often far behind, but points and egg production are not often combined in the same bird. More and more exhibitors are coming to acknowledge this and to make the most in their advertisements of whatever utility qualities their birds possess. "Profit in the poultry business is in eggs", read a sign right beside the first prize pen of Anconas. Only

Winner of the Blue

First Buff Orpington hen, owned by W. J. Stewart.

one hen was exhibited, however, solely for her utility qualities. This was Mollie Wellington, an Inglewood bird, a Light Brahma with 325 eggs in a year to her credit. It was a pity more hens with high records were not shown, points or no points.

I talked with a little woman who had brought in a string of the finest Light Brahmas ever shown in Los Angeles. She said she had a hen at home that laid 329 eggs in her pullet year and another that made a record of 282 eggs. "Why didn't you bring that 300-egg hen to the show?" I asked. "Oh, she didn't look nice. She was too little and rough-looking to be shown among these elegant birds.' That is always the way. The big layers are never in show attire. When I asked what chance there was to get eggs from this high producer I was told they were all promised long ago. That is always the case, too. Just let a hen show a real record, and her eggs are snapped up at any price.

The Light Brahma class, which was bigger and better than has ever been seen before in Los Angeles, seemed to me as significant as the smallness of the White Leghorn class. Isn't it true that the heavy breeds are increasing in popularity, not merely as show birds but as real egg producers? I remarked to the Light Brahma lady that I was surprised to hear her report of her hens, for while everyone knows some high records have been made by Light Brahmas, they are generally considered too heavy to be consistent layers. "Oh, no," she replied. "It is only a question of feeding. These heavy hens must be lightly fed. People think because they are big they need a great deal to eat, but that is not true. They are light eaters, and must be fed lightly and made to work." Her birds, she said, had recently been brought from Mexico, where she had line-bred them for 25 years. "We took them up into the mountains in crates, fastened on the backs of mules, and I thought they would certainly die of heat and fright," she said, "When night came I sat down and cried. I couldn't go to look at them. I was sure they were all dead. Presently one of the men came and asked what he should do with the eggs. He said just one Mexican chicken had died. My Brahmas were all right and had been laying in the crates on the way."

Five varieties of Leghorns were entered: White, Brown, Buff, Black and a new breed, the Partridge Leghorn, shown for the first time. This last, like its cousins, the Partridge Rock, Partridge Wyandotte and Partridge Orpington, is a very beautiful bird. The partridge marking seems to be growing in favor, but, while it is both curious and beautiful, would seem rather too difficult of attainment to be of much practical value. Brown Leghorns were out in greater number than usual. It would be well if this breed, so much liked in the East, were more extensively bred on the coast.

Rhode Island Reds have the advantage of being a breed with but one color, though there are two styles of comb. The Reds, single comb and rose comb, nearly equalled in number the four varieties of Rocks. There are probably more Reds kept in Southern California today than of any other single breed except the Leghorn. And Red fanciers are making a point of the utility qualities of the birds. For instance, one of the handsomest birds in the show, the Rose comb blue ribbon cock, Red Arrow, had placarded on his coop, the egg records—not complete but sufficient to show their quality—of his pen mates, two of whom bore the euphonious names of "Lay More" and "Lay Many."

There were some very fine White Wyandottes. In fact, the best pen in the show, though it received no special award, was probably a pen of White Wyandottes. There were some choice Buff Orpingtons. Sometimes the Whites and Blacks have overshadowed the Buffs, but this time the Buff were far ahead, a thoroughly good class, though not large. There were Games, of course, and Anconas and Andalusians and White-faced Black Spanish, and the usual number of rare and curious breeds, but why try to enumerate them all? There were more varieties of Bantams than usual, but the Buff Cochins were absent. I missed them, and the Silkies and Frizzles, and other freaks which used to be regular entries. This seemed to be a show without a freak. There were 34 turkeys, but none of them remarkable for size or color, six kinds of ducks, of which the beautiful Rouen attracted most attention, and the catalogue mentioned a pair of geese, but they must have been hidden in a corner somewhere or else had gone home before I got there, for I could not find them.

A visit to a big poultry show is not worth very much unless one can sit down afterward and crystallize an impression of it. If the impression is vague and blurry, just shadowy figures of birds, with here and there a name, you haven't brought away much. My impression of this show is a composite photograph in which the American breeds, more especially the Rocks and Reds and of the Mediterraneans, the Minorcas, stand out clearly against a shadowy background of other breeds. Where are the Anconas, which a few years ago were heralded as the "coming breed"? Where are the Buttercups, advertised as the best layers on earth, the Houdans, the Campines, and all the rest? They have had their day, their little run of popularity, and are just a background now for the grand old tried and trusted dual-purpose American breeds, and the Minorcas, which may or may not have come into their own. Maybe they too will "have their day and cease to be", but they are standing the test of time, and they have qualities differing from those of the American breeds on the one hand and the Leghorns on the other, which seem to entitle them to a permanent place in our regard. It may be, too, that the Light Brahmas, which have always been highly thought of by Eastern fanciers, will make a place for themselves here in the West. They make the best of roasters, and when they are bred as well for egg production the combination is hard to beat. And this brings us back again to the point where we started, the utility test. It is the birds that have stood the utility test that made this show, the birds that produce eggs and meat, no matter how fine their feathers, and these are the birds that make business for the fancier as well as for the farmer and the commercial poultryman. Fancy and utility go hand in hand. They cannot be separated for long. When you talk to a practical man about feathers, he asks about eggs. When you discuss combs and earlobes he wants to know how early broilers are ready for market. And so it goes. The fancier must "show cause", must make quite plain the relation between type and egg production. He sets the standard for the hen's outside. The utility breeder

A Champion

First cock and champion male Barred Plymouth Rock exhibited from the Quality Farm of J. B. Roe.

looks after her inside. United they stand; divided they fall.

Judges of the different classes were: E. E. Emerson, Barred and White Rocks, Wyandottes and Rhode Island Reds; A. G. Goodacre, Buff and Partridge Rocks, Leghorns, Sussex, Andalusians, Black Orpingtons, Hamburgs, Buttercups, Ducks and Geese; Will Purdy, Orpingtons (except Black), Cornish Games, Spanish, Campines, Asiatics, Turkeys, Bantams, Guineas; Geo. W. Masterson, Minorcas and Anconas. C. S. Gibson judged the rabbits and pigeons.

The Pride of Petaluma Fresh Air Brooder Stove

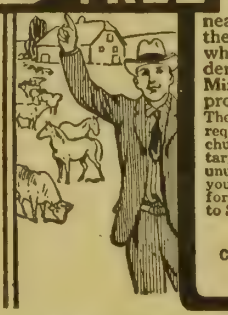
Well, here we are again, and our No. 20 catalogue is now ready for you. It's a HUMDINGER, and if you are interested in poultry you should have it. It's full of splendid information about brooding in bunches from 300 chicks on up with the brooder stove system. If you are satisfied with your present brooding system, get our catalogue and learn how you can BEAT IT. If not satisfied, GET OUR CATALOGUE No. 20, it will put you RIGHT. We also have a splendid HOT WATER SYSTEM, but we can't tell it here, so

Get our CATALOGUE No. 20. IT'S FREE FOR ASKING.

Pride of Petaluma Fresh Air Brooder Stove Factory

Petaluma **J. E. KRESKY** **California**

160 ACRE FARMS IN WESTERN CANADA FREE



Canada's Liberal Offer of Wheat Land to Settlers

is open to you—to every farmer or farmer's son who is anxious to establish for himself a happy home and prosperity. Canada's hearty invitation this year is more attractive than ever. Wheat is much higher but her fertile farm land just as cheap, and in the provinces of Manitoba, Saskatchewan and Alberta

160 Acre Homesteads Are Actually Free to Settlers and Other Land Sold at from $15 to $20 Per Acre

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The Poultry Producers of Southern California

Written for California Cultivator By Cornele G. Ross

THE Poultry Producers of Southern California, Inc., the organization of which body was completed on December 28, 1916, is the result of several years' work on the part of many earnest poultrymen together with the added labors of State Market Director Harris Weinstock for the past six months.

The new organization takes the place of the smaller Federation of Poultrymen of Southern California, which was organized in the fall of 1914 and has since then been marketing the eggs of its members.

The work of this federation resulted in a very considerable improvement in marketing conditions, but the progressive members of that body felt that there was room for improvement and that a larger organization with a broader scope would better meet the needs of the industry, and in May of last year they met with the state market commissioner and discussed ways and means of forming such a body.

This meeting resulted in others of a similar nature, and finally a campaign was launched to see if subscribers could be secured for a corporation to represent not less than 400,000 hens, under an agreement modeled on the lines of one that had been worked out, with the aid of the state market director, for a similar organization in the north and that seemed to the poultrymen of this part of the state to meet all the conditions in a satisfactory manner.

A committee was appointed and the work was pushed with such vigor that by the early part of December sufficient subscribers were secured to warrant going ahead, and a mass meeting was called at the Times Auditorium in Los Angeles, at which meeting a temporary board of directors was elected and articles of incorporation were immediately filed.

A second meeting was called for December 28, 1916, at which time the organization was perfected and a permanent board of directors elected, by-laws adopted and arrangements entered into for the marketing of the eggs of the stockholders for the first year.

The board of directors elected was as follows; for San Diego County, Thos. Hurley; for Orange County, W. L. Grubb; for Riverside County, J. M. Davison; for San Bernardino County, Wm. Brandt; for Los Angeles County, M. A. Schofield, B. R. Holloway, Cornele G. Ross, Elliott Brett and W. L. Prewitt.

The tenth director was nominated by State Market Director Harris Weinstock, who named Mr. Austin O. Martin of the First National Bank of Los Angeles. The officers of the corporation are J. M. Davison, of Riverside, president; Cornele G. Ross of Pomona, vice president, and Frank B. Smith of San Gabriel, secretary and treasurer.

The active management of the affairs of the corporation will be in the hands of an executive board of three, of which M. A. Schofield of Gardena is chairman, with G. W. Belden of Monrovia and Austin O. Martin of Los Angeles as the other two members.

A receiving depot has been established in Los Angeles, where all eggs will be received, graded and packed, and from which they will be distributed as needed.

A new and higher grading has already been secured and "California Fresh Extras", which are to be quoted daily on the Los Angeles Produce Exchange, represent a product which is not excelled in any market, so that the consumer as well as the producer should be the gainer by this move. The main object of the movement is to bring about closer cooperation among poultry producers; to provide for the marketing of their products at the lowest possible cost under uniform methods, and in a manner to secure to each producer a certain market and at the full average price to be obtained for the entire season.

The purchase of feed and supplies for its members will undoubtedly be a feature that can be made of inestimable benefit and should result in reducing the cost of feeding to a minimum.

Then, too, under cooperative action much can be done by a systematic campaign to educate the consumer to the fact that without cold storage the poultry industry would be an impossibility and that a good storage egg may be, and often is, better than many so-called "Fresh Eggs" which have been improperly handled in getting them from the producer to the consumer. Eventually, no doubt, "Producer Storage Eggs" can be placed in the hands of the consumer under a guarantee of satisfaction in every respect and at a price that will obviate the necessity of eliminating the egg from the bill of fare for several months in the year as is now the rule.

The new corporation has been formed on broad and comprehensive lines and every possible safeguard placed to protect the individual stockholder, and it is hoped that all poultry producers who are not now members will recognize that they too owe their support to the movement and will come in without delay.

The members themselves should all be loyal to their own interests and do all in their power to enlarge and strengthen the corporation, especially by acting as missionaries to their neighbors and friends who are not members, and inducing them to join.

The Central California Poultry Association

Written for California Cultivator By C. S. Wilkins

THE Central California Poultry Association, formerly known as the Poultry Producers of Central California Inc., the new organization of poultrymen effected under the direction of the state market director, soon will begin handling the product of its members, according to report given out recently by one of the directors.

The organization is divided into several districts and represented in each by a director or directors. Some comment has been made that the Northern association has not progressed as rapidly as the Southern division, but it must be remembered the central body had first to sign up 1,000,000 hens before operations could start and the latter body but 400,000, easily secured in a comparatively small area.

Sonoma district is represented by five directors; Chas. Romwall, N. M. Jensen, Wm. Evart, P. R. Lyding and A. Sychrowsky; Sacramento Valley, L. W. Eskridge; San Joaquin Valley, James D. Yates; Santa Cruz, Dr. Chas. K. Hale; Alameda, John H. Barber; Santa Clara-San Mateo, Chas. Weeks; the State of California, Edgar Allen Forbes.

Mr. Romwall has been elected president of the association, J. H. Barber, first vice president; A. Sychrowsky, second vice president; E. A. Forbes, secretary-treasurer, and the Anglo-London-Paris National Bank of San Francisco, depositary. The executive committee is composed of Chas. Romwall, E. A. Forbes, J. H. Barber, Chas. Weeks and A. Sychrowsky.

Just how soon the association will attempt to handle the product of its members is not certain, although, says L. W. Eskridge, director of the Sacramento Valley district, it probably will be in the near future. A number of meetings have been held at which marketing problems have been discussed and it is thought probable a satisfactory arrangement will be made within the next few weeks to start operating.

Nothing could be learned of the different plans which have been put to the directors for handling the product.

The largest buyers on the coast have been approached, and it is said the most friendly feeling exists between them and the representatives of the association.

While the work of the association is still in the early stages of development yet the directors and members feel a great good will be accomplished. It is the best opportunity to benefit the poultryman, if the work is carried on properly, that has been presented during the past 20 years, says Eskridge.

POULTRY FOR PROFIT

There are but few people following the poultry business because of the pleasure derived from handling something beautiful in form or feather or in breeding to improve simply for the pleasure of making a more beautiful strain. Where there is one of this type of breeder there are thousands who are in the industry primarily for profit. Most of the fanciers' clubs are looking to the utility side as well as to form and feather. Egg laying contests, like cow testing associations, are increasing in number, in popularity and in the practical nature of the lessons which they are teaching. No question comes to the Cultivator oftener than, how much is there in the poultry, or the swine or some other industry? There is no question more impossible to give definite answer. As well might one ask, how much of a success will be a physician, a banker, or one following any other trade or profession? It is a question of personal ability and with that goes plenty of hard work, attention to details, shrewd business management, and so many other factors that only the one asking the question can answer it.

Shed Roof Colony Houses on Monrovia Poultry Ranch
Illustration from Poultry for Profit, by Mrs. Koethen.

The first requirement in the poultry trade, as well as in any other, is to learn the business. Practical experience is the only way in which it can be learned, but one of the best aids in securing a knowledge of the business is the agricultural or other paper which gives practical suggestions and methods, and for everready reference, one of the many books which treat of the poultry industry. We believe we may be justified in referring in this connection first to "Poultry for Profit" by a practical poultry woman whose experience has been secured in practical poultry work in California. Mrs. Jean A Koethen has written a practical manual for beginners, farmers and side line poultrymen, which has been published by the Cultivator Publishing Co., and it has so much that is of value to the California poultryman, especially to the beginner, that it should be in every farm home.

In the opening sentences of the book Mrs. Koethen is rather over modest, for she disclaims any idea of making the book a treatise or one which a thoroughly informed and experienced poultryman will need. She says:

"Poultry keepers, present and prospective, may be divided into five classes:

1. The man who makes poultry production a business.
2. The man (it is more often a woman) who keeps chickens in the back yard to supply the family table.
3. The farmer who keeps poultry as a necessary and profitable adjunct to the more important farm operations.
4. The back lotter or suburbanite who raises fowls as a side line to add to the family income.
5. The person (man or woman) who is interested in good poultry and who looks forward to some time becoming a producer.

If you belong to the first class, this book is not for you. If you belong to any of the other four, and especially to the last class, you may find in it something that will give you a clearer idea of the much misrepresented 'chicken business' and of the principles which underlie successful poultry production."

Now then, for the other books in the library. We may refer to one of Lippincott's farm manuals, "Productive Poultry Husbandry". This is written by Harry R. Lewis, and, is, we believe, recommended by the agricultural college of our state university as a textbook. Then there is Robinson's "Principles and Practice of Poultry Culture" published by Ginn & Co. and a more recent publication, in fact just received from the publishers, the Orange-Judd Co., "Poultry Breeding and Management" by James Dryden, professor of poultry husbandry of the Oregon agricultural college. Any of these books may be seen in the library of the California Cultivator.

MORE MONEY IN EGGS THAN POULTRY

Eggs for market should be the most important source of income from the farm flock. There is a steadily increasing demand for fresh eggs of good quality at profitable prices. In addition eggs are produced with less labor than other poultry products and are more conveniently marketed.

Poultry for market should be the second source of income. Under present conditions, the larger part of the poultry meat produced on most Ohio farms is a by-product produced and sold with little regard to the cost of production. The poultryman should plan his work so that while producing eggs for market, he may obtain considerable revenue from the sale of broilers during June and July, fowls during September and October and capons from January to April.

An institute of farmers and vegetable growers will be held at Riverside January 19-20.

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19 Kinds of Baby Chicks
Free 66 page Catalog. Hens, Cocks, Pigeons, Incubators, Brooders, etc. Write today to
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Egg-o-hatch applied to eggs during incubation strengthens the chick and weakens the shell. It supplies free oxygen, absorbs carbon dioxide and makes brittle and porous the anima l matter of the shell. The biggest thing ever offered to poultrymen. 50 test hatches show average of 96 per cent for Egg-o-hatch eggs and 81 per cent for eggs not treated, **right in same machine.** Send 10 cents for sample, for 50 to 100 eggs. Full size package, for 600 eggs, 50 cents postpaid. Booklet free.
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A Great Feed Saver

Lee's Egg Maker
Assists assimilation. Prevents disease. Shortens the moult. Makes hens lay when eggs are high.
A 25-lb. pail enough for 500 lbs. of feed.
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Exclusive CASH dealers in Poultry.

For highest prices and quickest returns send your poultry to us.

We are the largest Poultry house on the Pacific Coast.
We buy direct from the producer and sell direct to the consumer, thereby giving each the full advantage of the market.

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Correspondence Solicited

Gains in Dried Fruit Industry

CALIFORNIA'S dried fruit industry made remarkable gains during the year 1915, according to the report of George Robertson, statistician of the State Agricultural Society.

He points out in his report that the total value of all imported fruits in 1913 in this country, including dates, bananas and Greek currants, was $32,100,392; in 1914, $32,235,011, and in 1915, $23,046,778. The largest falling off in imported fruits was in figs, which decreased from 20,506,000 pounds in 1914 to 8,327,000 in 1915. Olives also dropped considerably, from 5,743,000 gallons in 1914 to 3,713,000 in 1915, indicating that both the fig and olive crops of the state are fast becoming large enough to supply the national demands without buying abroad.

The exports of domestic dried friuts have been increased in value from $28,868,000 in 1914 to $36,924,000 in 1915, indicating the fast strides which the horticultural interests of the state are making.

Importations of raisins, which some years ago amounted to 40,000,000 pounds, were reduced in 1915 to 1,604,000 pounds, the lowest on record. The records show that imports of raisins have steadily decreased, while exports have increased.

"Some of the most notable changes," said Robertson's report, "are in dried apricots, from 16,541,000 pounds in 1914 to 25,747,000 pounds in 1915, the bulk of which went to the United Kingdom. The exports of oranges decreased from 1,839,000 boxes in 1914 to 1,588,000 boxes in 1915, nearly all of which in both years went to Canada. Dried peaches increased from 7,387,000 pounds in 1914 to no less than 18,720,000 pounds in 1915.

"Exports of California prunes also show a large increase, from 35,228,000 pounds in 1914 to 50,775,000 pounds in 1915. Of these 15,677,000 pounds went to the United Kingdom, 10,941,000 to Canada, and 18,572,000 pounds to other European countries.

"Exports of California raisins made a remarkable showing, having advanced from 16,594,000 pounds for the calendar year of 1913 to 21,688,000 pounds in 1914, and to no less than 58,497,000 pounds during the past 12 months. These latter figures seem to prove the value of a well-organized industry to growers, as shown by the results achieved by the California Associated Raisin Company.

New Thornless Blackberry

Written for California Cultivator by George T. McCabe, Secretary Stanislaus Board of Trade

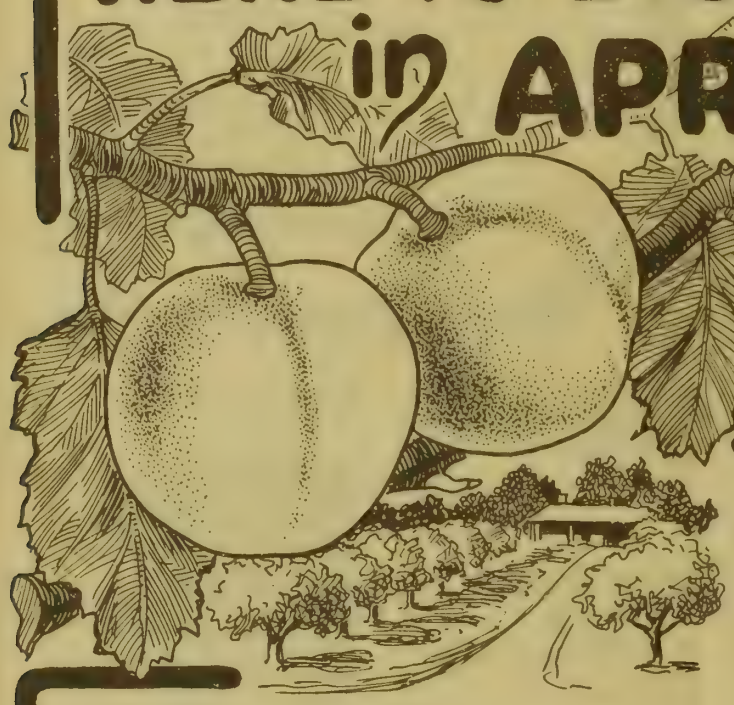
THAT discoveries are being made along agricultural as well as scientific lines is evidenced by the new thornless mammoth blackberries that have been perfected and developed by Mr. W. C. Cory, a young man living in Tuolumne County. This discovery was made by one Martin Meuli on a small ranch in what is known as the "Mountain Pass," Tuolumne County, in 1909. Mr. Meuli, after making the discovery, paid little or no attention to the further development of this variety of blackberry. Mr. Cory, a neighbor, appreciating the value of this discovery, took slips from this vine and experimented for several years, until he has perfected this new variety.

The fruit that is grown on this new vine is of the mammoth variety, without seeds, and has a flavor that will compare with, if not superior to, the ordinary berry. While it is a prolific bearer, one of its most essential features is its early maturity, being the first to ripen. One-year-old plants set out in February will bear ripe fruit the first of June. It is a hardy and thriving plant, can be grown in almost any soil, sandy loam being the best. Its yield is commensurate with the amount of cultivation, irrigation and fertilizer used.

One acre, which is in bearing on Mr. Corby's place, produced 700 crates and about one-half of the crates were used in tipping for new plants. In this truly remarkable plant much nourishment is diverted from the growing of thorns to improving the size, quality and quantity.

In visiting Mr. Cory's place we found that the vines were trellised, in some instances the vine growing to a length of 24 feet, and along on the wire of the trellis, leaving the space underneath sufficient so that the fruit could be gathered readily and without the necessity of wearing gloves to prevent the hands being pricked by thorns, for be it remembered that these are thornless vines. As a commercial product these thornless blackberries have unsurpassed features in having firm meat, an essential quality in shipping to market. The cost of picking the fruit is cut in half owing to the absence of thorns, also the cost of pruning and taking out the old cane and trellising up the new wood is more than cut in half. It is the berry de luxe for the table, and its seedless quality permits the making of jams, preserves and jellies that are almost transparent.

THERE IS BIG MONEY in APRICOTS!



WHY?

BECAUSE either in the green or dried state, they are always in demand.

BECAUSE the market yearly consumes the entire output of both canned and dried apricots.

BECAUSE they grow rapidly and early bear a heavy crop.

BECAUSE THERE IS BIG MONEY IN APRICOTS.

Three Big Leaders,--

Royal, Blenheim and Tilton

We have them on either Peach or Apricot Root.

Our trees are grown on silt-wash soil which gives a perfect root system. Our buds are selected from best bearing orchards.

Let us please you by supplying your needs.

Send for Free Price List and Illustrated Catalog

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Are ALMONDS on both Peach and Almond Roots, PRUNES and PLUMS on Peach, Almond and Myrobolan Roots, PEARS on both French and Japanese Pear Root, PEACHES, both Cling and Freestone, NECTARINES, GRAPE VINES, ETC. Our ORANGE, LEMON and POMELOS are two-year grown, hardy and have never been touched by frost. Our ORNAMENTALS will please the most exacting.

THE FRESNO NURSERY CO. INC

FRESNO CAL. P.O. BOX 615.

NIGHTSHADE AS AN ORCHARD PEST

Written for California Cultivator By E. L. Koethen

The writer sometimes wonders whether most of our citrus growers realize what a real menace the nightshade is as a weed in our orchards. I refer to Solanum nigra, the black berried weed so common in fence rows and under trees. If the reader will take the trouble to pull one up so as to get the roots, he will likely find the roots and collar of the plant infested with a perfect crop of black scale and brown scale. This is sure to be the case if the orchard is affected. Herein lies the danger. We spend much money to make a clean sweep of the scale on the trees, and here at their feet is a plant that holds enough live scale, protected by the soil, to infest the entire orchard again. Then we are liable to blame the fumigator for making a poor job. I should think the fumigators themselves would refuse to fumigate an orchard that was infested with this weed, as it is impossible for them to give satisfaction with this menace left in the orchard. Kindly go out into the orchard and pull up the first plant you find and verify this warning.

APPLES STALL RAILROADS

The Wenatchee apple district of the north central part of the state of Washington produced almost 8000 cars of apples during the 1916 season, says the Spokane Chronicle. So rapidly is the annual crop increasing by new orchards coming into bearing that growers face serious labor, storage and transportation problems.

In 1918 the crop will amount to 10,000 cars. This entire tonnage must be moved during a 60-day period, most of it going to the Middle West and Eastern markets. This will mean that

the railroads will have to provide 400 cars daily for transportation service, which is vastly more than the present facilities. During the 1916 shipping season more than 2000 cars were delayed and subject to frosts because of the car shortage.

CITRUS CANKER

No final statement as to the outcome of the campaign against citrus canker can be expected within a period of at least two years, according to report of Secretary of Agriculture. The campaign, however, is progressing very satisfactorily in the commercially important orange and grapefruit regions of Florida. Even in the few places where citrus canker outbreaks have occurred in commercial districts and in old trees the disease can be eradicated promptly and effectively. Although thorough inspection of citrus plantings will be necessary, at least throughout the coming fiscal year, it is believed that Florida now is so nearly free of the disease as to render its eradication from that state practically certain. In Texas, Louisiana, Alabama and Mississippi the work has been more difficult from the beginning because of the more scattered plantings and the relatively smaller interests involved. Furthermore, in all these states the unusually severe tropical storms of the present year have caused unexpectedly wide distribution of the disease in some areas. Even in these states, however, the progress of the work is encouraging, and if no further unusual drawbacks are encountered the disease will be effectually checked.

DIVERSIFY

For some years the Riverside producers have been discussing the advisability of broadening out along productive lines. Riverside is known the world over as a great citrus center but there are some sections of Riverside so well adapted to other crops that it has formerly been urged by producers, and now through a campaign taken up by the chamber of commerce, that these lands be given opportunity to produce up to their best. The Riverside Press gives the program for an institute of gardeners and truck farmers. There will be addresses by Prof. Rogers of the university on cultural methods for root crops, by Dr. Webber on potato seed selection, by Dr. Batchelor on bush fruits and berries, by Frank Patton on potato growing, and by Mr. Robinson on tea growing. Prof. Vaile, A. C. Lovekin, W. H. Fertig and J. A. Packard form the committee on arrangements.

The institute convenes in Pilgrim Hall of the First Congregational Church on Friday and Saturday, January 19 and 20. There will be both forenoon and afternoon sessions.

CHEMICALS AND ORCHARD PESTS

On Page 649 in our issue of December 30 Mr. C. W. Hill gave information regarding the chemistry of spraying. In referring to the uniformity of chemicals or, rather, to the necessity for knowledge of various strengths of chemicals used, Mr. Hill said:

"Sodium hydrate comes into commerce in the following strengths: 60 per cent, 70 per cent, 74 per cent, 76 per cent Na2O. Phenol (carbolic acid) crude comes to commerce in strengths as follows: three per cent, ten per cent, 15 per cent, 25 per cent, 35 per cent."

When proof came to the reader a slight error was made in the fourth line. In making correction of that an assistant left out entirely the line above, the third, so that the paragraph was left without any meaning. We hope that sprayers will note this correction.

DRAINING IN FRESNO COUNTY

The experiment station of the college of agriculture is issuing a preliminary report of the Kearney Vineyard experimental drain of Fresno County, made by Walter W. Weir, drainage engineer, U. S. D. A., based on work done under a cooperative agreement between the office of public roads and rural engineering, U. S. D. A., and the University of California agricultural experiment station.

For those having lands which have been injured by seepage from irrigation canals, and there are many such lands in Central California, this preliminary report will be invaluable. Bulletin 273 may be had by writing Agricultural Experiment Station, Berkeley.

Roeding's Page on Trees

PLUMS AND PRUNES

WE are going to consider them together for they are really one and the same except that a prune is defined separately because of its great sugar content and its adaptability for this reason for drying. Very few plums can be successfully dried, but there are several varieties of prunes which may be used for both shipping fresh as well as for drying.

Just recently I heard a man who was very prominently connected with the fruit business say: "Don't plant plums; too many already. Can't sell them." Maybe so, but probably next year the prices will be exceptionally high and then everybody will want to plant plums no matter what the soil conditions may be. Nurserymen will be driven to distraction. Their inability to meet the demand will cause the grower to gnash his teeth. Then he wants to know "what the devil is the matter."

ALWAYS IN DEMAND

Now my good friends, just bear this one point in mind. If YOU know you have the right location for plums, plant them. You will make no mistake. There has been a big demand for canning varieties this year, particularly such sorts as Jefferson, Washington, Yellow Egg and Bavay's Green Gage. And then you have the great shipping plums; Beauty, Climax, Clyman, Diamond, Formosa, Gaviota, Grand Duke, Kelsey and Wickson. As a matter of fact, several varieties of the family termed prunes are really plums. The Hungarian, Silver, Tragedy, all stand in this class, good for shipping but valueless for drying. Comparatively few growers realize that in addition to the French Prune the Imperial Epineuse, Robe de Sargent and Sugar, have exceptionally great values on account of their size and high sugar content, consequently they are equally as valuable for shipping as for drying.

MAKE SURE YOU ARE RIGHT

It is hard to account for all the anomalies in the fruit business. In the interior valleys, the warm weather in the summer months causes apricots to be dried and out of the way before they even commence picking in the Coast counties. The French Prune however matures its fruit much later in the interior valleys than it does in the Coast counties. No accounting for this, but it is true just the same. The Robes, Imperials and particularly the Sugar are very much earlier in the interior in ripening their fruits than the French. Bear in mind that it pays to get your tree fruit out of the way before the height of the raisin drying season begins, for then the pickers are hard to get.

LET US HELP YOU DECIDE

Read carefully what we say in our new catalog about the Improved French Prune. It has merits which have been demonstrated after years of careful observation. The Standard and Conquest, recently introduced, are meritorious fruits but we would advise going slow on them until their value has been more clearly defined. We will be glad to advise with you fully about your requirements.

True Trees
--True to Name
--True to Quality
--True to the Reputation of Character and Reliability Built up by 33 years of Fair Dealing

NO matter what you may have in mind to plant this season it will pay you to consult Roeding. Regardless of whether you buy from us, we are always glad to consult with prospective planters. Of course, we have a good stock of citrus and deciduous fruits in nearly all varieties—and the name "Roeding" indicates the quality.

Ask Us About the FRENCH PRUNE IMPROVED

If you contemplate setting out prunes don't specify varieties until you learn more about this new wonder. Being larger than the French Prune, it fills the picking boxes quickly, costs less per pound to pick, brings better price per pound, bears every year without fail, has all the good qualities of the French Prune—and more.

Ornament Your Home Grounds with Roeding's Evergreens, Palms and Roses

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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Raising Geese

How many eggs does a goose lay? Does she brood after laying? I put five under a hen but had no success after 32 days. May be they were not fertile as they were the first ones. I was surprised as I have a good gander with two geese. I have 20 more eggs. What should I do with them, all from one goose; the other one is starting to lay too? Is it advisable to have them brooded by hens, and how many eggs can she cover? Must the goose have earth in her nest?—Subscriber, Redondo.

A goose will usually lay from 40 to 80 eggs in a season. They are in three clutches, after each one of which she goes broody, but is very easily broken up by being removed from the nest. The first two clutches of eggs are set under hens so that the goose will lay as long as possible, but she is allowed to incubate the third clutch. A hen can cover four or five goose eggs, according to the size of the eggs and the size of the hen. They should hatch in 30 days if they are fertile. Possibly your geese are yearlings. If they are you will find a great many eggs infertile. Geese are not mature until they are two years old, and it is hardly worth while trying to hatch from them earlier. It is rather early in the season for hatching. Possibly this is another reason for the failure of the first lot to hatch, and again it may be that there was a gosling in the egg all ready to hatch, but it could not break the shell. Goose eggs have very firm shells and it is often necessary to help the goslings out. The eggs should be sprinkled with warm water daily during the last week of incubation. You had better put what eggs you have under good big hens unless the geese are young, in which case it might be better to wait a month. Sprinkle the eggs, and if they do not pip by the 30th day break the shell and see what is inside. This must be done at the large end of the egg, and very carefully. You will also have to watch the hen very carefully while the goslings are hatching, for some hens don't like the looks of goslings. They will brood them nicely if they do not kill them on sight. I don't think the goose particularly needs earth in her nest. Let her sit where she has been accustomed to lay. She will fix up the nest to suit herself and will moisten the eggs properly if she has access to water deep enough to swim in.—J. A. K.

Epsom Salts for Hens

How much epsom salts should be given to 100 hens and how often?—Subscriber, Pasadena.

How much and how often depends entirely on what ails the hens. A recent University of California bulletin on the treatment of intestinal worms gives eleven ounces as the dose for 100 hens after the tobacco treatment has been given. Dr. Salmon speaks of 50 or 60 grains as a "full dose" for a single fowl in case of severe intestinal disorders like limberneck, and of 30 to 40 grains as the proper dose in milder ailments. I think the university's dose of eleven ounces to 100 hens might be taken as the limit for ordinary use, and if the question refers to occasional use as a preventive of disease, from eight to ten ounces per 100 birds should be sufficient. When the drug is given in this way it is mixed in moist mash once or twice a month.—J. A. K.

Odd Shaped Eggs

What causes hens to lay odd shaped eggs? Our Reds last year laid good hatchable eggs, but this year most eggs are unfit for hatching. Conditions were the same both years. Fed some corn since weather got cold, but went back to wheat for fear they were too fat. They have run of orchard and barn yard. Is there a chance eggs will get better shaped again?—V. D., Campbell.

Your hens must be a little too fat. If you will feed less grain and more of the laying mash and see that all grain is either buried in deep litter or scattered through the orchard so that they have to work to get it I think you will find the eggs returning to their normal shape. It is just possible that the age of the hens has something to do with their overfat condition and the resulting badly-shaped eggs. Old hens of the heavy breeds incline to fat and are very hard to reduce.—J. A. K.

Branding Horse

Is there any way of bringing out a dim brand on horse which now can hardly be seen or should the hair simply be sheared off?—Subscriber, Red Bluff.

We should think the best method would be the clipping or else re-branding so as to make the brand stand out plainer.

Fertilizer for Grapes

Would you recommend application of commercial fertilizer to Thompson Seedless grapes? If so, how, when, and in what quantity?—Subscriber.

The discussion of fertilization is too long a one to take up in this department. The analysis accompanying the inquiry shows the fertilizer to be a good one, but no matter how good the fertilizer may be there are many other questions involved in securing a better crop of grapes. Physical condition of soil is the first essential. The soil may be extremely rich in all the elements necessary to produce a crop but its lack of humus or of vegetable material which lightens and gives life to the soil may prevent utilization of these elements. Knowledge of the elements required to produce a certain fruit and knowledge of the chemical constituents of the fertilizer is of value but it must be considered in connection with present soil conditions. If there is sufficient vegetable mold in the soil this fertilizer would give good results. If not then green manuring or, better and quicker, the application of stable manure would give results far superior to any chemical fertilizer. The same inquirer wishes to know as to the application of gypsum to Thompson Seedless vines, as to whether it would do any good, and proper quantity to apply. The answer to this is

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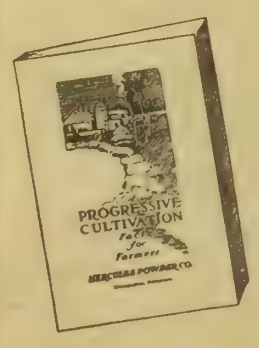

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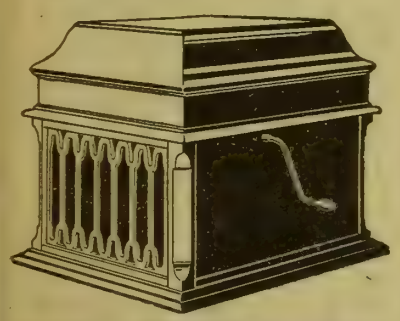

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practically the same as above, "What is the present condition of your soil?" Also bear in mind that gypsum is in no sense a fertilizer, but aids in making available the potash now in the soil and also where there is black alkali it aids in neutralizing or rather in changing this to white alkali, which is more easily removed from the soil.

Name for Ranch

I wish to name my ranch. How can I get a list of names already used, also how does one proceed to secure exclusive use of the name chosen?—Subscriber, Chino.

A long list of names chosen by various farms of California was given in the Cultivator of September 1, 1910 and May 9, 1912. The practice is quite popular and we believe should be made more so. As to securing a list of names which have been trademarked in California one should write the secretary of state for list and for blank application. This is to be returned to the secretary with a five dollar fee and the trade mark is granted if it is not a duplicate and then becomes exclusively the property of the one securing the right and may be used on products of the ranch.

Grape Pomace for Fertilizer

What value, if any, has grape pomace as a fertilizer for orange trees when dried and ground? Can you advise regarding results of the use of this material?—Subscriber, Lindsay.

Grape pomace is valuable but we have seen it applied to gardens where it was taken almost direct from the winery and the gases arising from the pomace practically killed the crops. Where it is "weathered" by being thrown in a shallow compost pile for some weeks or months it seems to be entirely safe. We are not able to give its analysis or its plant food value but know it is a valuable humus maker. It is probable that in orchards where the pomace is not too close to the trees there would be no danger in using at once.

One of the Potato Family

I enclose leaf covered with long orange-colored brittle spines. What plant is this from?—Subscriber, Saticoy.

This is Solanum pyracanthum, one of the potato and nightshade families. Some near relatives have been introduced into California but are not troublesome weeds.

Yellowing of Trees

What causes the foliage of Valencia trees to grow yellow? This condition has been growing steadily worse in my orchard since September. It was given a top dressing of straw in August and since then manure. Will this condition affect the yield?—Subscriber, Terra Bella.

As to what causes yellowing of trees, it may not be absolutely accurate to say there are something over a thousand different causes, but from the number of reasons given in discussions of this question which come up at citrus institutes that answer is the nearest to correct of any we can give. Our first step with yellow trees would be to look to the soil. We would lighten it up with strawy fertilizers, would get the air into the soil through cultivation or spading, working well around the trees, we would investigate as to hard pan, we would look to the condition of the trunk of the tree, that is, as to whether there might be gum disease, and finally perhaps prune out a part of the top. These suggestions are only a start toward an answer but may suggest an investigation which should be started at once.

Beet Nematodes

Am sending specimens of beets diseased and covered with small warts. What is the cause and remedy?—Subscriber, Orange.

The cause of this trouble is the beet nematode, a species of eelworm. As to control, there is practically none other than rotation of crops. A complete discussion of this pest with illustrations and general suggestions is "Control of the Sugar Beet Nematode", Farmers Bulletin 772 of the United States Department of Agriculture, which may be secured by writing the department at Washington.

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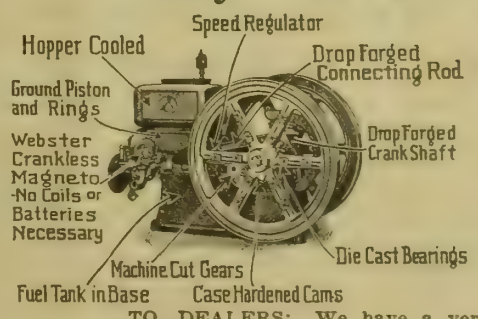

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Poultry in Kings County

Written for California Cultivator
By Grahame R. Saunders

KINGS County, although one of the smallest counties in the state and the county in which the purely commercial egg ranches can be numbered on one hand, produces upwards of a quarter of a million dolars' worth of eggs annually, while its shipments of live poultry, geese and turkeys total even more than that sum. In Kings County poultry has proved to be very profitable, and hundreds of peach, prune, apricot and other fruit growers are finding it profitable to run hens in their orchard, making them serve the double purpose of fertilizing the ground and producing eggs.

Nearly all of the eggs and poultry produced in Kings County are shipped to the markets in Los Angeles or San Francisco, the former generally paying the better prices for eggs, though live poultry and turkeys are generally sent to San Francisco. Despite the distance from both places moderate express rates enable the ranchers to ship without much loss. Eggs reach the markets at two cents per dozen for expressage, which includes the return of the case. This enables the ranchers to get the best prices possible for their eggs as they then have the choice of markets, north and south as well as local. Nearby towns such as Fresno and Bakersfield absorb a surprisingly large number of eggs as well.

The mild winter here with the light sandy soil makes the county particularly well adapted to poultry. Green feed grows all the winter without any trouble, while it goes without saying that in the summer, with all the irrigation there is, and the huge acreage of alfalfa that the county boasts, the question of green feed does not arise at any season of the year, while the light soil makes the very finest ground for hens to roam about on.

The largest ranch in the county today is that of W. C. MacFarlane, the pioneer commercial egg rancher of this county. For the past ten years MacFarlane has been out of the commercial egg business for six months of every year, selling his eggs for hatching purposes and making the county famous for being the home of the MacFarlane strain of heavy laying Leghorns. His ranch, which is known as the Richland Egg Ranch, is an irrigated peach orchard in which the hens, some 4000 in number, thrive. MacFarlane ships eggs all over the world.

M. A. Hemminger of Grangeville also has a big ranch devoted entirely to White Leghorns which keeps him busy shipping eggs all the time, while B. Hawley who has a 20-acre ranch northeast of Hanford is another extensive utility poultryman. In the Corcoran district large numbers of eggs are produced though Corcoran is becoming famous for its turkeys rather than its hens.

Turkey raising has become quite an industry around Corcoran and on the west side, where huge herds of turkeys are raised every year for the Thanksgiving and Christmas markets. It is estimated that more than 10,000 turkeys left Corcoran depot for the Los Angeles and San Francisco markets this fall, and this does not take into account turkeys raised in that district that were delivered at other points. One buyer alone bought and shipped 6000 head of turkeys at Corcoran.

Among the fanciers in Kings County William F. Heusel is one of the longest established. Heusel has a predilection for Wyandottes, particularly the Silver Laced variety. This type he has been breeding for 20 years and is one of the best known exhibitors in this part of the valley. Heusel makes an effort to keep his stock up to date by purchasing new blood from the best Eastern breeders at frequent intervals. G. L. Meadows specializes on Buff Orpingtons and Buff Leghorns and has made quite a name for himself in this part of the valley, being a frequent winner at the different poultry shows. Like Heusel, Meadows is no novice in poultry breeding, having followed it for many years. Archie Bassett, who is probably best known for his Poland-China hogs, is also interested in poultry, favoring the Plymouth Rock. Bassett has bred Plymouth Rocks for many years with great success.

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Other Kings County breeders of prominence are H. E. Hill and Raymond Botts, both Rhode Island Red fanciers. Botts has worked up quite a reputation and has shipped birds as far as Honolulu. E. E. Ford favors the White Wyandotte, recently taking the championship at the Lemoore poultry show for the champion bird.

Elias Gallup, although no longer an active breeder, must be mentioned, as he is among the pioneer poultrymen of this county. Gallup introduced the first Brown Leghorn into these parts, the birds being especially imported from Europe.

Among the turkey raisers mention must be made of Clarence Whitmore who took all the prizes worth while at the Panama-Pacific, including the championship for toms. Whitmore also exhibited at the recent Madison Square Garden Show with considerable success.

As in all other counties, the conditions under which poultry is kept vary with the individual poultryman. Most of those who are raising poultry on a commercial basis have adopted the open front house, finding it the most satisfactory. Likewise with feeding, everybody has his own method. The bigger poultrymen mostly mix and grind their own mashes, for, being close to the big west side grain fields, they can save considerable money in so doing.

The commercial egg raisers of the county are unorganized, all shipping as individuals or selling to local business houses. The fanciers however have organized under the name of the Kings County Poultrymen's Association. The association has just held a very successful fair at Lemoore and is planning on holding one in Hanford shortly.

Hooray for the Peach Association

Written for California Cultivator
By Leroy Anderson

I AM not in the business of drying peaches. I aim to ship as many as I can green and dry what I am obliged to. So I have each year from one to three dried tons. I sold the 1915 crop at 2¾ cents with two cents for culls. Last summer I joined the peach association and delivered my dried peaches to the San Jose warehouse in October. The money was paid me, 70 per cent in cash and 30 per cent in a six months' note bearing 7 per cent interest. My San Jose bank cashed the note at its face value, so my total receipts were substantially in cash. The prices paid were; No. 1, five cents per pound; No. 2, 4¾ cents per pound; culls, three cents per pound.

Compare these prices with the prices in 1915 and note what the peach association has done. Lest some one will say that the larger price is due to a short crop in 1916 and not the association, let me say that early in the spring before it was known what the crop would be and while the peach association was being formed, I was offered by packers five cents a pound for my 1916 crop. It may not be that the proposed prune and apricot growers' organization can do proportionately well for its members because prunes and apricots have ruled proportionately higher in price for the past few years than did dried peaches before the association was formed. But had the prune association been working in 1916 it would have given its members a better price than most growers secured and yet had enough surplus to pay all cost of operation.

A word about the "investment" necessary on the part of the growers. On four acres of peaches I took $40 in stock payable in four annual installments, making ten dollars due in in 1916. When one sees the greatly increased price obtained this year over 1915 it is plain that the little ten dollars was not hard to pay, the few culls alone paid that and I did not feel it. So don't consider the small amount of stock taken in the prune and apricot association as an investment, over which the grower must ponder for many weeks. Consider it rather as an insurance against speculation, against gambling, against ruinous prices and against all the other evils of the present marketing system.

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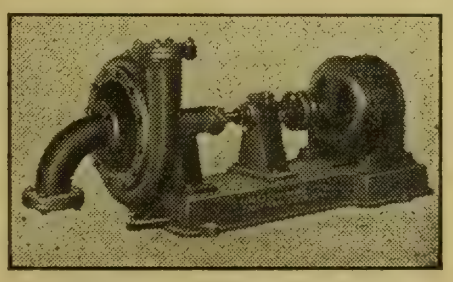

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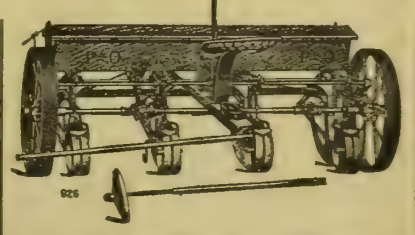

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The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

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Combined with California Cultivator 1914
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OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Through the courtesy of the Los Angeles chamber of commerce we give on the cover of this issue a scene taken in a Los Angeles County poultry yard. There are now shipped from California to various Eastern points carloads of winter produced eggs. At this moment these are not being shipped with any great profit to the producer, but with the new cooperative organization of this state in action we believe another season will show this winter business most profitable. Feed is extremely high and only cooperative buying in large quantities will let poultrymen live.

SAVE THE SEED

The department of agriculture is sending warning to farmers all over the United States to hold back at least sufficient of the present wheat crop for seed for the coming season's planting. The fall or winter crop will be exceedingly short because of the drouth which has generally prevailed over the country. Now the department fears that with wheat above the $2.00 mark the plumpest and best of the seed will be disposed of so as to cause a second year's shortage in the crop.

SECOND CLASS POSTAGE

The newspapers which have not been crowded out of existence by high price of paper and other things, some of which may be appreciated by our readers, are watching congress and asking what it proposes to do with the rider on the annual appropriation bill which provides that second class matter shall be subject to zone rates. The newspapers are already "treading water" to keep their noses above. If the postoffice department adds another burden some of the most helpful publications of the country will cease to be. Congress may be in desperate strait to make up the deficiency, but we believe the last place this burden should be settled is on the press of the country.

VISIONS OR DREAMS

At the meeting for organization of the poultrymen of Southern California Mr. Davison of Riverside County, in appealing for a step forward in the poultry industry, referred to the fact that while old men are dreaming dreams, young men are seeing visions. then called on those who are "young" enough to see a bit into the future to stand as one in action for progress and for business development amongst poultry people. There are thousands of dreamers, but few seers of visions; perhaps fewer doers who bring the vision to reality. If cooperative effort is to win we must have more seers and fewer dreamers. Bear in mind that years do not necessarily mean age.

SOME LOSSES

We would be richer by millions—this is not the editorial we—if it were not for the extremely heavy losses to agriculture. Few other callings could stand up under such enormous losses. For example, we note in the "Harvester World" estimates—true, only estimates, but indicative of some of these losses—that improper harvesting and failure to test seed corn cost the American corn farmer $250,000,000; not using acclimated seed corn, $100,000,000; ravages of corn root worm, $100,000,000; wasted corn stalks, $500,000,000; smut, $35,000,000; waste of manure, $100,000,000; weeds, $300,000,000. To all of which may be added losses from hog cholera, Texas tick, and a thousand and one other things, making an appalling total.

How to stop this is a long question, but the first step which must be taken is to get more information and get it in working trim. Scientists, schools, farm papers and other agencies are endeavoring to aid in this campaign. Of them all the farmer's will in the matter is the first essential.

MORE POULTRY

California is watching its magnificent exports of midwinter poultry products with no little pride. The poultry industry is increasing in this state most wonderfully in the past few years. Instead of importing a hundred or more carloads of eggs we are now sending strictly fresh ranch eggs to snowbound New York. Small express shipments have been made in former years, but carload shipments to the East are new. We believe this industry will grow, although at this moment poultrymen are holding up their hands and exclaiming, "What shall we do when one dollar's worth of feed makes only 75 cents worth of eggs." We believe this condition is only temporary and that the poultrymen will increase even more that feature of agricultural production which is now practically our greatest. The Cultivator hopes to aid in this campaign and has commissioned Mrs. Koethen to give a series of articles on best and cheapest feeds. She starts with green feeds, the first article of the series appearing in this issue. We will be glad to hear from subscribers with other suggestions.

POINTS OF ENTRY

The state horticultural commission has issued a circular letter, primarily intended for the county commissioners, which refers to the possible establishing of definite points of entry in each county; trees or plants for sale in that county to be forwarded to the entry point where competent inspectors will examine all stock and certify to its right to entry. Such a feature would generally be acceptable to the commissioners and as generally not acceptable to the nurserymen, and we may add that the orchardist would find in the plan many objections. The state commissioner in stating the case gives amongst the principal objections which have been mentioned: "The poor transportation facilities in some of the counties which would necessitate considerable delay in delivery, with the danger of the stock drying out and the great difficulty of repacking a lot of trees for reshipment to final destination after inspection. Just what action will be taken finally has not yet been decided. Careful consideration is being given to every phase of the plan, and when a decision is reached it will be with a knowledge of all the arguments for and against and a just consideration of all parties who would be affected by the establishment of such points of entry."

MAKING FARMERS

There is in this country a society known as the Jewish Agricultural and Industrial Aid Society whose work has attracted the attention of the International Review of Agriculture and Economics published by the International Institute of Agriculture at Rome. This society is in touch with some 3718 families of Jewish farmers now cultivating in this country 347,000 acres of land which with appurtenances and equipment, aggregate in value in excess of $26,000,000. This is estimated to be about 50 per cent of the total Jewish farming population of the country. This agricultural society is developing along various lines, but primarily its object is to grant loans to worthy applicants who are unable to secure money through the regular channels. For example, the owner of a farm now covered with a first mortgage may, under certain conditions, secure from this society a loan on long time at four per cent.

But before securing the loan the would-be farmer must secure experience, as it has been found too costly for him to acquire it afterwards. Hence the first step in helping the inexperienced applicant is to find work for him as a farm laborer. Then unless the applicant has thrift enough to have acquired at least $1000 he must make a wonderfully fine showing before he can secure any additional help. The society states that it carries on no "back to the land" propaganda. On the contrary it finds that its greatest task is to prevent those who are unfit from embarking on a venture for which they are ill prepared and in which their chances of success are extremely remote.

In this there is a lesson for American rural credit claimants. The back-to-the-lander who would leave an office in the city and become a full-fledged farmer must be brought to realize that just as there is necessity for several years preparation for professional life, so there is for the vastly more complicated calling of agriculture, in spite of the impression which seems to prevail that all that is needed is the desire. California must give heed to some of the suggestions made by the Commission on Land Colonization and give information as to real values of land and requirements which the farmer must meet.

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One of the largest seed houses in the West, the Aggeler & Musser Seed Company, Sixth and Alameda Streets, Los Angeles, have just received the first edition of their new 1917 catalog and are giving it broadcast distribution. This is their 24th annual catalog, and it certainly surpasses any previous edition.
It contains many new features, such as hints to the home vegetable gardener, how gardening may be made easy, etc. In fact, the supplementary booklet called the "Garden Manual", which heretofore has been printed separately, is this year incorporated in the big annual, and it is claimed to be one of the most complete seed books published. It contains answers to more than 1000 questions and gives information regarding all varieties of plants listed and is fully illustrated. Not only does it tell all about seeds, but gives full data concerning the correct tools and implements agriculturists should use to obtain the best results. Valuable hints on poultry, fertilizing and the use of insecticides are also given.
The Aggeler & Musser Seed Company will gladly send this descriptive, illustrated and interesting catalog, free and postpaid, to anyone writing and requesting it.

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Agricultural News Notes of the Pacific Coast

Northern California

Yolo County is to have a mosquito abatement district.

W. H. Browning of Woodland recently shipped a bunch of pedigreed Poland-Chinas to Panama.

The annual meeting of the California Sheep and Wool Growers' Association was held at Davis January 5-6.

At the recent annual meeting of the Paradise Fruit Growers' Union J. N. Bille was elected president and R. Charlton, secretary.

The California Shorthorn breeders organized an association recently in San Francisco. T. S. Glide of Davis was chosen president.

Large plantings of sugar beets will be made in the section near Ccico. One reason for the planting is to get rid of the yellow thistle pest.

Five thousand four hundred acres of sugar beets are assured of planting in the district about Chico, Butte County. The beets will be shipped to the factory at Hamilton City.

Horticultural Commissioner Moulton of San Francisco has given notice that all frozen oranges sent to the San Francisco markets will be confiscated if 15 per cent of the fruit shows frost drying.

Wm. Gould, Yolo County horticultural commissioner, states that there will be a large acreage of French prunes, Thompson Seedless and Sultanas put out next spring, Sultanas being in the lead.

Approximately 4000 acres of rice next year is the outlook for Yolo County. The crop this year averaged about 45 sacks per acre. Ninety-eight per cent crop is harvested with no injury from rains.

The Sonoma County Development Board is moving to secure a highway lateral across the county from the Black Point cut-off through Sonoma, Santa Rosa, Sebastopol and Guerneville to the ocean.

One of the silos on the university farm at Davis was filled this fall with Sudan grass which will be used in feeding dairy cows in order to determine its value in comparison with corn and other sorghum silage.

Potato Expert Shear is making final inspection of seed potatoes in the Fruit Ridge and Camino districts of Eldorado County. There are heavy plantings in this section and growers are feeling correspondingly wealthy.

State Horticultural Commissioner Hecke is working with the weed elimination committee of the Sacramento Valley Development Association in a thistle campaign. Local committees are being appointed to work with the general committee.

Central California

Plans are already being made for the citrus fair at Visalia next year.

Methods of pruning grapes were discussed by Prof. Bioletti at Hanford last week.

A cream pooling association has been formed by the Patterson Colony of Stanislaus County.

Fresno County farm bureaus are still working to secure the appointment of a farm adviser.

Smudge pots have been used this year in Tulare County more extensively than in former years.

Visalia shipped out more than a dozen carloads of live stock last week, most of them going to San Francisco.

Lindsay, Tulare County, had shipped up to December 20, 1489 carloads of oranges. The shipping season will last for another six months.

On December 15 the three creameries of Tulare paid out $110,000 for November cream deliveries. This is $9000 more than October payments.

At the recent annual session of the State Farmers' Union at Modesto, D. M. Utter of Campbell was elected president and Fred Millard of Los Angeles, secretary.

At the present time cream from over 2000 San Joaquin County cows is sold through farm bureau cream pooling associations. This means a yearly business of about $150,000.

The state board of control has announced that this state will provide funds for the purchase of rights of way for the Stockton channel. This is a big gain in Stockton's fight for a 20-foot channel that will allow ocean-going vessels to land at its wharfs.

A meeting was held in Hanford December 20 in the interests of the State Prune and Apricot Growers' Association. Manager Madison of the Associated Raisin Company was the principal speaker. Manager Niswander of the California Peach Growers also spoke.

Representatives of eight irrigation districts in the San Joaquin Valley have approved plans for building a conservation dam in Fresno County. A later meeting will be held to report on costs of the project with a view to consolidating all the territory depending on Kings River for irrigation water.

The Ripon Farm Center Pooling Association has let its year's cream supply to the Stanislaus Creamery for four cents net above San Francisco market quotations. At the present time there are over 1200 cows in the association, which has a membership of practically all dairymen of the Ripon section.

Southern California

Imperial County held a successful live stock fair December 27-30.

San Bernardino is making plans for the National Orange Show in February.

The orange crop of Hemet Valley this year gives promise of being the largest ever, at least 125 cars.

The annual meeting of the Fontana Poultry Association was held at Fontana January 8 at 7:30 p. m.

The El Cajon Farm Loan Association met in El Cajon on January 9. H. Culbertson is president.

The Montalvo and Saticoy bridges in Ventura County are to be opened for traffic the first part of January.

It is now definitely announced that the cannery on East First Street, Santa Ana, will be opened next season.

The Riverside chamber of commerce is planning for a diversified crop institute to be held at Riverside January 19-20.

Imperial County holds second place in the state as butter producer. Stanislaus heads the list. Humboldt County is third in order.

A suit has recently been filed against the city of San Diego for destruction of a ranch by the breaking of the Otay dam last winter.

Bean warehouses of Ventura are rushing work in cleaning beans damaged by October rains. The work is being pushed day and night.

Because of continued irrigation difficulties some ranchers of the Hemet Valley are proposing that the irrigators themselves acquire the water system.

An effort is being made in Ventura County to have the supervisors reverse their action in refusing an appropriation to carry on the work of the county farm adviser.

Fruit growers associations of California are happy over the deferring of the freight rate raise. The rate was to have become effective December 30 but will not now be put into effect until March.

Four hundred poultrymen of Southenr California have formed a marketing association which will maintain headquarters in Los Angeles. Four hundred thousand hens are represented by members of the association.

A poultryman of Arlington, Riverside County, claims that he is getting 100 per cent more eggs by turning on electric lights in his poultry houses at 4 a. m. and again at dark in the evening. By his lighting system he gives his hens a 15-hour work day.

The Coast

Nine dollars 95 cents and ten dollars are reported as the highest prices being paid for lambs in the Portland market.

Yavapai County breeders of Angora goats estimate their mohair clip for next season will be worth at least a half-million dollars.

Southern Oregon beet growers are being offered $7 a ton for their 1917 beets. Last season's prices ranged from $5.50 to $6.00.

An egg-laying contest will be begun February 1 under the auspices of the Phoenix union high school. The contest will close May 31.

At the live stock show recently held at Lewiston, Idaho, beef cattle largely predominated. There was also a large showing of draft horses.

Cranberry growers of Oregon and Washington are preparing to put a new drink on the market, the base of which is to be cranberry juice.

The fourth annual meeting of the Arizona Farm Improvement Association was held at the University of Arizona at Tucson January 8-13.

Berry growers of the Nooksack Valley of Washington have organized a marketing association. Most of the growers are raising raspberries.

A movement is on foot in Arizona to ask the next legislature for an appropriation for permanent agricultural buildings on the state fair grounds.

Prairie dogs are a great pest in the Sulphur Springs Valley of Arizona. A spring campaign has been planned against them by County Agent Paschall.

About 325,000 bushels of wheat will be handled through the four farmers' elevators of Wasco County, Oregon, this year at Maupin, Boyd, Rise and Emerson.

The Oregon State Horticultural Society held its annual at Hood River last week. Marketing and car shortage problems were the two principal subjects discussed.

The Skookum Fruit Products Company will establish a by-products plant at Wenatchee, Washington. The main products will be sweet cider, jellies, vinegar and evaporated fruits.

A Holstein bull sold at Portland recently for $21,500. The animal was Finderne Mutual Fayne Valdessa, sold to John von Herberg, who has a Holstein herd in Kent, Washington.

To encourage corn culture a national bank of Spokane is planning to distribute prize winning corn free to farmers. This corn was selected at the National Corn Show recently held in Spokane.

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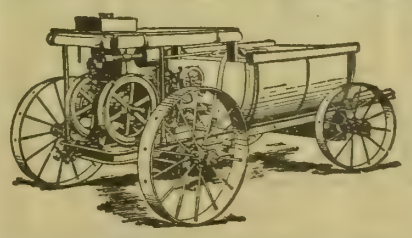

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Look these over:

No. 1. Born March 16, 1915. Sire, ARALIA DE KOL PONTIAC SEGIS, son of the 30-pound 12-year-old cow, ARALIA DE KOL, 1142 pounds butter in a year from 28090 pounds milk. Dam, MISS LUIT WALTER BURKE, a daughter of PRINCE GELSCHE WALKER from a 32.76-pound 4-year-old daughter of DE KOL BURKE. His dam made 16.83 pounds butter in 7 days and 540 pounds in 10 months as a junior 2-year-old. He is a model in type. First prize yearling at Fresno district fair. Price $250.00.

No. 2. Born September 9, 1915. Sire, ARALIA DE KOL PONTIAC SEGIS. Dam, RIVERSIDE SEELY GIRL, 795 pounds butter and 17591 pounds milk in one year. She has a 21-pound 2-year-old daughter that made 751 pounds butter in a year. Price $200.00.

No. 3. Born December 15, 1915. Sire, ARALIA DE KOL PONTIAC SEGIS. Dam, Miss BLANEY PONDYKE, 21.52 pounds in seven days as a 4-year-old. Her sire is by KING OF THE PONTIACS and has two 30-pound daughters. His dam made 27.60 pounds in 7 days and 1008 pounds in a year. Price $150.00.

Pedigrees and further information on request.

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New Years Records

Written for California Cultivator By W. S. Guilford.

RESOLUTIONS are good things if carried out. Let one of these be to make records of the essential farm transactions so that at the end of the year an accounting may be had that will show what progress has been made and along what lines, and if anything has not gone well it should make it easy to locate the policy of operation at fault.

After the holiday season is passed is a good time to make an accounting, which will begin with an inventory of stock, equipment and supplies on hand. This checked with an account of income and expenses, and a comparison with last year's inventory, gives a splendid idea of the standing of the business, and if there is no last year's inventory, or any 1915 accounts to check by, now is the time to start a system that will put the farm on a business basis.

There need be no great formality about this farm bookkeeping system. There are very useful farm bookkeeping sets for sale. The Cultivator has a very complete set of forms at a reasonable price.

Then, after the inventory, a daily record of expenditures and receipts will be easily kept and provide a record of the year's operations. Then, if at any time it is necessary or desired to segregate any account, such as the number of hogs sold and their value, this can readily be obtained from the record of receipts.

There is a fascination about records of this kind, and when anyone starts to keep them and keeps at the job long enough to get an interest in it, it will prove a favorite occupation for many an evening.

Turkeys and Dogs

Dogs and poultry are not commonly thought to mix well, but the dog is a very useful adjunct to turkey growing in the Sacramento Valley, as is indicated in the accompanying picture which shows a band of turkeys with the caretaker and his dog. The dog drives the turkeys the same as he would sheep.

Thousands of turkeys for the Thanksgiving market are now being fattened on the stubble fields where they get grain and grasshoppers.

Great care is necessary in raising these big bands of turkeys and they require careful attention constantly. The band of turkeys shown in the picture is near Orland in Glenn county. —W. S. G.

Let the Sunshine In

Many young pigs are being farrowed now, and on a good many farms in order to protect them from the rain and storm it is necessary to put them in barns and sheds where they do not get much sunshine. And sunshine is one of the things a young pig needs. You can almost see healthy, well fed young pigs grow when they can run around in the bright sunshine and lie in some warm protected spot on the south side of a building or fence.

Whenever the sun shines in the winter time doors and windows should be opened to let the sun into every possible spot in the buildings in which animals are kept. Germs of disease thrive in moist, dark places and unhealthy atmospheres and foul smells are not found in the bright sunshine.

Breeding Conditions

There has been a lot of discussion in California since the Panama-Pacific Exposition about what constitutes "breeding condition." The question is "Can animals be fitted so as to win at the shows and retain their breeding qualities?" And just how fat must they be to win?

Here is some light on the subject from Wallace's Farmer:

"Many a breeder of improved stock has fallen just a little short of success through a wrong notion of what constitutes breeding condition. When we visit a breeder for the purpose of buying a young bull, and he remarks on the way to the barn: "I don't pamper my young cattle; I keep them in just good breeding condition," we find as a rule that his bulls are altogether too thin in flesh to do justice to themselves or to him.

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"Selecting and Developing the Jersey Herd"

is the title of a practical booklet by Prof. Hugh G. Van Pelt Tells how to select a sire for your herd. Shows how to secure the five essential points every paying dairy cow must possess. Explains how to so feed and handle the heifer calves as to develop greatest milk production. Whether you are now breeding Jerseys or not you need this booklet—it's free. Send to-day. Please mention this paper.

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BLACK LEG LOSSES SURELY PREVENTED by CUTTER'S BLACKLEG PILLS

Low-priced, fresh, reliable; preferred by western stockmen, because they protect where other vaccines fail.

Write for booklet and testimonials.
10-dose pkg. Blackleg Pills, $1.00
50-dose pkg. Blackleg Pills, $4.00

Use any injector, but Cutter's simplest and strongest. The superiority of Cutter products is due to over 15 years of specializing in VACCINES AND SERUMS ONLY. INSIST ON CUTTER'S. If unobtainable, order direct.
The Cutter Laboratory, Berkeley, California

Berkshire Hogs—Milking Shorthorns
Breeding Stock For Sale
C. A. Murphy, - Perkins, Cal.

accurate judgment of a young bull when he is thin. The average buyer wants to see young stuff in good, smooth flesh. This does not mean overfat; but there are very few young bulls which have been injured by carrying too much flesh during the first year of their life. It takes feed, and plenty of it, to present a young bull in attractive sale condition; but it pays even in these days of high-priced feed; and the sensible buyer will demand it, first, because it indicates that the bull is a good feeder, and, second, because it gives him a fair opportunity to judge of its quality. Improved stock is fetching good prices; and those who are preparing young stuff for sale can well afford to feed liberally. In fact, they can much better afford to do this than not. It is all well enough to carry through the breeding cows in just good, strong breeding condition, but with young stuff a liberal hand has its reward."

Advertising That Money Cannot Buy

Since Professor Gordon H. True of the state university farm went to the Chicago International with two California bred steers and startled the whole livestock world by bringing home the grand championship and reserve grand championship, the writer has stated on numerous occasions that a half million dollars would not cover the advertising benefit which will accrue to California through this great achievement. I note however that Mark Bassett of Hanford went even farther when he stated in a recent Cultivator that money could not pay for the good this winning has done for California. The more I think it over the more I see where Mr. Bassett is right. It takes only a superficial knowledge of advertising values to figure out half a million dollars' worth of benefit, but when we think right down to advertising brass tacks there is almost no limit to the good Professor True and his two steers will do California.

It only brings out once more, and this time in the most forcible manner yet, that the people of the East and Middle West, the kind of people that we want and need on California farms, have for years been filled to the ears with the "land of sunshine, fruit, and flowers" press agent stuff. For years every chamber of commerce, commercial club, and real estate firm in California has contributed to the flood of literature sent East to attract settlers, and out of thousands upon thousands of tons of such matter practically all of it has painted California in the gold of the orange and the purple of the grape. The effect of all this has been to build up an impression that California grows nothing but fruit.

The first real tangible evidence that the East ever had of the existence of farm animals in California was when our breeders of dairy cattle began to break world's milk and butter records with perfect abandon some years back. Thus California came to be recognized as a dairy state of the first rank.

Probably no cornbelt farmer would have been so foolish as to consider seriously the possibility of California producing an International Grand Champion steer—before the last International. But now there are tens of thousands of beef cattle men throughout the world who know positively that California has produced an International grand champion steer, and the reserve grand champion as well, and that she did it without feeding a single ear of corn, which is rank heresy in the mind of the corn belt farmer.

It often requires a real jolt, something spectacular, to drive home to the minds of a busy people even almost self evident truths. The livestock world has now been jolted into the consciousness that California can produce the best steers in the world on a ration of alfalfa, barley, and the other feeds we grow in abundance. There are no doubt thousands of men back East who prefer to stick to beef cattle farming as their life work and who would long since have engaged in their favorite business in the favorable climate of California had they known they could really raise good beef out here. Thanks to Professor True, and not forgetting Alex McDon-

Why Let Your Cows Slink Their Calves?

What is Abortion in cows?
A contagious, communicable venereal disease that is costing the breeders of the U. S. millions of dollars yearly.

Can this disease be prevented or overcome?
It can be prevented and overcome.

What do the agricultural colleges say?
Some say it can be prevented and overcome and others say it cannot be.

What does the U. S. Government say?
The U. S. Government recommends the hypodermic treatment as the very best method of combating this disease.

Who says that Abortion cannot be prevented and overcome?
People who have not used the Roberts treatment, or who have used only part of the treatment and not according to instructions.

Who says that Contagious Abortion can be prevented and overcome?
The owners of 5,000 herds of cattle who have treated their cattle from one to four times during the past 25 years, owing to the fact that their herds had become reinfected through new animals purchased.

Has this treatment always proved successful?
No; because the directions have not been followed.

Does Dr. Roberts claim that this treatment will wipe Abortion out of any herd regardless of how long it has been afflicted?
Yes, absolutely; providing the cattle are free from tuberculosis and providing directions for treatment are followed.

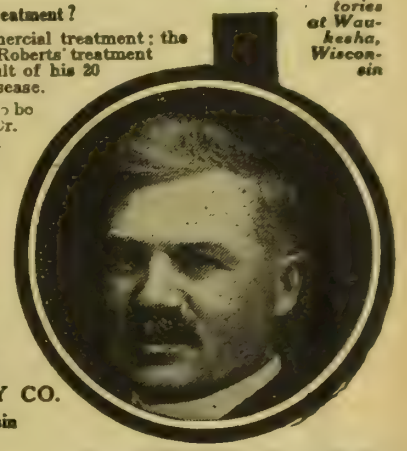
What evidence is there that this is true?
Animals and herds that were pronounced incurable by veterinarians and owners after having many kinds of abortion treatments given and applied to them have been successfully treated by Dr. Roberts and have been given splendid 7-day and yearly records. Lynden Grove Betsy De Kol, 5 years old—yearly butter record 721.49 lbs. and 18,563 lbs. of milk—is a typical case.

Do agricultural colleges indorse the Roberts treatment?
No; Agricultural Colleges cannot indorse or recommend any commercial treatment for live-stock diseases.

Does the U. S. Government recommend the Roberts treatment?
The U. S. Government cannot indorse any commercial treatment; the Government bulletin, however, embodies all of Dr. Roberts' treatment except these additional values, which are the result of his 20 years' scientific work and personal study of this disease.

All Abortion treatments are shipped direct from our laboratories at Waukesha, Wisconsin

If Dr. Roberts can buy infected herds, knowing them to be such, and by his treatment wipe out the disease; if Dr. Roberts can introduce the disease into a herd through infected animals, then check it and wipe it out; if Dr. Roberts can keep his own valuable herds of pure bred cattle free from tuberculosis and contagious abortion, it proves that it can be done. *Dr. David Roberts has done these very things and what he can do you can do if you will do as he tells you to do.*



There is a Roberts medicine for every animal ailment. Sold by nearly 4000 druggists; if not at yours, write us direct, give your dealer's name. Look for and insist on getting the package bearing Dr. Roberts' picture. Dr. Roberts' great "Practical Home Veterinarian," 184-page cloth-bound book, will be sent you postpaid for $1.00.

DR. DAVID ROBERTS VETERINARY CO.
140 Wisconsin Avenue, Waukesha, Wisconsin

Another Shipment of Shorthorns Just Arrived

35 Registered Scotch-Topped Bulls
15 Registered Scotch and Scotch-Topped Cows and Heifers

All This Stock is Tuberculin Tested.
They are Large, Rugged Individuals with Excellent Bone and Quality

A Few Choice Berkshire Boars and Gilts For Sale

H. L. & E. H. Murphy, Perkins, Sacramento Co., Cal.

Poland Chinas, Medium Type

Choice breeding stock, both sexes, from Panama-Pacific International Exposition prize winning strain. 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows. $2145 cash awards. Write to

M. Bassett

Hanford, Kings County, Cal.

SHORTHORNS ***BERKSHIRES***

Hopland Stock Farm

Fifteen head Shorthorns at State Fair awarded 19 premiums. Herd boar award d Reserve Grand Championship. Grand Champion Sow now added to our herd.

Bulls, Boars, Bred Sows and Gilts

San Francisco Office: 1210 Flood Bldg.

ald, the world now knows California as a producer of the best beef, and truly the benefits that will come to this state through the driving home of that knowledge cannot be measured in terms of money.

DUROC-JERSEY MEETING

The Southern California Duroc-Jersey Association will hold a regular meeting in Los Angeles on January 18, 1917, the exact time and place to be announced by one of the speakers of the California Swine Breeders' Association that morning. All people interested in Durocs in Southern California are urged to be present. Those desiring to be members should send their names to the secretary, R. K. Walker, Devore. The dues are one dollar per year.

THE CORRUGATED CREAM SEPARATOR

The Standard for years. Has greatest cream gathering power. Operates itself, saving your time and labor. More cream and more and better butter. Greatest labor saver ever used on the farm. GUARANTEED. Write for catalog.

Ed S. Cushman Co., Dept. 14, Centerville, Iowa, U. S. A.

California Swine Breeders

Plans Worked Out for Program, Which Will Create Great Interest. Automobile Trips About Los Angeles Will Add to Pleasure

THE annual meeting of the California Swine Breeders and election of officers will be held in Blanchard Hall, Los Angeles, Thursday and Friday, January 18 and 19. Headquarters of the association will be Hollenbeck Hotel. The swine industry never commanded the attention in California that it does today, and there are many problems which call for discussion. One of the live questions before the coming convention will be that of prices. The packers of Los Angeles are taking a special interest in this meeting, and one of the addresses noted below is to be on why California packers do not pay Chicago prices. Presumably there will be a discussion on this topic which will show some life. Note in the detail of the program below that there will also be a killing demonstration at the Cudahy Packing Company, a cutting display at the Wilson Packing Company, and inspection of plant and luncheon at the Hauser Packing Company. These will all be most interesting features of this convention. In detail the program will be:

Thursday, January 18, Blanchard's Hall, Los Angeles. Headquarters: Hollenbeck Hotel.

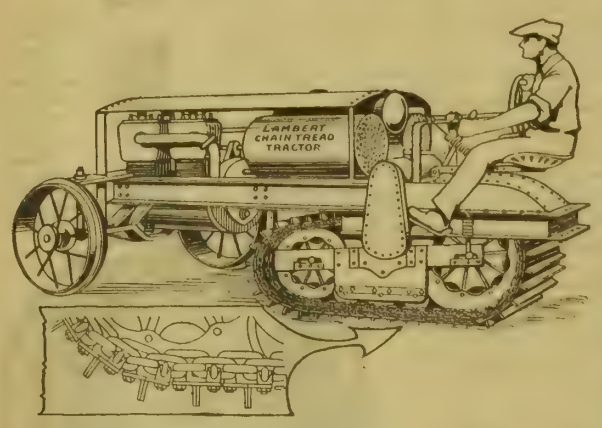
9:30 a. m., business session; 10, "The California Swine Breeders' Association," C. B. Cunningham; 10:10, "The Swine Business," Hon. Jas. Mills; 10:30, "Feeding Growing and Market Hogs," Leon L. Lamson; 11, "The Breeding Herd and the Pure-bred Business," Wm. Bernstein; 11:20, Discussion: Feeding Problems, Self-Feeders, etc.; 1:30 p. m., "Why the Prices of Swine in California are Lower Than in Oregon or in the Middle States," F. I. Washburn; 2:15, "Why Strictly Grain Fed, Milk Fed, Alfalfa Fed, and Acorn Fed Hogs All Bring About the Same Price in California," Frank Hauser; 3, "How to Market Hogs in California," Harris Weinstock; 3:35, "What Is Being Done and What Should Be Done for the Good of the Swine Industry in California," D. O. Lively; 7:30, theatre party.

Friday—8:30 a. m., killing demonstration at Cudahy Packing Co.; 10, cutting display at Wilson & Co. packing house; 11:30, inspection of plant and luncheon at Hauser Packing Co.; 1 p. m., visit to moving picture studios and other points of interest in Los Angeles.

The railroads have granted a rate of a fare and one-third on the certificate plan. —J. I. Thompson, Secretary.

Secretary Wiggins of the Los Angeles chamber of commerce is anxious for more autos. Many have been promised, but present indications are that the attendance will be large, and anyone near Los Angeles who can come with machine on Friday morning should report at once to the chamber of commerce.

HAVE YOU SEEN IT?



If not you had better investigate it before buying or you will wish you had. No other tractor like it. No other tractor that has a track like this. No other tractor has a track so cheap to keep in repair. No pins or bushings to wear out in this track. No other tractor which has a straight pull regardless of where the hitch is made

Nothing but chains to hold this track together. Simple in construction. easy to operate.

COME AND SEE IT OR WRITE FOR PRINTED MATTER.

Wm. Gregory & Sons

Distributors for Southern California

602-606 N. Main St. -:- Los Angeles, Cal.

Breed More Draft Horses

By Wayne Dinsmore

DANGER of overproduction of horses is remote. It costs more to produce them than any other class of live stock. For that reason many farmers sit back and proclaim that it doesn't pay to raise horses, that there never was a time when the horse market was so dull as now, that the motor truck and tractor have killed the horse business and the horse is a thing of the past. Those who have allowed such thoughts to direct their operations for the past five to ten years will soon see the error of their ways. It takes time to make much headway in the horse business. Five years are needed to grow a horse. At best one should not expect more than two colts from three mares as an average per year. Moreover, not more than 16 per cent of our farmers are raising colts. Not long hence the American farmer will wake up only to learn that a great opportunity has passed. There are plenty of men who have bought and paid for farms within the past ten years by their pure bred draft mares. In the same community there are farmers who are no better off financially than they were a decade ago because they failed to foresee the profits from using the right kind of horses in their farm work. The men who have made money and who are going to reap the fruits of their efforts in the future are those who early saw the undeniable need for heavy draft horses for farm work, who bred that kind and who will continue to do so without a halt.

A careful consideration of the situation cannot fail to convince us that there is no danger of an overproduction of heavy draft horses for our farm and city uses. Almost a million horses and mules have been exported from this country in the last 27 months for use in war. These figures show almost one horse or mule taken for every 25 left. As surely as this war continues another two years, good farm horses will be at a premium, and even after the war is over exports will not cease, for thousands of horses will be needed to start European agriculture anew.

We are producing only 12,000 or 13,000 pure bred draft horses eligible to registry. This means, in substance, that we are producing only 5000 to 6000 stallions fit for service per year, when we need at least 7000 or 8000. An excess of demand over supply always makes good prices, and the present is no exception.

FOREST GROVE LAUREL 8TH
First and Reserve Grand Champion
California State Fair 1916

The Type We Are Breeding For

Hardy, prolific sows of best blood lines and breeding. Strong, upstanding, prepotent boars. In short the best possible specimens of the Berkshire breed. We plan to do this by breeding large numbers and from them making a rigid selection.

James Mills Orchard Corporation

Hamilton City, California

Live Stock Field Notes

Fontana Ranch Company, San Bernardino County, have just imported a classy Duroc-Jersey boar from the East. He is only one of many on this ranch which probably markets the largest number of market hogs of any one plant in the state. It also has a large herd of Berkshires.

Peters, Lamson & Walker, for many years the premier Duroc breeders in the Imperial Valley, have sold out their land holdings and moved closer to Los Angeles. They brought along the pick of their wonderful bunch of sows and are busy building accommodations to take care of some 250 head of brood sows.

A. M. Draper of Imperial County has been assembling a purebred herd of Holsteins the past year. At the Imperial Valley fair he showed his best cow, Nancy Mercedes De Kol 114814, a daughter of Sir Mercedes DeKol Netherland, and won first and grand champion. Mr. Draper will do official test work as soon as he makes the necessary improvements on his ranch.

Hollow Hill Guernsey Farm, Riverside County, recently purchased a string of fine females in Ohio and Pennsylvania, which, added to their already large collection of Guernseys, makes this farm one of the largest in the state. Purebred Berkshire hogs are grown here also, and they have a regular show bunch of sows and boars. There are ten cows on official test at the present time.

Stalder Bros., Riverside County, are running several of their Holsteins on official test. This herd has several 30-pound prospects and one or two females which have already gotten in this select circle. A. J. Stalder is considered one of the keenest business men in Southern California, and he values his Holstein herd above any one of his many interests.

Bringing a comparatively new breed of swine into a section where the other breeds had been established for a decade and making them so popular it is with difficulty enough good individuals can be produced to supply the demand, is the record of the Llano Vista Hampshire herd of Riverside County. Mr. Langdon, the manager, says he grows 200-pound barrows at six months of age which are snapped up by the killers as fast as they are finished. The herd is composed of 1915 world's champions, exhibited by Walter Gatton at San Francisco and purchased from him early this year by the Llano Vista people. Sioux Queen, the P.P.I.E. grand champion Hampshire sow, has farrowed a bunch of typey pigs.

COMMERCIAL HELPS AND HINTS

The Coulson Poultry and Stock Food Company of Petaluma issues a very valuable booklet entitled, Chickens, From Shell to Market. It contains general information for the beginner and the experienced poultryman and may be had free for the asking. Every reader should get a copy.

You can always sell your first class poultry to the California Poultry Company, 315 Washington Street, San Francisco. This is the largest concern of its kind on the coast and the treatment accorded its patrons has been universally satisfactory.

Mr. J. E. Kresky, of Petaluma manufactures a brooder stove which is particularly valuable for those having 100 chicks or more. His circular is full of brooder information and will be sent free to those interested.

Have you heard about the Electrified Hen? It is an electric incubator manufactured by the Petaluma Incubator Company. With the use of electricity in so many household ways it is only natural that it can be used to advantage in the hatching of eggs. An interesting circular giving full description of this new incubator will be mailed without cost to readers of the Cultivator. Better write for it.

A very valuable booklet "Makes Hens Happy" has just come to our attention. It is issued by the Sperry Flour Company of Stockton and will be sent free. It also contains some freight coupons which are of actual money value in the purchase of goods from this company. We recommend this booklet to every poultryman.

If you are interested in a silo don't fail to write to the Redwood Manufacturers Company of San Francisco. A booklet issued by this company contains much information which will be of immense value to every stockman and farmer. The booklet will be mailed free to those who are interested in building a silo.

This is the Roof Covering You Want

Everybody Praises it—ELASTIC-GUM-COATING is just the thing for covering roofs—Cheap and Efficient

Here is just the roof covering every California home owner should have—ELASTIC-GUM-COATING. It stops leaks, preserves wood, is low priced and easily put on. It cannot crack, scale or blister. Thousands of gallons being sold. Has strongest endorsements of California ranchers and dealers.

Send today for free descriptive circular, price list and sample offer. If your dealer does not yet handle ELASTIC-GUM-COATING, write direct to

Artisans Manufacturing Co.

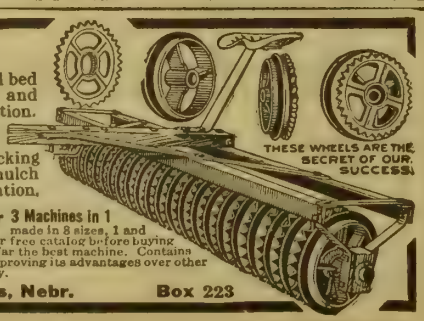
DISTRIBUTORS WANTED

C. M. Wood, Western Representative
Phone Glendale 529 J

Los Angeles

WHEAT, ALFALFA

and other grains yield more where a perfect seed bed is prepared. The **Western** pulverizes, packs and mulches—makes a perfect seed bed at one operation. Saves seed, time and horse power. Is especially adapted for breaking crust on winter wheat or other grain or in orchards after irrigation or packing rains. It forms the hardest crust into a granular mulch without hurting the grain, and prevents evaporation.



Western Pulverizer, Packer and Mulcher 3 Machines in 1 made in 8 sizes, 1 and 3 sections, prices $20 and up. We want every farmer to have our free catalog before buying a roller or packer. It proves we can save you money and have far the best machine. Contains full description, price direct to you, letters from many farmers proving its advantages over other makes, and much other valuable information. Send for it today.

WESTERN LAND ROLLER CO., Hastings, Nebr. Box 223

$16.95 Upward ON TRIAL
American
FULLY GUARANTEED
CREAM SEPARATOR

A Solid Proposition to send new, well made, easy running, perfect skimming separator for $16.95. Skims warm or cold milk; heavy or light cream. Different from picture, which shows larger capacity machines. See our plan of
MONTHLY PAYMENTS
Bowl a sanitary marvel easily cleaned. Whether dairy is large or small, write for free catalog and monthly payment plan. Western orders filled from western points.
AMERICAN SEPARATOR CO.
Box 1194 Bainbridge, N. Y.

Large Type Poland Chinas

W. H. Browning
Woodland, Yolo County, Calif.

Purebred Registered
HOLSTEIN CATTLE

During the fiscal year ending April 30, 1916, there were reported to the Advanced Registry Office of the Holstein-Friesian Association, 11,868 short time official records, over one half of which were by heifers with first or second calves. The average seven-day production of these 11,868 animals was 401.1 lbs. of milk, containing 3.53 per cent of butterfat. These figures emphasize the fact that Holstein merit is based, not on individual records, but upon the wonderful uniformity of high productiveness of the purebred Holstein cow. There is big money in the big "Black and White" Holsteins.

Send for FREE Illustrated Descriptive Booklets
The Holstein-Friesian Association of America,
F. L. Houghton, Sec'y, Box 120, Brattleboro, Vt.

HOOD FARM
BREEDING POWDER

Makes barren cows and mares breed readily; destroys germs of abortion; causes cows to come in season; makes cows clean without force; stops unhealthy discharges; has been used with marvelous success by thousands of breeders. Guaranteed to cure barrenness if a cure is possible. We want you to try it. Advice free.
Prices prepaid $1.15, $2.75 and $5.00. Flexible Injection Tube 90c., or with $5.00 order 75c. Order now, mentioning this paper.
C. I. HOOD CO., Lowell, Mass.

E. W. MAJOR
Dairy Cattle Judge and Expert
Formerly with Universities of Minnesota and California
TWENTY YEARS EXPERIENCE
In Breeding, Feeding, Selecting and Showing Dairy Animals.
Practical Farm Buildings Planned
Advice given, cattle purchased
833 North Coronado St. : Los Angeles

DUROC JERSEYS
A few fine, strong, active breeding boars and several splendid open or bred gilts for sale.
Won six firsts at Fresno 1916.
ALLEN THOMPSON
Route A Tulare, Cal.

AUCTIONEER
Will conduct sales anywhere in California. Pure bred live stock sales given special attention. For dates and terms address
T. J. Gilkerson
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Rhoades & Rhoades
Expert Live Stock Auctioneers
Pure Bred Stock Sales a Specialty
Sales conducted in all parts of California and Adjoining States. 25 Years' Experience.
BEN A. RHOADES, Auctioneer
1501-3-5 So. Main St., Los Angeles, Cal.

Early Northern Grown Berkshires
Are Making Good in Southern California
Write for Illustrated Literature
Silver Birch Farms, Box C. C., Newport, Wash.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.
Unsigned communications receive no attention.

Eye Trouble

I have a four-year-old mare that has had a scum over one eye for several months. She appears to see well out of it. Would like to know the cause and what to do for it.—Subscriber, Goleta.

First examine the eye to see if there is not something in it. Turn the lid back and look for a seed of fox tail grass or something that may be bedded in the eyeball or the inside of the lid. Wash it out with water that has borax dissolved in it. Get your druggist to prepare a lotion of one dram of boracic acid, one dram of granulated sugar, ten grains of atropine and enough water to make four ounces. Put some of the lotion in the eye every evening but do not squirt it in with a syringe or he will always be shy about the head. Use a small sponge or some surgeon's cotton tied on the end of a small stick, dip it into the lotion and squeeze it out inside of the lid.

Locomotor Ataxia

I have a valuable horse that lay down in the corral about five weeks ago and has been unable to get up since without being helped with slings. Have had him in slings most of the time since but he is still unable to walk without staggering until he nearly falls. Have had four veterinarians to see him but none could decide what was wrong. They have tried several remedies but all have given it up He seems in good health otherwise but is so unsteady on his hind legs that he gets them terribly mixed up when walking for a short distance. I leave the slings loose during the day but draw them up snug at night. The horse has not been worked for some time but I will need him again next month. Can you tell me what ails him and what to do for him?—Subscriber, Charter Oak.

Something wrong with the spine. It may be due to a hard fall or it may be forage poisoning. Sometimes mild cases of forage poisoning last for a long time. Try this and please report to us again in two or three weeks: Get a liniment of one ounce each of spirits of turpentine, oil of origanum, ammonia and tincture of capsicum, four ounces of alcohol and eight ounces of water. Apply it to the loins once a day. Also have the druggist prepare ten powders each containing four ounces of epsom salts, two ounces of common salt and two drams of powdered nux vomica. Give one powder once a day. Lift his head as you would to drench him and spoon the medicine down dry. Be sure he gets it all. If it loosens the bowels very much then give a powder only once in two days. After giving him two or three powders take the sligns off and let him lie down. He will probably rest for some time and then get up without assistance. If not then help him with the sling. Let him lie down every day if he will. Be sure to give the powders and you will probably be working him again in a month.

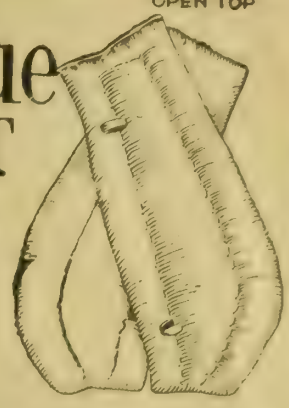
Cow Pox

Will you kindly describe and prescribe treatment for cow pox which I believe my herd has? Small blisters appear on the cows' teats which finally turn into sores which I am unable to heal permanently. Have been using vaseline in which I have put a liberal amount of cresylol. They improve for a time but break out again as bad as ever. The trouble started with a heavy milking heifer.—Subscriber, Tipton.

You have described the disease very well. It is due to a germ that is found in the pustules. It is easily carried from one cow to another on the hands of the milker. Those that have the disease should be milked last, and it is best to wash the hands after milking each cow. The udder should be washed before and after milking and the sores anointed with an ointment made of tincture of iodine one ounce, iodine crystals one dram and lard oil

CLOSED TOP OPEN TOP

True Blue SWEAT PADS



Help your horse pull his load, make it easy to pull, with a comfortable sweat-pad.

(Note: A "pair" of sweat-pads is for one collar.)

Our own exclusive brand and the best pad on the market; 50% deer-hair, balance composite.

If your horse had a dollar he'd gladly pay it for a pair of True Blue.

When a dealer offers you a *Hercules* Harness, Horse Collar or Saddle, he is offering you *THE BEST THERE IS.*

W. DAVIS & SONS
333 MARKET STREET
SAN FRANCISCO
THREE BLOCKS FROM THE FERRY

W. DAVIS & SONS, Dept. B7
333 Market Street, San Francisco
Please send me, free, a copy of your road map.
Name
Address

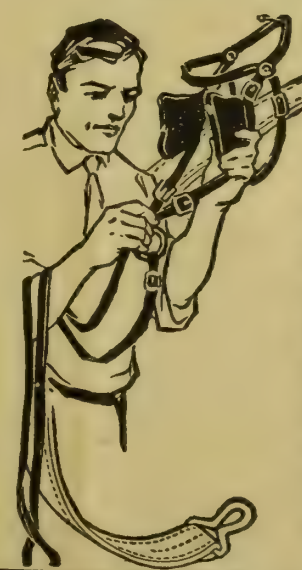
CALF COST AT HALF COST

As proved by all those who have raised their calves on

LILLY'S CALF MEAL

All your calf-feeding problems are solved by LILLY'S Calf Meal. Not only feeds but feeds absolutely right, and cuts the cost one-half. All dealers sell it.

LILLY'S Seattle and Portland



Keep it oiled

Through the microscope, a strap looks more like a sponge than a piece of leather—it's honey-combed with pores. Through these pores, dirt, sweat and moisture attack the leather fibre and weaken your harness.

EUREKA Harness Oil

fills these pores—preserves the original strength and appearance of your harness—adds years to its life. Ask your dealer today.

Standard Oil Company
(California)

Disc Harrows

THE ARNOTT DOUBLE DISC HARROW

We have nine distinct styles of Disc Harrows. A Harrow for every use. 3 feet to 12 feet in width of cut. 14 to 20 inch discs, solid or cutaway. No assortment so complete. Call and see them or write for catalogue. We are headquarters.

FIELD HARROW 4 TO 12 FT. WIDTH

ARNOTT & CO., Inc., 112-18 S. Los Angeles St., Los Angeles

There are many reasons why you should always buy advertised goods. They are guaranteed.

20-35 YUBA
BALL TREAD TRACTORS
More Powerful.
The Same Price.
The New Model 20-35.
* * *
At Less Price.
Equally Powerful.
The New Model 12-20.
Write for the Yuba Catalogue. Every farmer should have one. It's free.
THE YUBA CONSTRUCTION CO
DEPARTMENT Key B 217
433 CALIFORNIA ST.
SAN FRANCISCO CALIF.

Golden Eagle Poultry Foods
Meet Every Requirement For Profitable Poultry Raising.
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four ounces. A handful of epsom salts in the feed once a day will also help to shorten the course of the disease.

Corn Fodder for Horses

Please tell me through the Cultivator if it is safe to feed corn fodder to horses. This corn fodder was cut after the corn was matured but the stalks were partially green, and it has been stacked up two or three months and is dry. Some claim that corn fodder will kill horses.—Subscriber, Encanto.

My experience with feeding corn fodder to horses has been in the Eastern states but I believe that corn fodder in California is the same as corn fodder in Ohio. I have never known it to kill or injure a horse. It is rather unhandy when feeding the stalks whole as horses will only eat the leaves and the soft part of the stalk. If cut in inch lengths they will eat much more of it and the parts they refuse will be easier cared for in the litter, but best of all is to shred the fodder. In the East where more corn is raised they use a machine that husks and shreds the fodder at the same time and the farmers consider the shredded fodder fine feed for horses. It is easily digested and is a more laxative feed than barley or oat hay.

The Green Feed Calendar

Written for California Cultivator by Jean A. Koethen

CALIFORNIA, unlike the greater part of the United States, is a land of two seasons. It would hardly do to call them, as many of us were taught to do before we came West, the "wet" season and the "dry" season, for we have too many winters that cannot possibly be called "wet." Possibly the "growing" season and the "arid" season would fit better, for, whether there is much rain or little, grain and garden truck does grow, if supplied with water, from October to May, while from June to September few things can be planted with hope of successful growth. Even this definition must be taken with qualifications, for there are as many different climates in California as there are counties, and there are sure to be exceptions to any rule.

If you sit down to make up a calendar for the planting of poultry greens month by month you are immediately confronted by the fact that such a calendar can be only superficial, for almost anything may be sown between October and May and very little in the other months. What you plant in January, February or March is therefore mainly a matter of taste or convenience. Only in the case of crops that must be transplanted, like kale and chard, is date of much importance, provided only you keep within the eight growing months.

Greens for hens may be grown in either of two ways; they may be grown as forage crops, each house being provided with two runs in one of which the green crop is grown while the hens run in the other, or they may be grown away from the runs and cut for the hens. While the first plan is the ideal, the second is most commonly followed, and a combination of the two is in some respects the most practical of all, for the reason that certain very desirable feeds, like alfalfa, can hardly be grown as forage crops for a large flock. For some reason alfalfa while it is the best of all green feeds does not stand the encroachments of a hungry flock of hens as well as does barley, rape or kale. In theory a thousand hens getting their living off a stand of alfalfa is beautiful and ideal. In practice it would take an immense field of alfalfa to stand up under the cropping of a thousand hens for a single month.

Of all the greens that can be grown outside the run kale, where it can be grown at all, is probably the cheapest. Professor Dryden says an acre of thousand-headed kale can be made to produce 40 tons of green forage. For winter green feed it is transplanted in July from seed sown in May or June, and for summer forage it may be planted from January on. Where irrigating water is plenty it may be transplanted any month in the year.

Kale is not as largely used in Southern California as it might be, and while there may be some localities where it will not do well, I am satisfied that in all but hottest districts it might be planted with great profit either as a forage plant or for general feeding. Hens are not as fond of it as they are of lettuce or chard, but they learn to like it, and it is rich in both protein and ash. Professor Dryden thinks an acre of kale should furnish green feed for 2500 hens the year round. When it is planted in the runs more time must be allowed for growing than is allowed barley or rape, but when it has reached a height of several feet it can hardly be killed. One setting of plants will last a year. I have kept kale growing through the summer on our dry hillside without irrigation, just an occasional sprinkling with the hose, and I believe that with irrigation it can be made to grow almost anywhere in California.

Another green plant adapted to fall and winter planting which poultrymen have not largely taken advantage of, is mustard. We are told of the virtues of mustard flour as a stimulant to egg production. What about the green mustard which now, in January, is growing wild along roadsides and on vacant lots? I always pick it for my hens as long as it is to be found, and I believe it is a valuable stimulant. I planted some mustard seed by accident with other seeds in September, and it was ready for use in November. I wish some one who has a large flock would try the experiment of planting a field to mustard in late summer or early fall, let it grow for two months and then turn his flock on it. I shall plant more this spring and then again in September.

Dwarf Essex rape is particularly well adapted for use in poultry runs because it grows rapidly and can be planted almost any month. One of my yards, about 40 feet square, planted to rape, has lasted 25 young birds several months.

(To be continued next week)

MacFarlane's Kings County Ranch
Peach trees make fine summer shade and winter's sunshine for poultry yards.

FUR BEARING RABBITS

Written for California Cultivator By Robt. V. Moore

Because of the popular use of furs and the increasing difficulty of securing skins of wild animals there is wide interest in the fur bearing rabbits. For this purpose are exceptionally adapted the German Checkered Giants, Dutch Belted, English Lops, French Silvers, New Zealand and Belgian hares, the beautiful Angoras and little Himalayas, as well as some other breeds and their hybrids. As to colors the self or solid colors are by far in the greatest demand although we think personally the spotted and parti-colored specimens are the most beautiful, and we have seen some attractive articles and designs made up of the latter.

We have also noticed that some of the hybrids and varieties have much thicker, closer and more firmly established coats of fur than others.

As to colors, one has almost an endless variety to select from; blue, black, tan, red, silver, gray and parti-colored, both with long and short coats of fur, and while some of the grades and color effects are yet in the stage of experimenting, much improvement is being noticed in some studs as time progresses.

Like all new ventures before the public at the present time many so-called breeders are quick to take advantage of this new industry to prey upon the amateur, and much misleading information and literature is being foisted by imposters upon the public. One cannot be too careful when starting to go to a reputable breeder for foundation stock as the country is being overrun with inferior stock, many of which are sold at exorbitant prices and under misnomers.

COAL OIL TO THE RESCUE

The Standard Oil Company inform us that shippers of apples and potatoes, apples particularly, have taken to the idea and are now taking ordinary cars from the railroads and equipping them with heaters. The company's main station at Tacoma, the report says, sold out its entire stock of heaters in a week to parties in the fruit packing districts of the Northwest, and still the cry is "more heaters"!

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The Dollar Flower Garden

Written for California Cultivator By E. Braunton

THERE are many small but brilliant gardens upon which no more than one dollar each year is spent for seeds, no plant being purchased. Such gardens represent little outlay of money but much time is spent in work. Yet I know of one that is bright with blossoms every day of the year, something in bloom whenever flowers are wanted, yet but one hour each day is spent in labor and that by a woman past life's allotted span of three-score-and-ten years. Once each year a man is hired to spread fertilizer and spade it in over about three-fourths of the garden, the other fourth being then in bloom.

And now I am going to tell you the names of many fine flowering annuals that you may get for ten cents a packet or a dozen for a dollar, all of which are hardy and may be sown now. At the same time you will be given such other information as may be interesting, and if this list is kept until plants are in bloom it may be referred to with pleasure and profit. The names occur alphabetically, popular names and information follow. No cultural directions are given as none are needed. The most ordinary care will suffice. The seeds may be sown in permanent position or in beds or boxes and later transplanted, though the latter method involves much labor yet yields ideal results if time enough is spent.

Calendula officinalis is a yellow-flowered composite (Order Compositae) native to South Europe and is the "marygold" mentioned so often by Shakespeare, a very old garden flower and one that will furnish flowers when all else fails. May be planted or transplanted at any time. The best variety is called Prince of Orange.

Centaurea cyanus is another composite from South Europe, that we call corn bloom, also its German name and one of the best and deepest blues is Emperor William, but the favorite today is a double-flowered form. By the way the composite family is the one to which sunflowers, chrysanthemums, asters and daisies belong.

Clarkia elegans is native to California and either this species or the mixed sorts will please. Clarkias belong to Onagraceae, which is the evening primrose family and the godetias which will later be mentioned, also belong here and are closely related.

Coreopsis Drummondii is generally called calliopsis, but really "there haint no sech animal". It is a beautiful composite native to Texas and the best garden strain is called Golden Wave.

Coreopsis Stillmani is a showy yellow-flowering native not unlike C. lanceolata, so well known in gardens. It is especially adapted to California conditions and like a native composite flourishes without care or culture.

Delphinium hybrids are European larkspurs of stock-flowering habit and are a great and recent improvement over former kinds. The larkspur belongs to Ranunculaceae, the buttercup family.

Dimorphotheca aurantiaca is a most ponderous name for one of the finest winter-flowering annual composites ever found in South Africa, but the common name of Cape Marigold is easy enough. With its hybrids this daisy-like flower ranges in color from pale buff to deepest orange.

Eschscholtzia Californica is the proper name of our common and extremely popular California poppy which in nature has all shades of color from nearly white through yellow to reddish orange. Plant breeders have added pinks almost into magenta and also bronze-reds.

Godetias give a wide range of color and the sort desired are species and their varieties, all native to the Pacific Coast and often growing with their near-relatives, the evening primroses.

Iberis amara is the botanical name of candytuft, a native of Europe and the British Isles, belonging to cruciferae, the family containing the garden stock, mustard and all garden plants bearing a pod-like capsule as distinguished from a true pod or legume.

Linanthus densiflorus is a native of California, belonging to Polemoniacea, the phlox family and for this reason the name of California phlox has been suggested for it as the proper name is somewhat cumbersome.

Linum rubrum is popularly called scarlet flax, which it is, for it belongs to Linaceae, the flax family, though the flax of the field has small blue flowers. Our plant is one of the finest and most easily grown in the whole list.

Mentzelia Lindleyi is one of the blazing stars and belongs to a family little known to gardens or the local field Order Loasaceae. The flowers are large, often three inches across and of a shining yellow.

Nigella damascena is the name of the flower we call love-in-a-mist, but a fine named garden variety from England is known as Miss Jekyll. The species comes from South Europe and, with the larkspur, belongs to the buttercup family.

Papaver glauca is the tulip poppy native from Syria to Persia and now wild in parts of Europe and occasionally everywhere. I have seen a few plants along the water in the great Arroyo Seco in northern Los Angeles. It is deep red. The last on the list is P. rhoeas, the species from which sprung the Shirley poppies, one of the best annuals we grow. With the California poppy these plants belong to the Natural Order Papaveraceae, the great poppy family.

Anyone desiring a dozen of these sorts for a dollar, or a lesser number for ten cents per packet may send a list of the proper and the common name of each to any seedman and I believe they will be promptly sent by mail.

New Plants

Very few new plants are obtained from sports, which are decided departures from normal type in one or more characters, and there is no known method by which plants may be made to sport.

It is well for all to know that plants, like animals, are possessed of sex organs, male and female. In animal life these are always present in individuals of one sex only. This is also true of many plants. But it is also true that many single flowers bear both sexes in the one blossom. In still other plants the whole plant bears only female or male blossoms. Date palms and pepper trees are examples of this class. All plants must undergo an act of fecundation before fertile seeds are borne. This is not always necessary in lower animal life. Plant lice, or aphids, are an exception. Pollen from the male organ must be transferred to the female organ. This in nature is accomplished by insects, wind, or merely through gravity as pollen from corntassels or flowers fall on the ear silk beneath. If man wishes to produce new plants he must choose the parents and transfer pollen from one to the other, covering up the impregnated blossom to be sure no other agency outwits him. It is necessary with plants having both sexes in one flower that the male or pollen-bearing organs be removed before the blossom becomes self-fertilized. Very little study is required to readily understand the process and method necessary for control.

The Tri-State Poultry Breeders' Association is already planning for next year's poultry show at Fresno.

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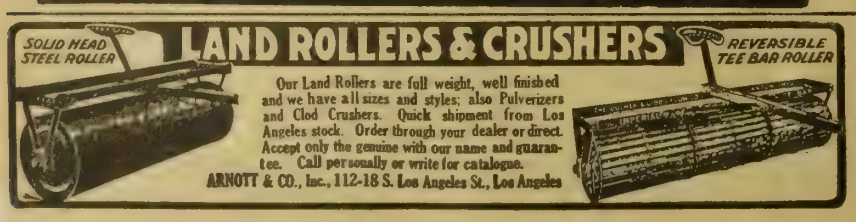
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To all who have the grit to work
Regardless of the fool or shirk,
The world says this to every man:
"Go out and do the best you can."

The world's too busy to implore
With any one to try once more,
'Twill help him if he wants to rise
And boost him if he gravely tries,
And shows determination grim;
But it won't stop to baby him.

The world is occupied with men
Who fall, but quickly rise again,
But those who whine because they're hit
And step aside to sulk a bit
Are doomed some day to wake and find
The world has left them far behind.
—Detroit Free Press.

HERE'S TO CALIFORNIA!

By Kathleen Norris in The American

IT was only after I came away from California, a few years ago, that I realized in my provincial heart that she does not mean to all the world what she means to us who love her, and belong to her. That there are Kentuckians, for example, and Texans, and even Europeans, who do not keenly regret the accident of birth that prevents them from claiming her smote me with a naive and puzzled surprise. Even now the very name, the very word "California," falls upon my ears with an exquisite appeal; it is like a strain of familiar and poignantly touching music. I can hear it across the noisiest tea room, or distinguish it under the murmuring darkness of the theater. The motor licenses, with the little bear guarding the number, look like friendly faces when one meets them on Eastern roadways, and when the railroad companies plaster fences with the alluring suggestion "Five Days and Seventy Dollars to California!" I feel a tug at my heart.

And Fifth Avenue vanishes, and the ever-green fields, and the panting, moist heat, and the piled snow. It is California again, with the burned hills lying like leopards under the blue, soft sky, and gulls wheeling and crying over the buoyant waters of the bay, and tar-weed and poppies tangling the alfalfa, and scenting the warm dry air. It is California, where 300 days a year are picnic days, and where the sunshine even now is falling unnoticed in golden spokes through miles of stately virgin redwoods, and where roses and daisies and heliotrope and wallflowers and stock and potted pansies and primroses, and a hundred others, are massed on the curb about Lotta's fountain, waiting for you to buy them—at ten cents or 15 cents a great armful! —and carry them home.

We are raised on superlatives, we second-generation Californians. Our fathers fought a bitter fight to reach the farthest frontier, and they loved it because they suffered for it. Whether they came "around the Horn" in sailing vessels, or across the endless prairies in the familiar hooped, dusty wagons, they learned the worth of their home before they found it. My own grandmother, with my mother at her breast, looked up through the velvet dark of night, through that same hooped covering, and watched the camp fires of hostile Indians on the hills. Ringleted, crinolined, wistful, and 18, she said good-by to the world she knew, at "Saint Joe," and left it forever behind her. To the end of her life, she liked to talk of "Southe'n" hospitality, of men who rode dashing horses and wore white, or orderly gardens packed with bloom, of cool great rooms full of silence and tree shadows, and the quiet stepping of brown-skinned maids.

Her own fate was the fate of California. She sat in the jolting wagon, beside another woman in the party, when a baby was born. She saw a priceless team of cattle fall upon an unexpected water hole and drink themselves to death. She knew one of the company, a girl, gently raised like herself, who was widowed, and who left the scalped body of her young husband behind her on the plains. And his brother took her, without benefit of clergy, because there were no clergy, and because she had young children, and needed a man.

This was after the days of the Spanish sheep ranches, and after the days of the padres. But there were Indians, and wolves, and floods in California, when they found it. She slept in a rough bed whose leg bore a notch, for which the once white and ringed hand felt often during the night. When the river waters crept up to that notch, it was time to rouse the children and climb to the roof. She climbed to the roof with the children when my grandfather was late in returning from town, too, because the noises of wolves and coyotes frightened them. She saw the gold devour men far more cruelly than the wolves, and not ten years ago her granddaughter talked to the white headed man who was laughed at, in the first rough state legislature in Benicia, because he said that wheat and fruit orchards should be planted, and would some day make the new state far more famous than did the gold. She saw the railways come, and the cities spread over the hills, and the harbor flung open as a gateway to the Orient.

San Francisco was a mere group of wooden shanties. But there must have been a glamour over it even then. The new world was so bright, said my grand-mother, the sky so blue and high, the air so gloriously intoxicating. It was wonderful to have the whole long summer go by without a single day of heavy and smothering heat; it was wonderful to have the winter mild and soft, to pick sweet peas in November, and poppies in February. Her husband farmed, mined, and became rich. She rejoiced with him when the railroad came; she took the days of the vigilante committee calmly for granted. Los Angeles was not, Sacramento was a mining camp; but there was the tiny beginning of a social set in San Francisco, and there was a convent school for girls in Marysville. She drove in her own open carriage, and entertained in her old bay-windowed house in Geary Street the homesick wives of miners when they came to the city.

After a while there were "cable cars" with "dummies" rattling up and down the hills, and the Indians vanished, and for years and years men and dusty pumps were filling in the "made land" below Montgomery Street. Prophets said that the made land would slide into the sea if there was ever another big earthquake; but the big earthquake duly came, in 1865, and the land stood firm. Other things rooted themselves, the sane and whole-

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some things. Apple orchards, orange groves, wheat fields, these things came to stay.

To Be Continued Next Week.

JANUARY PRIZE CONTEST

February is the month of parties and luncheons. First comes Valentine Day on the 14th, then Washington's Birthday on the 22nd. Lincoln's birthday is also celebrated on February 12 and Longfellow's on February 27, but the first two are the ones that oftenest give occasion for parties, as custom has elaborated decorations and observances for them that make attractive entertaining easy. Especially for St. Valentine's day are dainty and charming effects possible.

If you were planning a February party or luncheon or dinner for children or young folks or oldsters what would you have to eat—since the eats are very important—how would you decorate your table and your rooms, how would you send out invitations, whom would you invite? Tell us, the Cultivator readers, for our next contest on January 27.

This is rather short notice, but often it is easier to do things on the moment than to put them off till the convenient time which is so often forgotten.

Cash Prizes

For best short article $2.00 cash will be given; for second best, $1.00. Please write on one side of paper only. For all published a three months extension of subscription to the Cultivator will be given. With your article send name and address of one to whom you wish extension credited.

CANNED CHICKEN

Many inquiries come to this office for methods of canning chicken. Here is a good one:

A four and one-half or five-pound chicken will make two tightly packed jars of meat. The fowl should be fresh and tender.

Prepare as for stewing. Leave breast in one piece. Place in deep kettle, barely cover with boiling water, cover tightly and boil from 20 to 30 minutes. Before removing from fire season with salt and pepper. Set aside to cool and then separate meat from bones, discarding skin. Keep meat in as large pieces as possible. Strain juice, place meat in it and return to fire. When mixture is thoroughly heated put into glass jars which have been sterilized as for fruit. Fill to overflowing with chicken and juice and screw covers on tightly. If perfectly sealed and kept in a cool, dry place, this will keep indefinitely.

This chicken may be used creamed, in croquettes, in salad, as the foundation for chicken pie or for sandwiches. It is delicious, extremely convenient and very easily prepared.

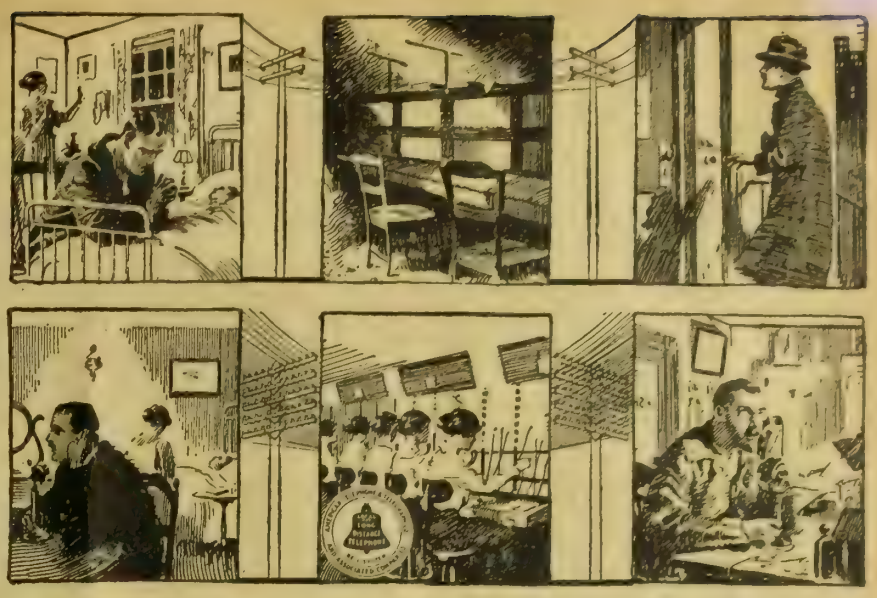
SOME GOOD CHICKEN RECIPES

Molded Chicken

Dress a chicken and cut up. Cover partly with hot water, and cook rapidly five minutes, then place on back of range and simmer slowly until tender. Cool, skin and remove fat. Chop the chicken, not too fine. Take the broth in which the chicken was boiled—there should be at least a pint of this—add to it two tablespoons of gelatine that has been dissolved in a half cup water. Bring to a boil, season to taste. Cover the bottom of a mold with slices of hard boiled eggs. Put the chicken in, and then pour over this the jelly broth. Keep in a cool place. Slice with a sharp knife.

Fried Chicken

Dress and disjoint a young chicken, roll in flour and sprinkle with salt and pepper. Place the pieces in a deep baking pan that will hold them without laying one on top of another. For chicken weighing two and a half pounds allow one pint of cream skimmed off milk that has just turned thick. Stir the cream well and then pour it over every piece of chicken. Set the pan in a hot oven, let cook until it is nicely browned, then lift the chicken out and make the gravy by pouring hot water in the pan and thickening it with a couple of tablespoons of flour previously wet up with cold water. Try this and you will find it so nice that I am sure you will never fry a chicken any other way.



Best and Cheapest Service in the World

Here are some comparisons of telephone conditions in Europe and the United States just before the war.

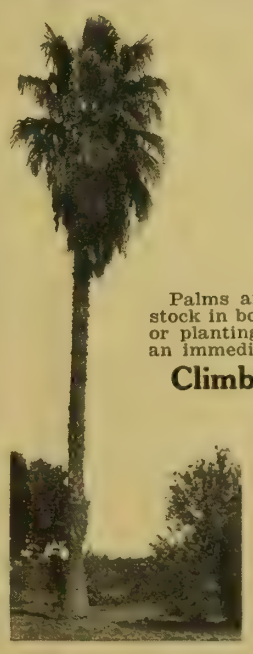
Here we have:	*In Europe:*
Continuous service in practically all exchanges, so that the telephone is available day and night.	Nine-tenths of the exchanges are closed at night, and in many cases, at mealtime.
A telephone to one person in ten.	Not one person in a hundred has a telephone.
3,000,000 miles of interurban or long-distance wires.	Not one-eighth as many miles in proportion to population and territory.
Prompt connections, the speed of answer in principal cities averaging about 3½ seconds.	In the principal cities, it takes more than twice as long for the operator to answer.
Lines provided to give immediate toll and long-distance service.	No such provision made. Telephone users are expected to await their turn.

As to cost, long-distance service such as we have here was not to be had in Europe, even before the war, at any price. And exchange service in Europe, despite its inferior quality, cost more in actual money than here.

Bell Service is the criterion for all the world, and the Bell organization is the most economical as well as the most efficient servant of the people.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES

One Policy *One System* *Universal Service*



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No plants are more decorative for indoors or out. The smaller and more tender varieties "set off" interior decorations, while the larger and hardier varieties are invaluable for garden, lawn and avenue.

Palms are not expensive if bought from us. We carry a large stock in boxes, tubs and cement pots, suitable for porch decorations or planting out in the open. They are decidedly decorative, give an immediate effect, and never go back when transplanted.

Climbing and Trailing Vines, Roses, Border Plants, Etc.

Are carried by us in a wonderful assortment, comprising almost everything that you may wish for decorating either large or small grounds.

Our new 1917 Catalogue gives full details and prices; it is attractively illustrated and will be sent free upon request. Write for it.

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TREES

For Sale — Washington and Thomson Navels, Valencias, Seedless Grapefruit, Eureka, Lisbon, Villa Franca and Seedless Lemon, Harman Avocados. Buds were selected from the best bearing trees and will yield bumper crops. Also 40,000 Mission and Manzanillo Olives. The above stock is growing in Rialto, Whittier, Glendora and Fallbrook. Budding cloth 30c yard, post paid. No frost damage. We solicit your patronage. Prompt replies to inquiries. Cyrus W. Wilhite, P. O. Box 154, Glendora, Cal. Phone 303.

250,000 Home Grown Fruit Trees—Apples, pears, plums, peaches, apricots, figs, ornamentals, etc.; finest ever grown. Investigate the low prices of our first class stock before ordering elsewhere and save money. Inspection of nurseries invited. Orange County Nursery & Land Co., P. O. Box 235, Anaheim, Cal.

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Citrus Trees—All leading varieties. Large line, Lisbon & Villa Franca Lemon and Washington Navel trees. All first class and clean. Special prices to dealers or in carload lots to growers. Randall Bros.' Nurseries Co., Whittier, Cal.

Apricots, Peaches, Pears, Plums, Apples, etc, 5c up. Olives; Mission, Ascolano, Manzanilla. From select bearing trees 20c up. Guaranteed to grow and true. Send for quotations on all your wants. Julius Mayr, Hemet, Cal.

Prunes, Pears, thousands, trees all kinds, buy direct from the man who grows. Save 50 per cent. Write for planters' catalog and price list. 26 years in business. Carlton Nursery Co., Carlton, Oregon.

Grafted Walnut Trees—Placentia, Perfection and Eurekas. Finest selected scions on California black roots. C. W. Story, Rivera, Cal. Whittier Exchange 4721.

Broad Leafed Mission and an extra early strain of Manzanillos. If you want the early ripening and early bearing kinds, we have them. Every tree guaranteed. Olives exclusively. H. Detmers & Son, Exeter, Cal.

Orange, Lemon and Grapefruit trees for sale. Splendid stock, absolutely clean. Grown from selected buds. Also fine lot of Citrus Seedbed Stock. Write James Mills Orchard Corporation, Hamilton, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

Apricots and Olives—Royal Blenheim and Tilton apricots. First class trees. Large stock of Mission, Manzanillo and Ascolano olives. Balled or open root. No scale, no defoliation. C. E. Moyer, Hemet, Cal.

For Sale 23,000 trees, Valencia oranges, 18,000; Eureka lemons, 5000, all two years old, extra fine this spring. Frank R. Baxter, R. F. D. 1, Fullerton, Orange County, Cal.

For Sale Citrus Trees—Valencias, Navels, Grapefruit, Seedless Lemon, Villa Franca and Eureka; also Manzanillo olive and walnut trees. W. W. Burns, 631 Security Bldg., Los Angeles. F-3110.

Walnut Trees—Franquette, Mayette and Mammoth on Black Root; also grafting wood and Black Seedling trees. Lowest prices. Mammoth Walnut Nurseries, Watsonville, Cal.

For Sale, 1200 Brown Issue or Black Figs, 4 to 7 feet high; very choice. Also about 4000 Black Morocco, Tokay, Muscatel and other grapes. Address T. F. McCarley, Route 14, Box 716, Los Angeles.

Mission Olive Trees—Raised from my own bearing trees. This is only sure way to get what one wants. W. A. Hayne, Box 461, Marysville, Cal.

$1000 Per Acre can be made growing our new varieties of blackberries. Also finest persimmons. Get catalog. Fitzgerald's Nursery, Stephenville, Texas.

Citrus Trees—Selected stock, 1, 2 and 3 years old. My prices are right. Write for information. P. E. Zug, Glendora, Cal.

Avocados—Seeds, seedlings and budded trees (Chappelows only). Prices on application. Chappelows Nursery, Route 1, Box 104, Monrovia, Cal.

Washington Navel, Valencia Seedless Grapefruit, Seedless Eureka Lemon, two years best stock. J. S. Ogawa, R. A. Box 114, Sanger, Fresno Co., Cal.

Olive Trees—Mission, Manzanillo, Ascolano. Propogated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, Cal.

Olives—Manzanillo and Mission, Apricots, Pears, Apples, Peaches, etc. Thrifty trees. Prices on request. Kavan Nursery Co., San Bernardino, Cal.

Walnut Trees grafted on northern black root. Placentia Perfection, El Monte, Eureka. Scions personally selected. Eureka Walnut Nursery, Montebello, Cal.

Quality Trees, Seeds, improved strawberry, Burbank Phenomenal Logan Plants. Cash Nurseries, Sebastopol, Cal.

For Sale—Improved Seedless Grapefruit, Valencias and Lemons. All buds carefully selected. Low prices. Sherwood Nurseries, Fullerton, Cal.

For Sale — 1600 one-year-old Valencia orange trees on two-year sour stock. A. O. Hayes, San Dimas.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Fruit and Nut Trees grafted. Chas. Pfeffer, 39 Clifton Ave., San Jose, Cal.

TREES

All Kinds of Fruit, shade and ornamental trees. Eulata and Mayflower Peach. Orange, Lemon and Pomelo. North Sacramento Nurseries, R. F. D. No. 3, Box 44, Sacramento, Cal.

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Budded Avocados—All leading varieties. Address Mather's Avocado Nursery, 137 N. Fair Oaks Ave., Pasadena, Cal.

For Sale—Fine two-year-old Chase Walnut trees. Magnolia Nursery, Whittier, Cal.

For Sale—Manzanillo Olives, finest nursery stock in South. For price address E. A. Norwood, Redlands, Cal.

HOGS

Smith's Poland-Chinas—Sows and gilts bred to Joker, first prize boar at Wisconsin State Fair 1915. These sows and gilts were sired by Iowa Wonder, who is a son of the great A Wonder, the most celebrated Poland-China boar living or dead. Litters from this mating are the best I have ever seen anywhere. Prices low, quality considered. Will sell one or a carload. As a special inducement each purchaser will be given a year's subscription to the American Swineherd, the best swine paper published, and a copy of the Handbook on the Sow, also a copy of the Pig Feeders' Manual. Geo. A. Smith, Corcoran, Cal.

Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

Make Big Money with our Big Type Poland-Chinas. Smooth, easy feeders that make greatest weight in shortest time at lowest cost, topping the market at 225 lbs. in 6 months 300 head, both sexes, all ages, reasonable prices. Best Eastern blood lines. Satisfaction guaranteed. Ranch in Tulare County, but address owner, R. H. Whitten, 610 B. Security Building, Los Angeles.

Billiken Herd of Chester Whites—The big prize winners at the 1916 California state fair. The breed that makes money for the rancher and dairyman. Have 4 nice young service boars left and 20 young open gilts that will be bred as desired by buyer. Write for the Chester White booklet that tells all about them. C. B. Cunningham, Mills, Cal.

Poland-Chinas—Twenty good gilts and three 2-year-old sows for sale. Either sired by or bred to I. B. A. Wonder, reserve champion at P.P.I.E. A few good young boars ready for service, sired by I. B. A. Wonder. A fine lot of fall pigs. I please you or refund your money. W. A. Young, Lodi, Cal.

Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P.P.I.E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

Superba World's Grand Champion Poland-China boar and one of the greatest sires of the breed. Spring boars ready for service, also few sows bred to this noted sire, reasonably cheap. Rough's Greenfields, Arlington Sta., Riverside, Cal.

50 Bred Sows and Gilts, 50—Of true Berkshire type and quality; bred to grand champion boars are included in our private sale list now ready for mailing. Write for it today. Silver Birch Farms, Box C. C., Newport, Wash.

Choice Registered Berkshires — Extra fancy and growthy August boars and sows $25 each. Bred sows, service boars and gilts at reasonable prices. W. H. Waugh, Riverside, Cal.

For Sale—Seven fine young Duroc-Jersey pigs, also gilts, open or bred. The dam from State Agricultural College. All fine healthy stock; all registered. A. B. Johnson, Newport Beach, Cal.

Nothing For Sale but 10 open spring 1016 gilts; blood of Artful Masterpiece and Improver G, grand champions at California State Fair 1912, 1913 and 1914. Oak Grove Dairy Farm, Woodland, Cal.

Registered Poland-Chinas, prolific, fabulous, profitable, porkers. Choice young boars now ready for service, $25 each, weanlings $15 each. Dr. J. A. Crawshaw, Hanford, Cal.

Thirty Medium Big Type Poland-China boars for sale. Shipped on approval. We will send a good one for $30 and a crackajack one for $50. Bernstein Ranch, L. C. Trewhitt, manager, Hanford, Cal.

Rancho Rubius Durocs all sold except a few extra good July and September gilts. Write for prices. Elmer Lamb, Ceres, Cal.

Choice Boar Pigs for sale. Sired by Superba 220620 champion Poland boar at San Francisco. Prices right. C. R. Hanna, Riverside, Cal.

Large Yorkshires—The ideal hog for the progressive farmer. Young stock for sale. A. L. Tubbs Co., Calistoga, Cal.

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D. O. Lively announces a trip East in January to buy pure bred stock for his own account. Commissions for customers executed with faithful accuracy. A lifetime acquaintance with the leading breeders of the middle states gives him a special advantage in making selections. Beef cattle, milch cattle, sheep and swine purchased. Write for terms, 216 Hobart Bldg., San Francisco.

On Account of getting crippled I will sell my entire herd of registered Holstein tuberculin tested cows, calves and herd bull, Merci Segis Pontiac Burke, 8 cows, 3 calves; all young, at a bargain. V. W. Shore, Tulare, Cal.

Butte City Shorthorns, Shropshires, Berkshires and Ponies. Stock of all ages for sale. Can supply one or a carload. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., Cal.

Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco, manufacturers of Calf Meal, Balanced Dairy Feed, Balanced Hog Feed. Write for samples.

Registered Shires — Blackhawk Stock Ranch. Importers and Breeders. Easton & Ward, Burlingame, Cal.

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CATTLE

For Sale—From 1 to 100 extra fine, straight, well marked, light colored, highly bred, registered Holstein heifers from 6 to 12 months old. They are rich in the blood of King of the Pontiacs, Pontiac Korndyke, Hengerveld De Kol, Rag Apple Korndyke 8th, King Segis and other most celebrated sires of the breed. Prices very reasonable. Write Geo. A. Smith, Corcoran, Cal.

Have a Nice Registered Holstein bull calf from dam with 18.025 lbs. record. Is 3 years old. J. W. Benoit, Route C, Modesto, Cal.

Venadera Jerseys, the herd with official yearly records. Calves of both sexes for sale. Guy H. Miller, Route 1, Modesto, Cal.

J. R. Carhart, Fullerton, Orange Co., Cal. Registered Jersey bulls for sale or will trade them for heifers.

Duroc-Jerseys — Some good boars and choice bred gilts for sale. T. J. Walker, Perkins, Cal.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

POULTRY

Our Baby Chicks are hatching every week now. Have you ordered yours? You know what you want and we think we can fill the bill. High quality, reasonable price and prompt service. Won't you write us for prices and circular describing our R. I. Reds, Barred Rocks, Black Minorcas, White and Brown Leghorns? We want your business and future good will—it takes a fair play deal to get that. Our hatchery is up to date, and we recken we know our business. Let's get acquainted. A postcard will introduce us. Roofden Poultry Ranch & Hatchery, Campbell.

Extra Quality White Leghorn Chicks 12c each until March 1, then 10c. Carefully line bred from MacFarlane, Young, Cyphers and Martin strains of foundation stock. Eggs $1.50 per 15, $2.50 per 30, $5.00 per 100, $50 per 1000. Acres of free range connected with our breeding pens, 20,000 feet under roof. Only Jubilee incubators used, disinfected every hatch. Don't save 2c per chick in buying and lose a dollar per pullet in raising, get the best and succeed. Newton Poultry Farm, Dept. 3, Los Gatos, Cal. Catalogue free.

The J. K. Bigelow Poultry Ranch and Hatchery—300 acres devoted to superb vigorous selected White Leghorns. The greatest egg farm in the West. Bigelow chix are incomparably superior to the product of commercial hatcheries. Prices same as former seasons, 10c each till April 1, 9c during April and May, 8c thereafter. 10 per cent deposit required with orders. The Bigelow Poultry Ranch, R. R. No. 2, Sonoma, Sonoma Co., Cal.

Penn's Rocks and Reds—A Western bred strain that has been a consistent winner wherever shown, both in utility and exhibition lines. P. P. I. E. and 1916 state fair winners. Booking egg orders. Barred Ply. Rock and S. C. Rhode Island Red cockerels $3.00 and up. Free catalogue. Golden Rule Poultry Farm, St. Helena, Cal.

The Reliable Poultry Exchange invites your correspondence on the Baby Chick business. We can start you RIGHT with strong, sturdy chix from the best thoroughbred flocks in Southern California. Also the best of breeding stock in poultry, rabbits, pigeons, of all kinds, etc. 741 Los Angeles St., Los Angeles, Cal.

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The Santa Clara Valley Hatchery and poultry yard makes it a specialty in White and Brown Leghorns, Anconas and Barred Rock baby chicks. Satisfaction guaranteed. (Also other breeds). Joseph A. Bihn, San Jose, Cal., Lincoln Ave.

Baby Chicks from my carefully selected, thoroughbred flock of 1400 S. C. White Leghorns, $10 per 100, $95 per 1000. A first class chicken at a reasonable price. Write for information. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

White Plymouth Rock, White Leghorn incubator chicks, breeding stock, eggs high class. Scientifically bred. Awarded all first prizes California State Fair 1916. Make your arrangements for 1917 delivery of chicks. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

Incubators—Essex Model Incubators at factory prices. Write Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco. Poultry supplies.

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White Leghorn and Brown Leghorn day-old chicks from healthy, vigorous breeders. "Chicks well hatched are half raised". Will be pleased to send you circular. San Jose Hatchery, 371 Meridian Road, San Jose, Cal.

Peafowls, 18 months old. Beauties. Also WHITE AFRICAN GUINEA FOWL. Eggs $2.50 per $15. Houdan hens $2.25, eggs $2.00 per 13. Birds first winners at Los Angeles show last week. Mrs. B. Hocking, Guasti, Cal.

Quality Single Comb White Leghorn Chicks and eggs for hatching. Utility strain. Bred to pay. Write for prices. Quality Egg Ranch, Artesia, Cal. Phone Artesia 7027.

Petaluma Hatchery, Established 1902. Capacity 16,000 chicks a week—the kind the hen hatches. Five varieties. Send for free circular. L. W. Clark, Petaluma, Cal.

Baby Chicks—We are now booking orders for spring delivery, in Barred Rocks, Reds, Black Minorcas, White and Brown Leghorns. The Orland Hatchery, Orland, Glenn Co., Cal.

S. C. Rhode Island Reds—Eggs for hatching from prolific laying strain, $1.50 per setting. Orders now being booked for baby chicks, 1917 delivery, $15 per 100. Rainescourt Poultry Ranch, Zelzah, Cal.

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Baby Chicks, White Leghorns, from healthy, vigorous, heavy laying, two-year-old hens. Satisfaction guaranteed. John F. Forney, Kingsburg, Cal.

Baby Chicks—Now booking orders for spring delivery. White Leghorn and Anconas, also custom hatching. Wilmar Hatchery, San Gabriel, Cal.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Rural 1, Sonoma, Cal.

S. C. Rhode Island Red and Ancona Baby Chicks and eggs from bred-to-lay finely colored stock. Imwood Poultry Farm, Box 192, Folsom, Cal.

Eastman's Bred to Lay Barred Plymouth Rocks—Chicks, eggs, cockerels. We Hoganize and trapnest. Fairmead Poultry Farm, Fairmead, Cal.

Hatched Chicks For Sale—Barred Rocks, R. I. Reds and White Leghorns. Strong, vigorous chicks. Send for circular. G. L. Hawley, Madera, Cal.

Baby Chicks—Fall and winter delivery. White Minorcas and Golden Buff Leghorns. Sandridge Hatchery, Kerman, Cal.

When Your Poultry or pigeons are lousy, write for "Free" folder about "lice." Floyd, the Poultry Expert, 1772-4-6 Green St., San Francisco, Cal.

For Sale or Exchange, three choice young White Plymouth Rock roosters. A. G. Morley, East Bakersfield, Cal.

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16-ft. steel windmill, fine for irrigating, cost $250, for $125; 8-ft., $19.50; 10-ft. Aermotor, $27.50; 12-ft., $45. Complete windmill outfits or any part. TANKS, TANKS. New 1000-gal. galv., $24.50; 2000, $34.50; all sizes, new, used wood tanks, WAGON TANK, 650-gal., $37.50, cost new $90; 10-ft. wide by 3 high, new wood stock tank, $17.50; new 8-hp. boiler, fine for dairy, 20-h. boiler, $100; 80-h. boiler, $195; 75-h. steam engine, like new $350; 12x12 Union compressor, $250; 14-in. Deere riding plows, $15 and $22.50; 14-in. tricycle mouldboard, $27.50; fine 2-gang mouldboard Bluebird riding plow, $47.50; fine 2-gang mouldboard Syracuse 14, 16-in., for tractor, cost $110, for $48; 3-gang Benecian Hancock disc plow, $60; 2-gang disc plow, $45; Fresno, $10; walking plows, all sizes; spike harrows, $8.50 to $13.50; alfalfa renovator, $28; new manure spreader; fine BULL TRACTOR, $350; Boenker 4-cyl. gas tractor, 20-40 hp., cost $2200, for $600; Standard well drilling outfit, mounted, with engine, $275; steel cable, 4c; cement mixer, $35; mounted barrel tree sprayer, $19.50; band saw, $17.50; mowers, rakes, seeders, corn cultivator, corn planter, bone cutter. PUMPS SPECIAL: No. 3 AMES double acting, with 150-ft. 7-in. pipe rods, 6-in. double acting cylinder, $300, all complete (head alone cost $500), Fine Bulldozer single acting jack, $60; horizontal and vertical single and two-runner centrifugal pumps, all sizes. Fine Means deep well, double acting pump, good for 50 inches, $300; plunger pumps, all sizes, brass cylinders, pipe, rods to suit; 1½-hp. International engine, $25; 2-h. Fairbanks, like new, $55; 4-h. Oriental, $45; 6-h. Western, $79; many other sizes gas engines, power blower, horse powers, winches, sundries. Material as represented. We buy machinery if in good shape. Trade us what you don't want for what you do, with little cash. DEMMITT CO., UPSTAIRS 120 N. Main. YARDS 816 Yale, Los Angeles.

For Sale—50 h. p. Western engine and 8-in. Krogh pump. Nearly new. G. W. Hurley, Bakersfield. Phone 164.

LUMBER

AAA—Lumber, New and Second-Hand; rough, $10 M; finished, $15; *A* R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St., San Francisco, Cal.

FARMS WANTED

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

SEEDS AND PLANTS

* * SEEDS * *

Don't You Want pure home grown seeds? Of course you do. Ours are all tested and are good enough for anybody. Prices, information, samples, etc., upon application. Write, wire or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

* * MAKE OUR SEED YOUR SEED * *

Recleaned Alfalfa Seed, good quality, excellent color, high germination test; common variety 17c, Smooth Peruvian 24c, and the famous Hairy Peruvian 30c per pound your railroad station. Do not buy until you have compared my samples with seeds others offer. E. F. Sanguinetti, Yuma, Ariz.

Specially Selected Arizona Alfalfa Seed, the best there is, at wholesale prices. Shipping warehouses at Modesto, Fresno and in Arizona. You save at least $2.00 per 100 by buying direct. Send your address for sample and price. Bomberger Seed Co., Modesto, Cal.

* * ALFALFA SEED * *

As has been our custom in the past, we are offering alfalfa seed, both retail and wholesale. This is tested stock and up to our usual high standards. Samples, prices, ec., on application. Wire, write or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

* ALFALFA SEED OUR SPECIALTY *

Giant Winter Rhubarb Plants. Big profits. From ⅝ acre first season after planting I sold 675 boxes rhubarb, receiving $673.70. Grand prize San Diego Exposition. Big discount on plants for prompt orders. Booklet free. W. A. Lee, Covina, Cal.

Sweet Clover—The best legume known for introducing nitrates into soil. A large-producing, non-bloating forage and hay crop. Stands alkaline conditions well. Seed 15c per lb. V. M. Shuey, Manzanar, Cal.

Strawberry Plants, Brandywine, Klondyke and Winner. The Winner plants the finest for home markets. Plants best I ever offered. 12 years in business. E. H. Learned, Route 1, Burbank, Cal.

Alfalfa Seed, 99 Per Cent Pure. Government tested. Oregon seed potatoes. Field and garden seeds. Special prices. Sacramento Seed Co., 1104 J St., Sacramento.

Recleaned Alfalfa Seed, best quality. Common 16c per lb., Smooth Peruvian, 22c f. o. b. Bard or Yuma, Ariz. O. C. Nordahl, Bard, Cal.

Alfalfa Seed—Recleaned. Buy direct from grower. Get the best. Prices and samples on request. State quantity wanted. The Hollis Ranch, Thermal, Cal.

Alfalfa Recleaned; no noxious seeds grown by me. My many users of it swear by it; 15c. lb. in ton lots. H. S. Garrison, Murrietta, Cal.

Alfalfa Seed—The very best, guaranteed 16c. Wm. Stuthman, 1239 West Pico St., Los Angeles, Cal.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

Wagner's Giant Crimson rhubarb roots. $2.00 per 100, 5c each, small lots. Currier Bulb Co., Seabright, Cal.

Avocado Seeds for Sale—By the thousand or less. Address H. E. Lyman, Carpinteria, Cal.

Avocado Seeds For Sale—By the thousand or less. Address H. E. Lyman, Carpinteria, Cal.

MISCELLANEOUS

Second Hand Pipe For Sale—All sizes standard water pipe and screw casing, half inch to ten inches. Also valve and fittings. Guaranteed good as new. Cheap for cash. Write for our prices. Weissbaum Pipe Works, 169 Eleventh Street, San Francisco.

Buy Salmon at Wholesale—Fish world's famous Puget Sound Salmon 100 lbs., net salmon in brine $6.50; 20 lbs. smoked salmon $2.50; 20 lbs. net salmon bellies in brine $2.50. T. A. Beard, 4322 Winslow Place, Seattle, Wash.

Study Telegraphy, Stenography, Bookkeeping, Law, English. Board, room and tuition may be earned. Catalogue free. Mackay Business College, 911 Main St., Los Angeles.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

WANTED

Wanted—Man to work 35 acres young Valencias, Anaheim. Must loan me $1000 or purchase with cash or other property part interest in grove. Herbert F. Clark, 31 N. Granada, Alhambra.

Sudan Grass Seed Wanted. This year's crop. Send sample and price and state amount you can supply to J. P. Cundell, Lathrop, Cal.

Wanted, Sudan Grass Seed—Send samples. State how much you have and price wanted. Western Seed Company, 116 E. 7th St., Los Angeles, Cal.

Wanted—Salesmen and Agents in every city and town on this coast to represent this company. A cracker-jack proposition for live wires. General Sales Agent, 414-424 9th St., San Francisco.

AGRICULTURAL IMPLEMENTS

For Sale—One orchard cultivator, 1 disc harrow, 1 cross reach orchard truck, 1 walking plow, 1 drag harrow and several other implements. Also one second-hand wagon, slightly used. Cheap for cash or time. Arnott & Co., Wholesale Implements, 112 to 118 South Los Angeles St., Los Angeles.

For Sale—Panel top wagons, 3 open delivery wagons, 2 buggies. Cheap for cash or time. Arnott & Co., Wholesale Implements, 112 to 118 South Los Angeles St., Los Angeles.

DUCKS

Four Fawn and White Indian Runner Drakes, finest Eastern stock, $3.75 each. Three drakes, finest California stock, $2 each. Thirty ducks, average California stock, $1.65 each. Delivery guaranteed. Write at once. James McKee, Riverside, Cal.

PATENT ATTORNEYS

Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS".

FARM

Oregon & California Railroad lands. Title to same revested in U. States by act of congress dated June 1916. Two million three hundred thousand acres to be opened for settlement and sale. Power site, timber and agricultural lands. Containing some of best lands left in United States. Large sectional maps showing lands and description. Price $1.00. GRANT LANDS LOCATING CO., P. O. Box 610, Portland, Oregon.

For Sale—320 acres fine sandy loam soil 5 miles northeast of Modesto, 1½ miles directly south of Riverbank in Modesto Irrigation District, average yearly water cost less than $1 per acre. Land suitable for alfalfa, grapes, deciduous fruits or farm trucking. Will sell as a whole or in 20-acre tracts. Average price $150 per acre. Will make suitable terms to parties buying for improvement. B. F. Kierulff, 757 S. Los Angeles St., Los Angeles.

I Have 80 Acres beet land near Delta, Utah, cleaned, gravity water, house, barn, domestic flowing well. On account of occupation in Los Angeles cannot look after it. Will make good terms for sale or rent to experienced farmer with outfit. Big sugar factory now building in Delta. Loading station 3 miles from land. For personal interview, address S, care Cultivator.

California Land $1.00 Per Acre Cash, balance 90c per month per acre. Immediate possession given. No taxes, no interest. Level San Joaquin Valley. Only four hours from San Francisco. Five acres up. Clear; ready to plow. Open ditch irrigation $1 acre per annum. Particulars, maps, photos, free. Stevinson Colony, Desk E, 785 Market St., San Francisco.

For Sale or Rent—80-acre ranch 7¼ miles west from Bakersfield, one-half mile from paved highway and Rosedale store. All under cultivation; good pumping plant, 140 inches water at 8-foot level; plenty buildings, telephone, good sandy loam soil. Price $150 per acre. W. F. Marks, owner, 226 South Main St., Los Angeles, Cal.

For Sale—Highly improved dairy ranch, 66 acres. New buildings, modernly equipped; best of soil; 1 mile to Merced and creamery, ¼ mile state highway. Reasons for selling. If you are in the market for something good, see this ranch. If you mean business correspond with owner for fuller description, price, terms, etc. Box 644, Merced, Cal.

46 Acres Sandy Loam soil near Tulare, unimproved, for sale on good terms, 164 acres well equipped dairy in Tulare County to trade for stock ranch in Middle West. Twenty thousand dollar income clear, to trade for orange grove or other ranch. Call on or address A. B. Sellars, Exeter, Tulare County, Cal.

What Do You Pay for potatoes, butter, eggs, bacon, ham, beans, grains, fruit and many other food products? Let me show you good California land with water at $150 per acre. Near town, school, railroad, state highway, etc. Be a producer. J. H. Dickey, 627 Citizens National Bank Building, Los Angeles, Cal.

For Sale—6-acre orange grove, near Placentia; a real snap; about 200 navels, 14-year-old; about 125 Valencias from 1 to 6-year old; one share Anaheim Union Water stock, only $6000; terms. Chas. Vogele, Placentia, Cal.

$350 Cash, $20 per month. No interest, no taxes; 4 years gives you deed to 10 acres planted to almonds, cared for by competent orchardmen. Balance can be paid from crops. E. Wiker, Arbuckle, Cal.

For Sale or Exchange, 68 acres in Tokay vineyard and grain land. House and outbuildings. Will exchange for Northern property. Write owner, C. Williams, Box 264, Acampo, Cal.

For Sale—80 acres well improved ranch, suitable for hog or dairy ranch. Will exchange for Southern California property. For particulars write owner, R. 1, Box 34, Galt, Cal.

For Sale—A fine five-acre five-year-old lemon grove in frostless Yorba Linda. Small house, five shares of water. Only $1600 per acre. Terms. Chas. E. Vogele, Placentia, Cal.

For Sale—Excellent lands, San Luis Obispo Co., $10 to $25 per acre. Inquire about them. Carl Dewlaney, Santa Margarita.

Free New Blue Booklet—State, government and Indian lands. Bargains overlooked. Joseph Clark, Sacramento.

Money to Loan on Farms, city and suburban property. C. G. Paul, 407 Chamber of Commerce Bldg., Los Angeles.

Write for List of ranches and homesteads. Low Priced Lands Company, Carmel, Cal.

TURKEYS

Bourbon Red, White Holland, Black—Bourbon and Black champions at Panama-Pacific (world's fair) San Francisco, also other first winners. Awarded three firsts Los Angeles Show last week. Eggs $5 per dozen. Turkeys in wire covered yards. Range alternately. All hardy, vigorous, choice stock. Mrs. B. Hocking, Guasti, Cal.

White Hollands, pure bred. Buy your breeding stock now. Rockwood Farm, 201 R. 6, Santa Rosa, Cal.

HORTICULTURAL PRINTING

Catalogues — Good Printing. Specialists in preparing nursery, seed, poultry and live stock catalogues and all kinds of commercial printing. For prices and information address WOLFER PRINTING CO., 115 No. Broadway, Los Angeles.

Perfect Printing Pays. We do it. Highest class work. Letter heads, folders, catalogues, etc. Write me before placing your order. G. C. Gallagher, The Service Printer, 441 Sacramento St., San Francisco.

WEATHER CONDITIONS

For the Week Ending Jan. 6, 1917

	Rainfall			Temp.	
	Wk	Season	Norm.	Max.	Min.
Eureka	2.86	13.52	18.09	52	36
Red Bluff	3.02	11.46	10.79	54	32
Sacramento	1.72	6.52	7.65	56	36
San Francisco	1.57	9.68	9.01	58	40
San Jose	1.35	6.29	6.69	56	34
Fresno	1.18	4.73	3.91	58	38
San Luis Obispo	.90	13.80	6.80	62	30
Los Angeles	.30	7.50	5.70	64	40
San Diego	.04	2.97	3.46	60	42

Wholesale prices.

Rects. wk. ending Jan. 9, [illegible] lbs.

California extra creamery 36
Prime first 34
Extra creamery past wk. (Prod. Exch.)

Jan.	3	4	5	6	8	9
'16	.36	36	36	36	36	36

CHEESE

Brokers' prices:

California fresh, lb. 20
Eastern Daisies 24
Oregon Triplets, lb. .....22@22½
Tillamook 22½

EGGS

Rcts, wk. ending Jan. 9, 1025 cases.

Exchange quotations:

Fresh extras 40
Cast count 39
Pullet 36
Fresh extra past wk. (Prod. Exch.)

Jan.	3	4	5	6	8	9
'16	.37	37	37	38	40	40

POULTRY

We quote from growers:

Broilers .....23@25
Fryers .....22@23
Hens .....17@21
Roasters .....20@22
Geese, Young 18
Ducklings, lb. .....18@20
Roosters, old 10
Turkeys .....22@25

POTATOES

Wholesale selling price:

Northern .....2.75@3.00
Local .....2.60@2.65
Lompoc 3.00
Oregon Burbanks .....2.65@2.75
Sweet, cwt. 4.00

ONIONS

Wholesale selling price:

White Globe, cwt. 6.00
Brown, cwt. 5.50
Garlic, lb. 8

FRUITS

Wholesale prices:

Apples—
Bellflower .....1.20@1.35
W. W. Pearmain .....1.25@1.60
Newtown Pippin, Yellow .....1.35@1.50
Bananas, lb. .....4¼@4½
Grapes—
Red Emperor, cr. 2.00
Pears—Winter Nelis lug 1.50
Persimmons, lb. .....9@10
Pineapples, lb. .....9@10
Pomegranates, half box 2.00

HAY

We quote ton f.o.b. L. A. to producers:

Barley .....13.00@17.00
Oat, tame .....15.00@18.00
Alfalfa, local .....16.00@19.00
Northern .....14.00@16.50
Stock .....10.00@13.00
Straw .....9.00@11.00

GRAIN

Wholesale selling price f.o.b. L. A.

Wheat—No. 1 .....3.05
Corn—No. 2 yellow, 2.55; white 2.60
Oats—California feed 2.80
Standard 45
Cal. Seed Oats 2.60
Barley—No. 1 bright feed 2.50
No. 1 dark feed 2.45
Seed 2.55
Milo 2.40
Egyptian Corn 2.45
Rye 3.25

FEED STUFF

Wholesale, cwt. f.o.b. L. A.

Alfalfa Meal 1.35
Bran, heavy 1.90
Shorts and Middlings 2.35
Alfalfa Molasses 1.55
Meat Scraps, accd. to quan. .....3.20@3.30
Beet Pulp 1.30
Cracked Corn 2.60
Cracked Wheat 3.15
Cotton Seed Meal 2.40
Bone Meal 2.45
Feed Meal 2.75
Green Bone 2.25
Middlings 2.35
Oil Cake Meal 2.40
Fish Meal .....3.60@3.70
Rolled Barley 2.50
Rolled Oats 2.50
Hulled Oats 3.30
Feed Meal 2.65; Scratch Feed .....2.60@2.70

San Francisco Markets

SAN FRANCISCO, Jan. 9, 1917.

BUTTER

Dairy Exchange quotations, lb.:

Rcts. wk. ending Jan. 8, 339,200 lbs.

Fresh extras 36
Storage 34½
Prime firsts 35
Firsts 34½
Extra Cr'y (Exch) past wk. & yr. ago.

Jan.	2	3	4	5	6	8
'17	.34½	34	34½	34½	35½	36
'16	.....	27	26½	26½	26½	27

CHEESE

Dairy Exchange Quotations:

Cal. Flats ...16½@18 Y. Am. ..19@20½
Ore. Trip. ...19½@21 Y. Am. 21

EGGS

Rcts. wk. ending Jan. 8, 11,092 cases.

Dairy Exchange quotations:

Fresh extras 39½
Select Pullets 38½
Fresh Ranch (Exch.) past wk. & yr. ago.

Jan.	2	3	4	5	6	8
'17	.38½	37½	36½	37½	38	39½
'16	.....	31	32	32½	32	30

POULTRY

We quote from producers, lb.

Hens, large ...24; Leghorns .....21@22
Fryers, lb. .....24@25
Broilers—
Large .....24@25 Small .....27@28
Roosters, old ....12@14; young ....24@25
Squabs, doz. .....2.50@3.50
Hares, lb. live .....10@12; dr. 15

Price, gross weight:

Cattle:

Steers, lb., 6@7¾, cows and heifers 4½@6½; calves, 6½@8½.

Sheep:

Wethers, 8@8½; ewes, 6½@7; yearling, 9@9½; milk lamb, lb., 10½@11.

Hogs

Hard grain fed, 8¼@9¾; undesirable.

POTATOES

Wholesale selling prices at wharf:

Delta Burbanks .....2.25@2.40
Salinas .....2.50@2.60
Oregon .....2.35@2.50
Watsonville .....2.40@2.60
Yakima Gems .....2.30@2.40
Sweet, Cellar .....2.50@2.75

ONIONS

Wholesale selling price on wharf:

Cwt. 5.00
Garlic, lb. .....3@5

VEGETABLES

Wholesale selling price:

Artichokes, doz., large 60-85; small, 35-40
Celery, cr. .....3.75@4.50
Cucumbers, bx., hothouse .....1.25@2.25
Lettuce, crate .....1.00@1.25
Mushrooms, bx. .....75@1.50
Peas, lb. .....6@11
Rhubarb, box .....1.00@1.25
Peppers, Bell, lz. .....6@10
Squash—
Cream, bx., 1.00-1.25; Hub, sk. 1.00-1.25
Tomatoes, crate .....1.50@2.00

CITRUS FRUIT

Wholesale selling price:

Lemons .....1.50@3.25
Lemonettes .....1.50@2.25
Grapefruit, new crop .....1.50@2.50
Limes, Mexican, cs. .....4.00@5.00
Navels .....1.75@2.75
Tangerines, half orange box .....1.00@2.00
Mandarin, small box .....1.00@1.25

BEANS

Jobbers' prices, cwt. recleaned:

Limas .....7.90@8.10
Garbanzos .....4.00@4.50
Small White .....10.50@11.00
Large White .....10.00@10.25
Pinks .....7.00@7.25
Black Eyes .....5.25@5.50
Horse Beans .....4.25@4.75
Red Kidneys .....11.75@12.00
Cranberry, California .....7.25@7.50

HOPS

Prices to growers at shipping points:

Sacramento, lb. .....9½@10½
Sonoma .....9@12
Mendocino .....10@11
Oregon and Wash., lb. .....7@12

HAY

Scott, Magner & Miller say under date of January 6:

Receipts for the past week were 1073 tons, last week 1330 tons, the week preceding, 1924 tons. The market has been easy during the week even with small receipts. Cheap grades sell to better advantage than choice owing to the fact that most of the hay arriving is of very good quality. Even though we have had fine rains cold weather has prevented grass from growing and the country demand for hay is very good. It now looks as though stocks would be practically cleaned up by the time new hay is available. This always insures good prices for new crop. Alfalfa demand is very good. Several round lots in the country districts are reported as having changed hands during the week at prevailing prices. Straw is scarce and what little arrives, sells well.

GRAIN

Grain Exchange prices, cwt.

Wheat, California Club .....2.50@2.55
Wheat, No. Bluestem .....2.80@2.85
Corn, Eastern Yellow, sk. .....2.05@2.10
Corn, Egyptian White .....2.10@2.20
White Feed .....2.00@2.05
Red Seed .....2.65@2.75
Barley, feed .....2.17½@2.22½
Shipping .....2.30@2.32½
Rye, cwt. 2.75

Citrus Fruit Market

LOS ANGELES, Jan. 10, 1917.

A fairly good condition obtains in practically all markets. In some of the auctions some very low sales have been made, running well under two dollars delivered, but this has been mostly injured fruit. In other markets where thoroughly good fruit has been shipped it has been picked up at good prices. Northern and Central California are cleaning up their output, having but little good fruit remaining. Both sections are using separators on injured fruit. Many Southern packing houses have also found the use of separators advisable. Shipners who have made careful investigations assert that fruit of the finest quality will go from California this year. The crop will be big and the percentage of frost damage is exceedingly small.

Lemons are picking up a bit.

Shipments

Shipments of oranges from Southern California to date since November 1, 1916, 2945 cars, lemons 820, total 3765; to same date last year, oranges 1398, lemons 1041, total 2439. From Central California to date this year, oranges 3746, lemons 117, total 3863; to same date last year, oranges 4049, lemons 87, total 4136. From Northern California to date this year, oranges 838; last year 579.

A PIONEER

E. E. McClanahan of the Pioneer Hatchery, Los Angeles, is issuing a brand new up-to-date catalog of Pioneer incubators, Pioneer brooders and various other Pioneer supplies. In fact, Mac himself is somewhat of a pioneer in the handling of poultry supplies. We do not know what the requirements are but we presume if poultry people will be kind enough to mention that they saw it in the Cultivator and ask Mr. McClanahan for one of those purple-covered, gold-lined Pioneer incubator catalogs it will be mailed pronto.

RIGHT

With The New Brood

Lay a Sure Foundation for Future Profits

SPERRY BABY CHICK FEED

COUPON

STOCK AND FEED DEPARTMENT
Sperry Flour Company
Stockton, California

Gentlemen—Enclosed find 4 cents in stamps to cover postage for your Free book on feeding chicks and Free coupons.

Name.....

Address.....

Little chicks are hens in miniature. There is the same need for a balanced ration for them as for the grown bird. **Sperry Gritless Baby Chick Feed** is prepared by experts to meet the demands of fast growing bodies. It supplies all the food values that Nature intended a growing chick to have. It makes healthy, hardy chicks. Professional poultry men are making money by using it. You can do the same.

Send for Our Free Booklet **"Makes Hens Happy"** *and a Free Coupon*

No one person knows so much about the poultry business that he can afford to be without this book. Anyone can increase his poultry profits after reading it. Don't trust to luck. Read the book and increase your profits. It also explains our free coupon system for reducing your feed bills. Write your name on the coupon and mail it today.

Well Begun is Half Done—Use

SPERRY BABY CHICK FEED

CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES January 20, 1917 SAN FRANCISCO

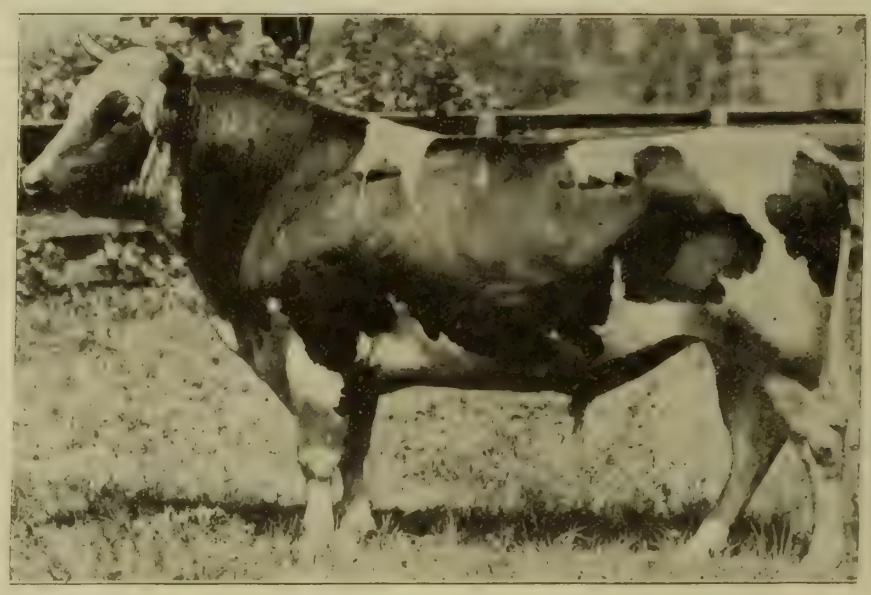
A Southern California Dairy

McALISTER HOLSTEINS

Headed by

King Segis De Kol Korndyke

(Senior Herd Sire)



SIRE---King Segis; Nine thirty pound daughters, and thirtyfour 30 pound granddaughters including the first and only 50 pound cow.

DAM---Pontiac Clothilde De Kol 2nd, the first cow in the world to produce 37.21 lbs butter in seven days, or 1271.1 pounds butter in one year. She is the granddam of more high priced bulls than any other cow of the breed.

JUNIOR HERD SIRES

King Korndyke Sadie Vale 27th—

The average of his three nearest dams is over 33 pounds butter in seven days, which is unexcelled by any other bull in the west.

King Winnie—

The great young son of Winnie Korndyke Cornucopia DeKol, world's champion milk cow for ten months' production, and also the only cow in the world to make over 31,000 pounds milk and 1200 pounds butter in one year.

Our herd contains 200 head of purebred Holstein Friesian cattle, including ten cows that average over 30 pounds butter in seven days, among which is the former world's champion senior three-year-old Star Rena Wayne Pieterje 2nd, who is still the only 34-pound cow of the breed with a 26-pound junior two-year-old record.
Eight heifers (officially tested) with first calf, at the average age of two and one-half years, have averaged 20.43 pounds butter in seven days which includes all that have freshened in the last seven months. None of our second-calf heifers or cows have fallen below 21 pounds butter in seven days for the last seven months. We do not believe there is another herd of Holsteins in the world which can show such consistently high production.

Females and Bulls for Sale at all Times

Write us for prices, or better still, come and visit our ranch and see the herd for yourself.
You will find an extra value in our cattle which cannot be duplicated

Watch for Our Next Sale Date

McAlister & Sons -:- -:- Chino, Calif.

California Cultivator

Vol. XLVIII No. 3 LOS ANGELES: January 20, 1917 One Dollar Yearly

Pure Breds on Southern California Ranches

The Cultivator Has Given Attention to Northern and Central California Live Stock Aristocracy; Now Comes a Glance at or Partial Survey of Some of the South Counties. Every Day Sees Increase in Quantity and a Greater Increase in Quality.

By F. F. Stonerod

SINCE the days of "49" Southern California has been heralded over the world as a garden spot where flowers bloom the year round and fruits grow rapidly and mature early. That these statements are facts and not mere fiction is verified by a study of the statistics of its enormous and valuable fruit production which show it a leader of the world. But fruits and flowers are not the only commodities which this part of the state produces. Nowhere else can a wider diversification of crops be followed with profit, and most important among these crops is that of live stock, most important because animal husbandry builds for the future. It gives back to the soil all of the vitality it has taken away, and it makes for a better and more permanent agriculture. For a state that has only realized its wonderful possibilities in breeding farm animals during the past decade California has done some remarkable things, and the district lying south of the Tehachapi Mountains has made more rapid progress than any other.

There is not a breed of beef cattle, dairy cattle or swine known that is not produced there. A great many sheep are raised but the number is small in comparison with cattle and hogs. Both for draft horse and sheep breeding there are wonderful opportunities. With a rapidly growing population, exceeding a million according to 1914 census, Southern California is compelled to import the bulk of the meat it consumes, and millions of dollars are paid out annually for products which can be grown with less trouble and expense than in almost any other part of the world. That statement does not necessarily imply that a high quality of live stock is not produced there but that not enough is produced to supply the demand.

Scattered over a wide area many pure bred herds are to be found. During the past five years there have been some of the finest herds of cattle and swine assembled that could be bought. The mountain ranges and foothills are dotted with hundreds of thousands of beef cattle, putting on flesh from the rich pasture grasses, while the valleys and plains grow the dairy cow and the hog to perfection. Los Angeles is the outlet for the vast territory at her door. This market has been compelled to draw a large part of its meat and dairy supplies ffom the outside simply because production failed to keep up with consumption.

But the movement to accelerate the production of more and better live stock has been gathering impetus. If the herds and flocks are to improve the pure breds must keep pace with the number of market animals, and realizing the opportunity this part of the state has been buying high class foundation stock by the wholesale until today there are a number of individual collections which will compare favorably with the best.

As an instance of the high standard of the pure bred herds witness the accomplishments of the past year in the Holstein, Guernsey and Jersey herds. A Holstein heifer within 40 minutes' ride of Los Angeles broke the world's record for milk and butter production in her class over a six months' period. A Guernsey cow in San Diego County finished a yearly test on December 25 with a record that surpasses that of any other Guernsey cow west of the Mississippi River and places her fifth among all the Guernsey cows in the world. There are many individuals in the other dairy breeds that have made remarkable records in the production of butterfat and milk.

Probably the most noteworthy improvement in all the different phases of the live stock industry has been in beef cattle. In the old, easy-going range days the cattleman was more or less indifferent as to the class of bulls he used. Conditions are different now. Land values have increased so rapidly that the beef man must produce an earlier maturing, easier feeding class of cattle to make a profit. This is only possible by the use of the best bred bulls and more scientific feeding methods. Baby beef can be grown in Southern California to advantage, and several of the more progressive stockmen are marketing this variety steadily. We talked with one prominent beef grower recently who said he was negotiating for the purchase of a foundation herd of beef cattle for which he expected to pay as much as $1000 per head on the average. This is one illustration of the improvement of the herds, and there are many others.

Probably the most important step of all in connection with the live stock industry in the South is its recognition by the civic and commercial bodies. Just now a big live stock show to be held in Los Angeles this fall is being agitated, and there is every reason to believe that the show will be held. Why should there not be a show there? Certainly there are enough herds of show caliber in that district alone to make an exhibit that would rival the best, to say nothing of the exhibits which would come in from neighboring states. As we go to press the California State Swine Growers' Association is in session in Los Angeles. This is the first time that a state live stock organization has convened in a southern city, but the breeders recognizing that a very strong part of the association is located there and that having them make the long trip up the valley every year was an injustice, voted unanimously at Hanford to come to Los Angeles.

Gradually Southern California will command the respect of all other parts of the country which place live stock production first in importance. The erroneous idea that California can grow nothing but fruit is being rapidly dissipated. Exhibitors at the 1916 Chicago International learned that California bred live stock could make the long trip across the mountains and still win grand championship honors at the world's greatest show. Only in numbers is Southern California live stock surpassed, not in quality. With a 12-month growing period, ample rainfall, abundance of forage, and a climate that is unsurpassed, it will in time become the breeding ground of the world. Southern California thinks so and so do the Eastern breeders who have made a survey and study of its conditions.

THIS LITTLE PIG WENT TO MARKET

Perhaps she was champion of a high school agricultural club or owned by other intelligent breeder and feeder. The result was a proper mix ture in the proper degree of the proper streak of fat and streak of lean. Hence profit and comfort for the farmer's family.

THIS LITTLE PIG STAYED AT HOME

She was just as good as the first little pig, in fact a little bit better, and stayed at home to raise a family of her own, which in turn will go the way of the first little pig, with resulting greater profit.

THIS LITTLE PIG HAD PORRIDGE

No matter how good the breeding, feeding is important. In these days of high prices it takes some nerve and some intelligence to properly balance it so that greatest return is secured, but if this pig is to be a bringer of comforts into the home he must have plenty of good porridge.

THIS LITTLE PIG HAD NONE

Or perhaps he was turned on devil grass pasture and expected to rustle for himself, or possibly he was fed good and expensive corn without attention to the balancing of his ration. That is almost as disastrous as giving him no feed. He is constantly crying, "I wish I had been better bred and better fed, then I might be in the honor class with my companions."

THIS LITTLE PIG CRIED WEE! WEE! WEE!

All the way home from the state fair because he won the blue ribbons, showing his ability to produce other profit bringers, and he knows that if he does not continue crying Wee! Wee! Wee—in other words, advertising—his value will not be appreciated by others as it should be. Moral: Advertise if you would add greater value to your pure breds.

CALIFORNIA MILK PRODUCERS' ASSOCIATION

Written for California Cultivator
By S. N. Ayers

DURING recent years the farmer has awakened to the necessity of establishing for himself facilities for the marketing of his products along uniform lines that will insure to him a fair price. Farmers in the past have been more or less isolated from densely populated districts, where most of their product is consumed, and were therefore unable individually to ascertain the exact market conditions, and furthermore, were the object of speculators from the cities who endeavored to purchase their product for a nominal price and market it at an abnormal figure, making for themselves a large speculative profit. Today the farmer realizes that in order to secure the highest price obtainable for his product, and at the same time market this product so the consumer will receive the benefits therefrom, it is necessary for him to associate himself with other farmers producing a like product into what are known as cooperative associations. Usually the organization of these associations is brought about by conditions which make it unprofitable and intolerable for the producer to exist, and when this happens the farmer finds it necessary to organize as a last resort.

This was true in regard to the milk producers of Southern California, and on June 5, 1915, a body of Southern California dairymen associated them-

Continued on Page 62

TALKS ON
Nitrogenous Fertilization

Number 7

WHAT is the best way to apply Sulphate of Ammonia?

Generally speaking, it may be spread the same as you would any other fertilizer material. It is sufficiently dry to apply easily and evenly by hand or machine, though for the last mentioned purpose it works better when mixed with an equal bulk of *dry* sand or earth.

SULPHATE OF AMMONIA

For CITRUS GROVES a good way is to dump several sacks of Sulphate into a tight wagon-box and drive slowly along the rows, spreading on either side with containers that hold just what each tree is to receive—say, 8 to 10 pounds.

On TRUCK CROPS it may be spread broadcast before planting or before the plants are set out.

For FIELD CROPS apply broadcast by hand or machine at time of planting or before.

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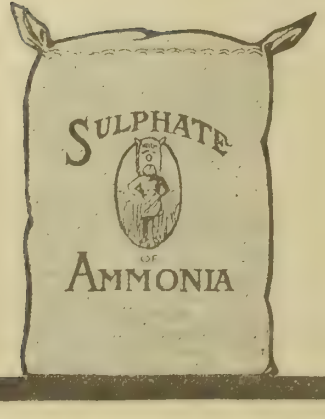

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Recorded Trees vs. Pedigreed Trees

By J. Eliot Coit

IN a recent number of the Cultivator the present writer, in answering a question in regard to lemon trees, discussed the probable value of trees propagated from buds which had been cut from trees which bore a large proportion of summer lemons. It was pointed out that such trees ought not to be offered for sale at a higher price as "so-called pedigreed trees."

The question has since been raised as to just what was meant by so-called pedigreed trees. In the first place let me say that I believe it is incorrect and improper to use the term pedigree in connection with nursery stock or other plants propagated asexually or by runners, cuttings, buds or grafts. The word pedigree is derived from the French pied-de-grue meaning foot of a crane and refers to a table or chart of ancestry showing the lines of descent converging to a common point like the toes of a crane's foot. The word was evidently coined for use in connection with animals including man. It is perfectly evident also that it is only by the union of the sexes that the lines of ancestry can converge to a common point, otherwise the lines would be parallel and not like a crane's foot. We find therefore that the fundamental idea in the use of the term pedigree is the sexual union of lines, families, and individuals whether of hogs, horses or men.

The term pedigree also implies a record which is of course the record distinguishing the individuals which make up the line. Humans distinguish the individual by a name and a place in the family genealogy. Pure bred horses and other live stock are both named and described. Often when individuals look alike, distinguishing marks are provided, such as notches in a pig's ear. This is for the purpose of preventing errors in the record of births which is kept in an official book known as a register.

In like manner plants which are propagated by seed may be provided with a pedigree by keeping records of the parentage of each successive sexual cross. Thus we may have pedigreed wheat or sugar beets. Clausen has published some very interesting pedigrees for certain of Albert Etter's strawberries which were produced by hybridization. The moment these strawberries are propagated by dividing the runners, however, the lines of descent become parallel instead of convergent, and the term pedigree no longer applies. While certain strawberries and artificially cross-bred plants may have pedigrees to start with, our citrus varieties have none whatever. Who can tell the pollen bearing parent of the Eureka lemon, the Marsh grapefruit, the Navel orange, or any other of our commercial varieties of citrus?

Go to a pet stock show and pay $500 for a Persian tom cat with a pedigree. You will get a document showing the pedigree with an affidavit as to its correctness if desired. Go to a nursery, buy 500 so-called pedigreed Lisbon lemon trees and ask for the pedigree. You will not get it for the simple reason that there isn't any. Many city people and others poorly versed in horticultural matters do not realize this. They have the more or less vague idea that if a tree is said to be pedigreed it must necessarily be very fine. This situation is often taken advantage of by the astute salesman who, quick to recognize the value of the term pedigree as a talking point, rolls the word like a sweet morsel under his tongue and gets away with it about nine times out of ten. No doubt he will keep right on "putting it across" until people learn better, which will be a long time.

The chief objection to the term "pedigreed" is that it implies more than is justifiable, and as long as the general public does not realize this it possesses unwarranted selling power. In view of this it is perhaps too much to expect that any other term will be generally adopted for quite a while at least. But this should not deter us from discussing the subject frankly in the interest of good horticulture in California.

However there is another and quite important side to this whole question. As early as 1910 at the State Fruit Growers' Citrus Convention held at Pomona the writer emphasized the fact that through the unintentional propagation of undesirable sports a gradually increasing proportion of the trees in our citrus orchards were developing into drones, worthless types, or hobo trees, and that the only way to prevent this was to use greater care in bud selection. Since that time the value of bud selection has been emphasized strongly throughout the state. This has been a good thing because it has waked up many who would otherwise have remained asleep. As a result of this the demand for high class trees propagated from carefully selected buds is growing. This is a fine thing and ought to be encouraged. Some nurserymen are making a specialty of such trees.

A friend of mine showed me some young Eurekas which were grown from fruit wood buds cut from a fine old tree whose fruit at each picking had been weighed and graded for years. It was a record-breaking tree and was undoubtedly standard Eureka throughout. I was quick to admit that these trees were certainly worth much more money to the prospective planter than the ordinary run of stock which has been the rule in the past. The reason why these trees are more valuable is because every tree is known to be a good pure-line tree and the buyer may plant them with the assurance that inasmuch as none of the buds have been ignorantly or inadvertently cut from off-type or mutating trees, that no such trees will develop in his orchard. Of course an occasional twig or limb sport may appear on any tree at any time, but if no buds are cut from it the twig sport will remain a minor and unimportant incident which may be easily corrected by pruning. The variation in the yield of the trees will be limited to fluctuations caused by individuality of root-stocks, differences in soil type, gum disease, gophers or other well understood causes.

My friend then went on to say that with each lot of trees he gave a document including affidavit if desired, giving the location and number of the tree from which the buds were taken and the detailed fruiting record of that tree for a number of years. Such a document has considerable value but it is not a pedigree. It is a certificate of propagation.

"But," said my friend, "if I am not to call these trees pedigreed trees, what shall I call them to distinguish them from the common lot?" I have therefore to suggest that the term Recorded Trees be adopted for this class of trees which will come into greater demand as the people gradually wake up to the importance of careful bud selection. They are trees for which a record has been kept both of the fruiting performance of the tree from which the buds were taken and of the propagation of each individual bud placed in the nursery.

While such trees come nearer meeting the qualifications of really first class nursery stock than any heretofore propagated, they still lack something. They are subject to unintentional mistakes on the part of honest nurserymen and deliberate misrepresentations on the part of dishonest ones. A registered animal may be described and marked in such a way that its identity is unquestionably linked with the registration certificate. Not so with trees. The word of the propagator must be accepted that the trees are actually the identical ones referred to in the certificate of propagation. Some stupid laborer may have shifted the labels or inserted a counterfeit bud where the recorded bud failed to grow or dug and delivered the wrong trees. I have therefore to make an additional suggestion which is embodied in the idea of officially sealed trees.

Suppose the county horticultural commissioner were empowered by law to place his seal on recorded trees when requested to do so, charging a small fee to cover the cost of the actual time required for his deputy to perform the service. The system might work out somewhat as follows: A nurseryman who wishes to grow a few thousand recorded and officially sealed trees to sell at an advanced

price to his most discriminating customers, would file his request with the local commissioner, stating the number of trees to be budded, the location of the parent trees decided upon, and the most convenient time to do the budding. The deputy, acting as the representative of the ultimate buyer and planter, would then arrange to meet the nurseryman at the parent tree, verify the number, approve the general condition and health of the tree, secure the performance record for filing in the horticultural commissioner's office, and personally observe the cutting of the buds. The deputy would then proceed to the nursery and observe the placing of the buds. As the buds are placed the deputy attaches to each tree a seal. The label to be furnished by the nurseryman may consist of an aluminum strip with the variety, the kind of rootstock, and the registration number of the parent tree stamped upon it. This is locked in place with a lead seal similar to the ones attached to the doors of freight cars and bearing the name of the county. At some convenient time toward the close of the first growing season the deputy returns and inspects the trees. If any trees show a second bud scar, indicating that the bud failed and had been replaced, he destroys the seal on that tree. Possibly the objection may be raised that the horticultural commissioner, unless directed by law, might neglect or forget to revisit the nursery and check up the re-buds. In view of the advantages to be gained, however, this objection has little force.

Recorded and officially sealed trees would constitute the most reliable nursery stock possible to produce. The seal would prevent error in propagation and transportation. It would enable the buyer to know without taking anyone's word for it that this particular bud was cut under the personal supervision of his representative from registered tree No. 6694 Eureka lemon located at row 4, tree 17 in John Smith's grove known as the east 20 in a certain block, section, and township. He could call at the horticultural commissioner's office and look over the fruiting record of tree No. 6694 with the owner's affidavit attached. He could verify the age of the tree by noting the record of the day the bud was cut and placed in the nursery. As long as the tree bore the seal it could pass through the avenues of trade without losing its reputation, and this would be a distinct advantage, especially in the retail nursery trade. When the trees are finally planted the seals are removed the same as any other labels. If the owner wishes to sell the orchard the fact that the trees have been recorded and sealed gives him an excellent and worthy talking point.

All the foregoing is presented merely by way of suggestion in the hope that either this plan or perhaps some other and better plan may be tried out to the end that California may lead in the production of reliable nursery stock as she does in the packing and distribution of fruit.

REDUCING COST OF FARM PRODUCTION

Believing that one way to help reduce the cost of living is to reduce the cost of production on the farm, the University of California has invited the farmers of California and all others interested to attend a "Farmers' Week" to be held at the university farm at Davis on Tuesday and Wednesday, May 20, 30 and Thursday, June 1. This three days and a half will be devoted to intensive agricultural study and farm demonstrations.

"Farmers' Week" will be so arranged that those attending may devote their whole time to a single subject or special field of farming work or may turn their attention to several different problems. There will be four or five parallel courses in such subjects as livestock, field crops, deciduous fruits, dairying and poultry. Practical demonstrations of methods will be emphasized. Visitors will be given a chance actually to try for themselves the new methods recommended and discussed in the conferences. There will be no charge for enrollment in these courses.

Fig growers of the San Joaquin Valley met in Fresno January 12 for a two days' session to discuss best methods of fig culture.

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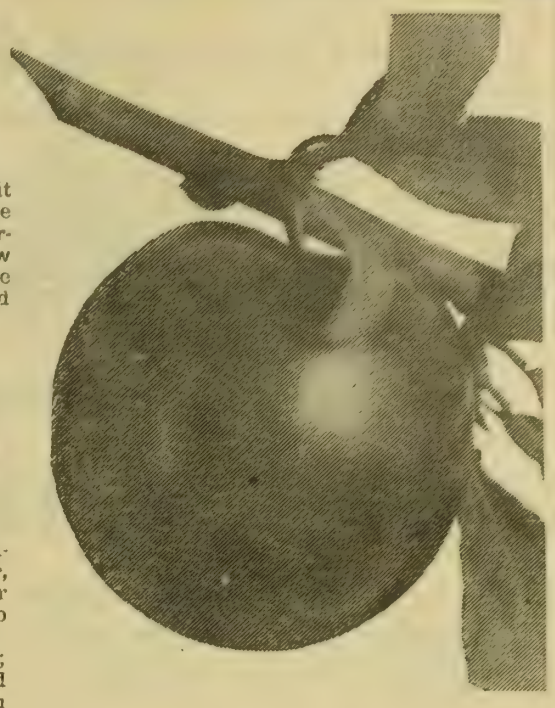

Apricot Trees

Let Us Supply You with Extra Fine Stock—the Best to be had

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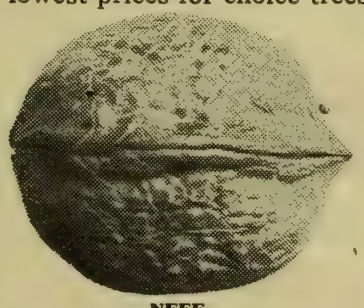

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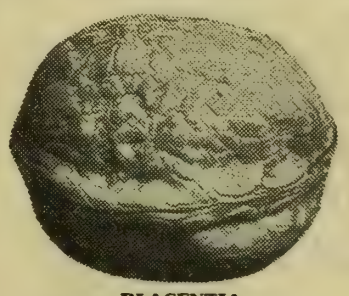

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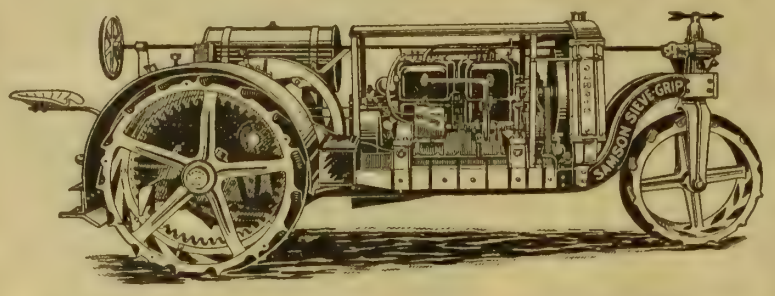

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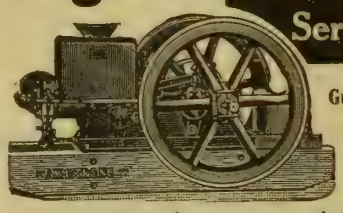

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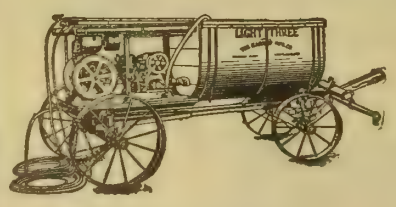

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Fig Growers Convention

Large Attendance at First Gathering of the Fig Growers. Movement Launched Which Will Lead to Cooperative Marketing

AS to attendance it was not a record-breaker for fruit growers' conventions in California but it was far greater than is usually given. This convention was held in Fresno last Friday and Saturday and opened with over 500 fig growers occupying the high school auditorium. The one important accomplishment of the convention was the passing of a resolution—and unanimously—that fig growers of California proceed to organize a cooperative fig growers' association along the same lines as the Associated Raisin Company and the Peach Growers' Corporation. Chairman Clarke of the University of California was authorized to appoint a committee to proceed with the formation of a strong organization with sufficient funds for financing the marketing end of the fig industry.

The convention opened with Prof. Clarke in the chair, an address of welcome by Wylie M. Giffen of the Associated Raisin Company and addresses by many of the best informed on the California fig industry. We wish we had room for every one of the addresses made but we have this week only space for a portion of two of them. Others will appear in later issues.

THE CANNING AND PRESERVING OF FIGS

From Address By Wm. V. Cruess Before Fig Growers Recent Meeting at Fresno

IT is estimated by H. L. Kimball of the Pacific Coast Syrup Company that the fig preserving industry in California uses not more than 50 tons of fresh fruit annually. Compared with the total production of figs in the state, this figure seems very small. Perhaps some reasons why the preserving industry has not grown more is that the production of dried figs has proven profitable, the leading commercial California varieties of figs are not well suited to preserving, and the preserving of figs is rather a highly specialized industry requiring special knowledge and methods. There is need for extensive experiments, both on a laboratory and on a factory scale, because our California conditions, fig varieties, etc., are different from those of Texas, Mississippi and Louisiana, the states in which the fig preserving industry is most flourishing at the present time.

The fig is a high priced fruit and one which lends itself well to the production of high quality preserves and confections. Therefore, the production of high quality products, rather than moderate quality bulk goods should be encouraged. This means selection of the proper varieties, careful picking at the proper stage of ripeness, careful handling between orchard and factory, and careful and correct methods of manufacture.

Varieties Suited to Preserving

The preserving of figs has been experimented upon a great deal by Mr. Kimball. His conclusions are that the Smyrna, the White Adriatic and the Mission are unsuited to the production of a high class fig preserve. The Smyrna breaks up badly during cooking and has too many seeds. The Adriatic has too many seeds and the Mission is not so attractive in appearance as white figs. Of the California varieties, the White Endich and Brown Ischia have been found to be the best. They have very few seeds and after processing the outer skin remains intact and transparent so that the veins of the inner skin stand out prominently. This latter property is very important because it obviates the necessity of peeling by lye. It is claimed that the White Endich and the Kadota figs are very similar or even synonymous. Therefore, this variety should be well suited to preserving. Laboratory tests bear out this assumption.

The fig used most commonly in Texas for preserving is known there as the Magnolia fig. This, according to Professor Potts of Texas, is very similar to the Brunswick and Brown Turkey (Dalmatia) but not identical with either of these. It is a coarse fig of mediocre flavor, but peels readily by the lye process, a point strongly in its favor.

The Celeste fig was found in a can of Louisiana figs purchased in the Berkeley market. It is small, but of extremely pleasing flavor and aroma. It would not do for drying because of its small size, but seems well suited to canning whole without peeling.

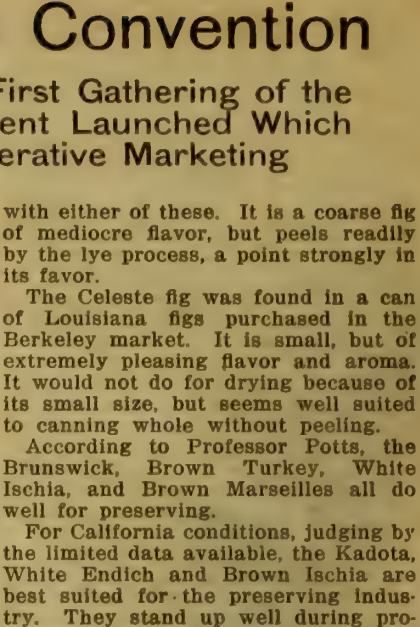
According to Professor Potts, the Brunswick, Brown Turkey, White Ischia, and Brown Marseilles all do well for preserving.

For California conditions, judging by the limited data available, the Kadota, White Endich and Brown Ischia are best suited for the preserving industry. They stand up well during processing, have few seeds, pleasing flavor, color, and appearance, and become translucent or semitransparent after processing. In addition to these good qualities, it is not necessary to peel them before preserving.

Harvesting Figs for Preserving

Figs for use in making fig preserves should not be allowed to get too ripe, or they will break down too badly during cooking. If too green, an excessive amount of sugar will be needed. Professor Potts of the Texas experiment station states that the figs should be harvested just before they reach the best table quality.

The fruit should be picked without breaking or bruising the skins. This is best accomplished by using small clippers. Cloth gloves may be used to advantage to protect the figs and to protect the hands of the pickers from the action of the milk of the figs. Shallow picking trays are essential. From the picking trays the fruit is transferred to field crates which, according to a Texas grower, are eight inches deep, 12¾ inches wide and 19 inches long and equipped with cleated



What is the use of preparing a good seed bed and planting seed that cost good money if you let squirrels and gophers eat your profits. These pests are a constant danger to crops and a constant menace to the family's health.

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has for over 30 years proven to be the most effective—the only sure killer of squirrels, gophers, rats, prairie dogs, ants, moles, yellow jackets, moths, weevils, lice, etc. It is easy and safe to use.

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HARNESS

lids to protect the fruit from the sun and to permit stacking.

The figs must be handled carefully in transit to the cannery and should be hauled only in wagons with good springs.

The figs should reach the factory as soon after picking as possible to prevent softening and molding. Mr. Kimball states that figs used in his factory are shipped in two-layer boxes by express and that it is desired that they be not longer than 24 hours on the way. He states that figs suitable for preserving often command prices of four and a half to five cents per pound, f.o.b shipping point, but that very great care must be used in picking and packing.

Preserving

The process of preserving should result in impregnating the figs with a heavy syrup in such a way that they will retain their original shape without bursting; the outer skin will be transparent, disclosing the veins of the inner skin, or the outer skin is removed by lye treatment; the whole fig will be more or less translucent; i.e., seem transparent, the flavor agreeable and the syrup clear and almost free of seeds and pulp. The California and Louisiana figs are preserved without peeling. The Magnolia fig of Texas is lye peeled before canning. Figs are put up both in glass and in cans, the best grades usually going into glass and other grades in tin.

* * *

Mr. Cruess gave several recipes for fig preserving as followed in Texas, France and other localities, as well as results of laboratory experiments at Berkeley. These will be given later in the Cultivator.

SIGN UP

We note that the greatest discouragement is felt on the part of those who would save the prune industry through the organization of a cooperative association because some of the larger and more representative growers remain outside and refuse to sign up. The smaller growers came in more freely but many of them refrain from coming in because they point to the fact that the larger growers remaining without means that the smaller growers will simply hold the sack while the outsiders will get the benefit. This is true to a degree but unless the prune growers all surrender their individuality and unite in pooling their interests great injury will be done to the entire industry. This is not so apparent in a year such as this, but another year may not show the favorable conditions which the last year has.

Touching upon this point the San Jose News says:

"A little more of this way of thinking and the whole magnificent project for the emancipation of the growers from the evils of chaotic disorganization will fail utterly. The growers who are thus blocking the advancement of their own interests and the interests of the entire valley should do more careful thinking lest they work irreparable harm on all concerned.

"Let these growers realize that by joining the preliminary organization, which must consist of 50 per cent of the total acreage, they do not irrevocably sign away their privilege of acting independently of the association, as there must still be another 25 per cent of the acreage signed up. The trustees will be elected, however, as soon as 50 per cent of the acreage is signed up.

"In other words, all that a grower really commits himself to by signing up now is the chance to vote for trustees and the chance to endeavor to get a much needed organization started. He still has the chance to block the whole movement if patently unworthy trustees are elected. And of course the trustees are not going to be unworthy men. Nobody in this movement is so foolish as to want unworthy men in office. Such men would simply put an end to the whole business, as confidence would be lost. If the growers who are holding out will only come in, they will have a voice in the selection of the trustees, and some of them may themselves be made trustees.

"A little more of the spirit of cooperation! A little more of the energy and farsightedness displayed by other communities which have formed similar organizations!"

Olive Trees

Note the root system. This is a fair sample of Roeding's True Olive Trees.

—with roots like these will give good results.

In planting Olives, as with any other fruit, it makes a wonderful difference in future profits if you start with trees that are straight, thrifty, well branched, and true to name.

Roeding's Trees Please

Our nurseries have been more closely associated with the growing of the Olive than possibly any other concern in the state. We are therefore in a position not only to supply you with the finest stock but to properly advise you as to varieties, planting, pruning, etc., and this we will gladly do free of charge.

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—and they bear heavy and profitable crops. Orange orchards bordered with olives get good protection and in addition you get good returns from the olive trees. There is a wonderful future for the olive industry in California, and if you start with the right trees there should be no question about profits.

Plant Manzanillo

The Los Angeles Olive Growers' Association, in a recent letter, advise the planting of Manzanillo olives, stating that the results received from that variety exceed those from any other. As the fruit ripens earlier than other varieties, there is little danger of frost. It makes an excellent pickle and is a regular and prolific bearer.

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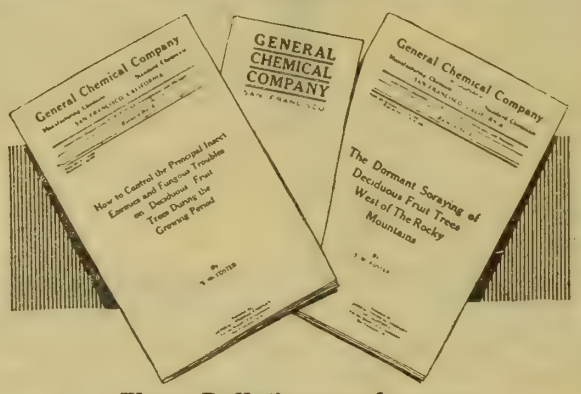
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Problems and Opportunities in the Fig Industry

From an Address by Prof. J. Eliot Coit at the Fresno Fig Growers' Meeting.

THE fig industry in California has progressed by several well marked stages or epochs. The first of these consist of the period of about a hundred years when the Black Mission fig distributed from the missions was the only fig grown in the state. The second stage includes the years from 1850 to 1900 during which time scores of varieties were introduced both from Eastern nurserymen and from the Old World. Among the men most active in this phase of development were Felix Gillet, W. B. West, John Rock, S. N. Wilco, G. P. Rixford, George Roeding and others. Out of the great mass of varieties thus introduced the Mission and Adriatic remained the best for commercial drying.

The third epoch began about 1900 when, after much experimenting and repeated failures, the culture of the Smyrna fig was finally made a success in California. The bulk of the dried figs of best quality in the world's markets had always come from Smyrna and consisted of the Smyrna type of figs. The successful production of this class of figs in California was therefore hailed as a great advance which gave California an opportunity to compete with Smyrna for the markets in this country and perhaps those of other countries as well. It took some time for the culture of Smyrna figs to become anything like general and would no doubt have taken longer but for the fine example and demonstration afforded by Mr. Geo. Roeding's large Calimyrna fig orchard.

The general increased interest in fig culture began about 1912 before there was any idea of a European war. Rather extensive acreage had been planted when the war began. The entrance of Turkey into the war and the blockade of the Port of Smyrna stopped all importations of Smyrna figs into this country and greatly reduced the amount of figs available for American markets. Before the war the United States usually imported about 10,000 tons of dried figs valued at the port of export at about one million dollars. Three-fourths of these came from Smyrna and the other fourth from Spain, Portugal, Greece, and a few from Italy. The British blockade did not include Turkish ports or interfere with fig shipments until 1916 when they were cut off entirely. We have secured some extra figs this year from Portugal and a few from Greece but the total importations from all sources amounted to only 3576 tons coming mostly from Greece and Portugal. We are therefore largely limited to our own fig crop, the size of which we do not know accurately, but which probably amounts at present to between six and seven thousand tons with prospects of large increases in the near future when recently planted areas come into bearing. It is pretty clear therefore that most of our Eastern friends will have to eat California figs this year or go without. I therefore wish to call your attention to the positively unique opportunity which is thus presented to the California fig industry—the opportunity of weaning our Eastern friends away from the Turkish product and impressing them with the fact that we are producing some first class figs now and will soon be producing all the country can consume. Are we going to take advantage of this wonderful opportunity or are we to let it pass? I know the price of figs is high this year and many of you have made money. The demand has been such that buyers have taken pretty much everything that even smelled like figs at good prices. I know the temptation to put everything in, but judging from some of the packs that are going out this year I am afraid that when the war is over our Eastern friends will give a sigh of relief and say "Thank goodness that's over; now we can get good imported Smyrna figs again. It's fierce to have to eat that California stuff."

It is too bad we haven't a larger proportion of Smyrna figs with which to cultivate the Eastern market, for I doubt whether we can permanently displace the imported Smyrna with Adriatics, especially when many of them are sunburned and tough. Some of you may take the position that the Adriatic is the fig to plant because there is apparently more profit in it at the present time. This I believe is a very short sighted policy because there is no question that the Smyrna makes a much better dried fig than the Adriatic.

While I am intensely anxious that something be done toward educating the market to the best grades of California figs, no one realizes better than I that the industry, though very prosperous, is not in a position to make the most of this wonderful opportunity. The industry lacks two essentials for the greatest success. I refer to organized cooperation and standardization of product. It is impossible to properly advertise the product without cooperation and it is useless to advertise a product which is not standardized. We know this to be true from the experiences of other fruit organizations such as those of the rasin growers, walnut growers, citrus growers and others. I have been told by those who have made a special study of agricultural cooperation that it is next to impossible to get a group of farmers to organize in their own interests unless they are in sore distress. As long as they are getting good prices for their product and are fairly prosperous I am told they will not bestir themselves to organize but will be content to follow the old methods of getting an advance on the crop in the spring and turning the crop over to the buyer at his own price in the fall, oblivious to any unprecedented opportunity which may present itself to the industry as a whole. I sincerely hope that the fig growers of California may prove themselves a signal exception to this rather broad generalization. At any rate I am resolved not to let this opportunity pass of calling your attention to the tremendous possibilities involved in the use of cooperative sulphuring and packing houses and standardized well advertised brands. In California we can produce a Smyrna fig which is the equal of the imported product in every way. So far but few have learned to pack the product as well as the Turks, but there is no reason why we may not all soon learn that trick. California ought to produce all the dried figs consumed in the United States and Canada and advertise them in such a way as to increase the consumption to several times the present rate. In our present unorganized condition we have no way of even knowing how many figs are produced. Estimates on the size of the California crop are the wildest guesses. Consider what the raisin growers have done. Fresno has come to be known the world over as the Raisin City. Why may not this record be duplicated with figs?

FERTILIZATION IN SOLANO

Touching upon the work of fertilization in Solano County fields, Farm Adviser Mills reports to the board of supervisors:

There are at the present time in Solano County practically no orchards being fertilized excepting a small area on which home made stable manure is being used. This office has now under way demonstrations in seven different orchards, including Suisun and Vaca Valley. These include old orchards and those just coming into bearing. As it takes two or three years to make a practical demonstration and much time and patient record keeping to get accurate data, the grower fails to get anywhere in the work. With the completion of this work, the growers will have definite knowledge as to how and what to do to increase the productiveness of their orchards.

Liming experiments on the grain lands near Rio Vista and Vallejo have been started, it having been discovered by this office that some of the fields even on the tops of the hills in the vicinity of Benicia and Vallejo have an acid soil which accounts in part at least for the light yield of grain and hay in those particular fields.

Apricots

Now is the Time to Plant Apricot Trees

There is money to be made in planting Apricot Trees, for the fruit, either green or dried, is always in demand.

The yearly consumption of Apricots equals production and this means good prices.

Our trees grow rapidly and produce heavy crops early.

Royal Blenheim and Tilton

These are the Three Big Leaders

We have these three varieties on either Peach or Apricot Root.

Our trees give a perfect root system because they are grown on silt-wash soil and the buds are selected from best bearing orchards.

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THE FRESNO NURSERY CO. INC.
FRESNO, CAL. P.O. BOX 615.

Fertilizer experiments on the adobe lands near Rio Vista are being carried on to determine if the yields of wheat can be profitably increased by this method. New forage crops for the marsh lands are being introduced and tried. Fertilizer and lime demonstrations on the marsh lands are under way to determine if certain deficiencies in grain production can be corrected.

MODERN FRUIT MARKETING

Modern Fruit Marketing, a complete treatise covering the harvesting, packing, storing, transporting and selling of fruit, by Bliss S. Brown, professor of horticulture, University of Maine, published by Orange-Judd Company, New York. Net price $1.25.

We take a bit of exception to one word on title page of this book, that is, "complete." As noted, the author is professor of horticulture of the University of Maine, which from this corner of the earth appears to be at one extreme of fruit producing sections. Notwithstanding that, Prof. Brown has gathered a great fund of information which is made plain by hundreds of illustrations. There are illustrations on almost every page and various methods of fruit harvesting, preparing of fruit for the market, fruit packages, fruit packing operations, fruit storage, the effect of storage on fruit, transportation, markets, selling agencies, selling methods, special fruit organizations and fruit shows are touched upon.

Quoting the first paragraph of the introduction:

"Agriculture is the science, the art and the technique of supplying human wants from the products of the soil. This does not exactly correspond with the old definition but is a readjustment to meet the needs of its modern application. The Latin "agri," meaning field, and "horti," garden, have long since outgrown their usefulness as a definition for present-day agriculture or horticulture. The tendency now is to increase the scope of the word agriculture to include the art, science, and the technique of everything pertaining to farm products, and to delimit the meaning of horticulture within narrower and narrower bounds."

"HOME AND FARM CANNING"

Circular No. 158, "Home and Farm Canning," is issued by the agricultural experiment station, University of California. It is written by Prof. W. V. Cruess for the purpose of answering the many questions which are continually coming regarding home canning. There is discussion of methods of preserving, of sterilization, the use of preservatives, general equipment, soldering, tinning, syrups, special directions for various fruits and special directions for various vegetables. It is an invaluable publication for the home canner.

SUGAR BEET SEED

Sugar beet seed was grown commercially in this country during the past year in several states from Michigan to California. The crop of seed harvested in 1915 was so satisfactory, according to the report of the chief of the bureau of plant industry of the department, in each of the areas tested that a largely increased acreage was planted this year.

This bureau has assisted in an advisory way in growing, selecting and siloing the roots, planting them in the spring, harvesting and cleaning the seed, and, in general endeavored to produce the largest amount of commercial seed possible at a minimum cost. Approximately 5,000 acres are in beet seed in this country this year, while we require the product of at least 16,000 acres for a normal planting, not considering the natural expansion of the beet sugar industry. Each new mill will require an average of 200 acres in seed to meet its planting requirements. Seven new mills are in process of construction for this year.

The problem of drying the sugar beets for the purpose of increasing the amount of raw material for the mill and thereby increasing the length of the sugar campaign has been further investigated. The principal difficulty has been in finding or devising a dryer of suitable capacity to handle enough beets per day to be profitable.

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Send for general Catalog completely describing fruit trees and ornamentals
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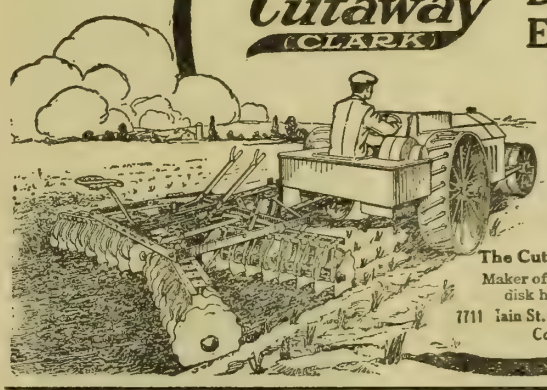
Its *forged sharp* disks cut deep without bringing up trash; the dust-proof, oil-soaked, hardwood bearings and perfect balance make draft light; it has an adjustable hitch, and is made in sizes to fit all tractors, with spreader hitch for use in multiples. If your dealer has not the *genuine* CUTAWAY, write to us direct. Be sure to write us for our new free book, "The Soil and Its Tillage." Make the best of your power this year.
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The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday Jan. 20, 1917

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We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

It has been said of California that it is rather green and raw as yet; that it does not show the finished appearance of the Eastern states; its farms are yet in the making. Perhaps we must admit the general truth of this, but look at the cover page of this issue and it may be seen that some of our farms have a reasonably finished look while they are in the making. This view is of Hollow Hill Farm in San Bernardino County. There are hundreds of Guernsey dairy cattle and Berkshire hogs. Every feature of the ranch is up-to-date, and as to sanitation and conditions which enable the production of the very finest of dairy products, we may say it is a certified dairy and one of the best. As to type of dairy animals on this and other Southern California ranches other columns of this issue give information.

PROOF OF THE PUDDING

Another proof of the value of cooperation is shown in the article in this issue by S. N. Ayers, secretary and manager of the California Dairyman's Association. Dairymen supplying the city of Los Angeles with milk did not wait as did those of New York until it became necessary to go on strike and boycott and even dump thousands of gallons of milk into the gutter, but by more reasonable and lawful methods began some years ago to organize and in a quiet way insist on fair treatment. This association has grown and has saved the dairy industry and made it bring reasonable return to the producers. The association works both ways, that is, it markets products of the dairy and purchases supplies so as to reduce the cost of production to the minimum. For example, at this moment, and owing to contracts made with alfalfa producers months ago, the association membership is securing alfalfa about four dollars under present quotations. Nothing succeeds like success, and so long as successful buying and selling prevails cooperative organizations will grow. Regarding this matter of cost of production we will have more from Mr. Ayers in a later issue.

SWINE BREEDERS

As we go to press swine growers about Los Angeles are planning for a royal good meeting of the state swine breeders' association. Only one day will be given to discussion of swine matters of the state, that is formal discussion in the assembly chamber. Friday is to be given over to visiting packing houses.

One swine breeder has suggested that this will be a packers' convention. We do not think there is any occasion to worry over the packers running away with this convention. They are extending cordial welcome and every packer will hold open house during the next few days. Nothing is gained by those interested in any one calling combating others interested along the same line. Cooperate; be sure that you give a fair deal; make sure that the other fellow gives a fair deal. We believe through a more general understanding between producers and packers this may be accomplished. We think this convention now in session will be a long step in that direction. The producers will demand the same treatment that is given to Eastern producers; it is only fair that they should have it.

PARKER EARLE

Parker Earle, former president of the American Pomological Society, life long fruit grower and tireless investigator, died at his home in Pasadena on January 12. Probably no one in America today has accomplished more for American fruit interests than Parker Earle. For half a century he

Parker Earle

Mr. Earle is the man with the overcoat. This picture was taken of Mr. Earle for the Cultivator when he was on his way to attend the 1914 California State Fruit Growers' Convention when it was held in Los Angeles.

was a leader in horticultural matters. Mr. Earle was born in Vermont, was a fruit grower in Illinois, supplying some of the finest markets in Chicago. He later went to Mississippi and from there to New Mexico, and after years of activity in that section he came to California, where for the past six years he has lived. In 1915 when the members of the American Pomological Society visited the state, holding sessions in Berkeley, a trip was made to Pasadena, and at a luncheon at the Hotel Maryland a reception was tendered to Mr. Earle. His life has been a busy one and notwithstanding his 85 years even the most recent horticultural events have held his keenest interest.

STOCKYARDS

Questions of vital interest to the swine growers of this state will be discussed at this week's annual convention of the breeders in Los Angeles. Possibly the question of public stockyards in both San Francisco and Los Angeles will be brought up. Regardless of how much time and effort are expended toward closer organization, cooperative marketing, "finish" of market animals, etc., they will not bring about any permanent good until the shippers have the same marketing advantages here that they enjoy in all other parts of the United States where live stock is produced in large numbers.

Under existing conditions in California more than 90 per cent of the meat animals sent to the markets pass through the hands of the country buyer before being transported to market. This buyer exacts his pound of flesh which runs from one to two cents per pound according to his ability to buy at a close or wide margin. The usual charge for feeding, watering and selling a carload of hogs at a public stockyards is $15, but a mere fraction of the scalper's commission. This one feature alone means a saving to the grower of thousands of dollars annually. Other advantages of a public stockyards are; open competitive bidding by the killers, opportunity for the shipper to compare his product with that of his fellow shippers, and more stable and higher prices.

When the Eastern farmer receives his market paper in the morning he glances at the range of prices and knows for a certainty what he can receive for his hogs, cattle or sheep at any one of a half dozen markets. In California he is always in the dark as to prices. So long as there are no stockyards or live stock exchange there will be no satisfaction or correct quotations.

Modern stockyards are by no means free from criticism, but they are far better than none. Eastern farmers who come to California to live note the difference between markets here and there, not alone from a price standpoint, but in our obsolete methods of marketing.

It is claimed by some that there are not enough good hogs or other stock grown here to warrant any higher prices than are being paid. Producers of real hard grain finished stock will say that they rarely get a better price for their product than the fellow who ships alfalfa or milk hogs. In any event the condition must be improved if stock raising in California is to flourish and endure.

LIVE STOCK INCREASING

In speaking of the poultry industry in a recent number we referred to the fact that in 1914 Los Angeles imported 158 carloads of poultry products. The next year it was 55 and a like reduction continued until now we are shipping carloads of eggs to New York where the price of living is high.

Possibly similar figures might be given as to dairy products and the animal industry in general, but we have not figures which are very accurate. Furthermore, no one has, for the industry is increasing with leaps and bounds. We might refer to the growth of one county of the southern part of the state, which reflects the growth of the producing section, and call attention to the fact that in 1906 its assessed valuation was $226,000,000. In 1916 it was $991,000,000, or practically a billion dollars. But what is a billion dollars? In fact, what do figures mean to us as a rule? Hence we are going to come back to something concrete and tangible, that is the California Cultivator. If you wish to know regarding the animal industry of Southern California watch these columns. For example, this one issue is a practical survey of the southern counties. It is the biggest issue the Cultivator has ever taken from the press, and in its illustrations and in the text is more proof of the growth of the live stock and other affiliating interests than we can give in any other way.

And the best of it is that with this increase there is increase in quantity and profitableness of the fruit industry as well. A live stock country is a rich country and in California live stock will make for richer orchards and a richer state generally.

To secure this survey of live stock in Southern California F. F. Stonerod in his little Cultivator Ford has traveled over valley and mountain. Even the Ford has been stalled several times, but Stonerod never; he has rambled on, and through the assistance of almost every stockman approached has gathered information as to stock interests which will surprise many.

To all who have aided we express heartiest appreciation.

Agricultural Notes

Over 10,000 acres of denuded lands in the national forests were replanted in 1916 with more than 6,000,000 trees.

The United States department of justice has appointed G. W. Anderson, United States district attorney at Boston to take charge of the investigation of the high cost of food.

In 1904 the actual cash road and bridge expenditure in the United States averaged slightly less than $28 per mile of rural roads. In 1915 the cash road and bridge expenditure had increased to an average of $109 per mile of road.

Because of the shortage of labor, Russian agriculture is feeling even more keenly the necessity for improved agricultural machinery. The department of agriculture has recently appealed to the Duma for appropriations for the purchase of American agricultural implements.

The "Better Farming Special," a train equipped as a demonstration school in New Brunswick, will the coming summer much enlarge its field of usefulness by making stops of several days' duration in various districts, instead of the short stops and lectures, as heretofore.

The big prices now being paid for cotton seed at the mills is inducing many planters to sell down so close that there is now fear lest the supply of pure seed for next season's planting fall short. The department of agriculture is therefore sending out letters warning growers to look ahead.

In an effort to reduce the high cost of potatoes, the department of agriculture has ordered a relaxation of the quarantine against potatoes from Canada. Canadian potatoes with not more than ten per cent showing traces of disease will be admitted at any border custom house, instead of specially designated ports, as has been the practice.

Portuguese dried figs have found a growing market in the United States, this year's imports being about 6000 tons, five times the imports of 1915. The United States is about the only market still open to these figs, the greater part of which were shipped in former years to Germany and Russia, via Holland.

Premier honors for butter were won at the last National Dairy Show, Springfield, Massachusetts, by the creamery at Grove City, Pennsylvania, operated under the supervision and direction of the dairy division of the Bureau of Animal Industry. Twenty-seven states and the Dominion of Canada were represented in the 151 samples entered.

An interesting statement appears in a report of the Jewish Agricultural and Industrial Aid Society: "Advice to prospective farmers—The society carries on no 'back to the land' propaganda. On the contrary, it finds that its greatest task is to prevent those who are unfit from embarking on a venture for which they are ill prepared and in which their chances of success are extremely remote."

It costs $128 per year to board a hired hand, according to estimates furnished to the department of agriculture by 1000 farmers representing widely separated sections in 14 states. It was found that the total annual cost per person of board for hired help varied from $104 in Vermont and Pennsylvania to $162 in New Jersey and that the percentage of this cost paid out in cash varied from 15 per cent in North Carolina to 49 per cent in California.

Agricultural News Notes of the Pacific Coast

Northern California

A 1200-acre tract will be planted to alfalfa near Orland, Glenn County.

Penn Valley, Nevada County, has formed a local of the county farm bureau.

Corning, Tehama County, has a return of a quarter of a million dollars for its output of pickled olives.

The Bridgeford ranch of Contra Costa is receiving a number of exceptionally fine pure bred Holsteins.

A new irrigation district has been formed along Long Valley Creek. It contains 34,000 acres of Lassen County's richest land.

The continued cold weather has aroused some apprehension in cattle feeders who have stock on the hills of the Coast Range.

Report of tester of the Gridley Cow Testing Association for the month of December showed 13 cows testing over 40 pounds of butterfat.

The Anderson-Cottonwood Irrigation District is contemplating the issuance of bonds for $300,000 for the completion of its irrigation system.

The Yolo Water & Power Company, which served water to 9000 acres of rice last season, is preparing to put water on 20,000 acres this coming season.

A sale of more than 50,000,000 feet of pine saw timber was recently made in the Lassen national forest near Susanville. Cutting will begin next summer.

N. P. Searles, Yolo County farm adviser, has arranged for a series of meetings to illustrate methods of pruning. A. H. Hendrickson of Berkeley and F. Flossfeder from the state farm, Davis, will have charge of the demonstrations under the direction of the county farm bureau.

The Hayward Poultry Producers' Association at its annual electon, held December 4, selected the following officers: President C. C. Wright; vice president, J. A. Due; secretary, T. J. Taylor; treasurer; J. M. Bickell; other directors, N. H. Jensen, W. C. Wallace and L. F. Gottborg.

Central California

A cow testing association has been organized at Corcoran. One thousand cows will be tested.

Citrus growers of Central California are finding that frost injury is less serious than first estimated.

Returns from the early orange shipments from Lindsay are reported to have been very satisfactory.

Modesto, Stanislaus County, is anticipating the establishment there of a $30,000 milk sugar factory.

Nearly 25,000 acres will be planted to sugar beets for the Visalia and Corcoran sugar factories this year.

Within the past few months Kings County has completed more than 45 miles of paved county highway.

Horticultural Commissioner Howard of Kings County is issuing a bulletin giving tree planting information.

The newly organized farm bureau at Ceres, Stanislaus County, held a meeting for election of officers January 13.

The Lindsay-Strathmore Irrigation District has applied to the state water commission for 10,000-acre feet from the flood waters of the Kaweah and 8000-acre feet from the flood waters of the Tule.

The Santa Fe railroad is taking up a new plan of advertising California in the East. Instead of trying to describe conditions in all sections of the state a few successful instances will be picked out for special emphasis.

The federal department of agriculture has delegated R. L. Nougaret, entomologist of the bureau of entomology, to work in connection with Fresno fruit growers, his special work being on phylloxera. Commissioner Roullard has worked to this end for some time.

An educational campaign will be made in Kings, Tulare and Fresno Counties to make known to property owners the plan to construct a great reservoir at Pine Flat to store 600,000 acre-feet of water for the irrigation of more than 1,000,000 acres of land in those three counties.

Southern California

Calipatria is becoming a large shipper of eggs and poultry.

There are rumors of the establishing of a new oil mill in Imperial.

Hemet Valley claims the biggest grain crop in the valley's history.

Sugar beet growers are pleased over the December and January rains.

Elsinore, Riverside County, contemplates more general planting of sugar beets.

Orange County growers of chile peppers are pleased with the advancing prices.

Farmers along the Santa Ana River are planning more complete flood water protection.

El Cajon Valley peach growers are organizing to secure better returns and aid in standardizing their pack.

A proposition has been made to build a sugar factory at Riverside, providing 10,000 acres of sugar beets will be grown.

Right of way has been secured through the national reserves surrounding the Sespe hot springs in Ventura County.

Big additions are planned to the factory of the Anaheim Sugar Company. The output of the plant will be increased to 1200 tons daily.

It is reported that within the past five weeks 100 apricot growers of the Hemet Valley have signed contracts with the apricot association.

The Southern California Auto Club has compiled tables showing 10,013 miles of paved highways have been built by the state and counties.

The Ranchers' Market of the El Cajon Valley is planning to have 750 acres of its members planted to cabbage, cauliflower, tomatoes, potatoes and other vegetables.

The public market committee of the Riverside chamber of commerce arranged for a farmers' and gardeners' institute, held in Riverside yesterday and today. Prof. S. S. Rogers from the university farm school at Davis was present to address the boys.

The Coast

Mutton prices are being broken in Portland; good valley lambs selling for $10.50.

The second annual Dairy Products Show will be held at Portland the last week in February.

Some cow testing associations in Idaho maintain that a 300-pound cow should be the minimum.

Miss Lillian D. Clark of the California University is aiding in university extension work in Arizona.

Montana Angora breeders anticipate 40-cent Mohair next season. Sales have been made this year at 34 cents.

The annual convention of the Idaho State Horticultural Association will be held at Boise January 30-February 1.

Several Yakima hop growers have decided to plant sugar beets instead of hops next year because of low prices of hops.

The second month of the All-Northwest Laying Contest at Pullman, Washington, shows a pen of White Leghorns belonging to a Corvallis breeder in first place.

Snohomish County, Washington, commissioners will prosecute loggers who use the new paved roads for their logging operations. Hard surfaced highways and motor trucks make log ging easy, but there is a state law prohibiting the hauling of loads that will injure or destroy these roads.

The Northwestern division of the Farmers' Union, at its recent annual convention in Spokane, elected J. V. McCall of Hay, Washington, president, and A. D. Cross of St. Andrews, Washington, secretary. The executive committee is made up of members from Idaho, Washington and Oregon.

The Idaho State Seed Growers' Association held a convention January 8-17 at Pocatello. At the same time and place there were conventions of the Idaho State Dairy Association, the State Swine Breeders' Association, the State Live Stock Association and the State Cattle and Horse Breeders' Association.

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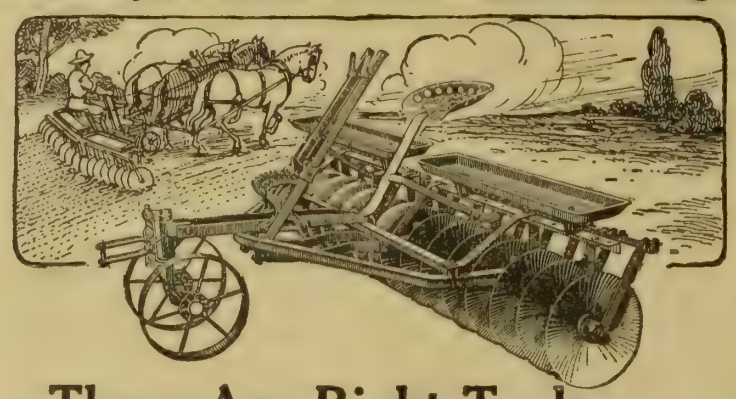

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Practical Hints for Concrete Construction

During the course of an illustrated lecture relating to concrete construction on the farm, the speaker, who had traveled throughout all the important agricultural districts east of the Mississippi taking notes and photographs of various examples of concrete construction on hundreds of farms, was asked what proportion of farm work of this character resulted in failure. He replied that failures were exceedingly few, and that if farmers were instructed as to the use of proper aggregates, failures would become practically unknown.

The following brief instructions concerning the essentials of good concrete have been prepared for the information of farmers, who will find them convenient as reference data. If strictly observed they will insure satisfactory results.

Aggregates to Be Used in Concrete Construction.

The sand, stone, and gravel usually found upon the farms of the United States are generally suitable for concrete construction, provided the following precautions are taken:

These aggregates must be free from vegetable matter, dirt, or other foreign substances.

When using bank-run gravel, the sand must be separated from the stone or pebbles by screening through a ¼-inch screen.

In small concrete structures, such as drain tile, fence posts, etc., the coarse aggregate (crushed rock or gravel) should range in size from ½ inch to ¼ inch. For larger work, such as silos, barn floors, ordinary foundations, etc., coarse aggregate should range from 1½ inches to ¼ inch.

The sand used should be coarse, hard, and clean, and graded from ¼ inch to fine, with the larger size predominating. Use great care in hand mixing. It is economical to buy a small machine mixer if the farmer intends to use concrete in large quantities.

Hand Mixing.

Proper methods when concrete is mixed by hand, using a two-bag batch of 1:2:4 proportions, are as follows: The size of measuring box for sand should be two feet square by one foot high, thus containing four cubic feet.

Concrete Makes Permanent and Best of Watering Troughs

Load sand in wheelbarrows and wheel onto mixing board.

Fill sand-measuring box, lift box, and spread sand four inches thick over board.

Take two bags of cement, place contents as evenly as possible over sand.

Turn the sand and cement over until thoroughly mixed, so that no streaks of cement or sand appear.

Spread the mixture of sand and cement out carefully, place measuring box beside it, and fill twice with stone or gravel, then empty onto sand and cement mixture and mix thoroughly.

Add three-quarters of required amount of water slowly and evenly, at same time mixing the mass.

Continue mixing, adding balance of water when dry spots appear, until whole mass has been turned over three or four times. This should be sufficient. After final turning shovel into compact mass ready for wheeling to place.

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Feeding Milo to Turkeys.

Do you find the use of milo safe in feeding young turkeys? I have read many times that Indian corn will kill the young poults and had supposed milo would do the same until I have seen a number of neighbors feed it with apparent success. What is the experience of experts?—Subscriber, Brawley.

The opinion of experts changes from year to year, for we have not yet found any method of feeding young turkeys which can be guaranteed to bring them through the trying first three months, but the latest opinion of the Rhode Island experiment station, which has done more careful investigating than any other station or person, is that what you feed young turkeys is not half as important as how much. Many turkey raisers do succeed with corn, many succeed with milo, and wheat and even barley, though barley because of its hulls is not recommended. The main thing is to feed only what they will eat greedily and to make any change very gradually. Of course no whole grain can be given until the poults are old enough to eat it, which is usually from two to three months of age, depending largely on what their previous feeding has been. —J. A. K.

Grain Sorghums

Please advise which of the following grains would have the most fattening qualities for poultry: milo, kafir or feterita.—Subscriber, Long Beach.

There is practically no difference in the feeds mentioned. In fat formers dura shows slightly greater content of fat; 2.7 as against 2.5 for feterita, 2.2 for milo and 2.3 for kafir. The protein content is also very similar.

Denatured Alcohol

Please give information regarding the manufacture of denatured alcohol, what it costs to fit up a small plant, what are the laws regulating manufac-

ture, etc.?—Subscriber, Yorba Linda.

When the present law was enacted some eight years ago it was felt that a great opening had been made for the disposal of many of our waste products and at a fair profit. Immediately a very complete treatise, or practical guide, "Introduction to Distillation" was published by the Munn Company of New York. This is a four dollar book of over 500 pages which gives the most practical information of methods of manufacture. The United States department of agriculture has also issued some bulletins which we presume may be had for the asking. To give methods or to go into it at any length would require more space than is available in the Cultivator. We may add that the law was so involved and its regulations so strict, and this, with federal oversight and fees demanded makes expense of manufacture so great that the small plant will probably never succeed until there is a revision of the federal law.

Septic Tank Fertilizer

What is the value of septic tank fertilizer?

We are unable to give any information as to solid matter from septic tanks, but as to sewage, Voorhees "Fertilizers" says: "There is now a product called 'sewage sludge', which is obtained in many towns, as a result of its chemical treatment. Such examinations as have been made of this product show it to be very poor in fertilizing constituents, showing less than .20 per cent nitrogen, .05 per cent phosphoric acid and .05 potash. It is seldom worth the handling. The untreated sewage and garbage wastes are also obtainable in large quantities, and while the constituents contained in them act quickly, and while they are considerably richer in these than the sludge wastes, it seldom pays the farmer to handle them, owing to their offensive character and the enormous amount of useless moisture contained in them". In any case there is such variation in constituents that analysis would probably be necessary to determine even approximate values.

Slow Butter in Winter

Please let me know how I can make butter with less trouble in winter. It takes me a long time. I churn twice a week about three gallons of cream which I keep about 65 degrees Fahrenheit at churning. Feed beet pulp with alfalfa meal and alfalfa hay to the two cows.—Susbcriber, Sacramento.

This question was referred to E. H. Hageman, creamery manager at Newman, Stanislaus County, who answers:

The difficulty your subscriber has in churning can invariably be traced to the ripening process of the cream. Cream should have a mild acid flavor and be ripened to a thick consistency just before churning at 58 to 65 degrees Fahrenheit. The cream should test about 35 degrees butterfat, or rich enough to make from three to three and one half pounds of butter per gallon of cream. Cream, in cold weather or winter time, allowed to stand and ripen in the natural way without a starter either keeps too sweet or sours with an "off" and bitter flavor combined, and churns with difficulty.

I suggest the following method. Collect the cream that you are to have for a churning in a clean crock or tin vesvel, keeping it cold in a cool place until the day before churning; then set in a warm place of about 70 degrees Fahrenheit and add starter of one quart of clean flavored clabbered milk to three gallons of cream and allow to ripen until thick consistency. Cool to 58 degrees to 62 degrees Fahrenheit and churn.

If the sour clabbered milk cannot be had for a starter, a quart of the buttermilk of the previous churning will do if it is of a clean acid flavor.

Making Fertilizer of Bone

I have a large quantity of bone and a bone grinder. How can I make fertilizer and will it pay for me to work it up? I can get $15 per ton and can buy manure for my 12-acre place for about 75 cents per ton, which looks to me cheaper than the bone.—Subscriber, Santa Ana.

The phosphorus in bone is one of the most valuable additions to California soils. To make it available the bone is usually ground to a very fine "flour." Some farmers believe in going farther and making the phosphorus immediately available by treating the bone with acid. This reduces it to the form of acidulated bone or superphosphate, when all the phosphorus, or as usually expressed phosphoric acid, is available for the use of plant life. Personally, we would use the untreated bone, providing it has been reduced to a very fine consistency. Perhaps we should not say this in a public way because this is a question which causes repeated contention, for many believe implicitly in the acidulating. If the bone is of good commercial quality it should contain 3.5 to 4.5 per cent nitrogen and nine to 11 per cent of phosphorus. This would be close to 20 to 25 per cent of phosphoric acid. This, bear in mind, is bone without steaming or acidulating. But regardless of the value of this bone meal we would use all the stable manure which we could possibly afford when it can be had at 75 cents per ton. Hopkins' "Soil Fertility and Permanent Agriculture" gives the value of average stable manure as around $2.25. Of course the expense of hauling and handling must be considered for stable manure is very bulky. Its content of nitrogen is usually greater than that of bone but its content of phosphorus is not one-fifth that of bone though great value is given to stable manure in the humus which it adds to the soil.

Milking Machine for Small Herd

A Riverside County dairyman writes inquiring as to the value of the milking machine in the small dairy. This particular inquirer's dairy has only seven cows. He wishes to know whether it would be possible to lighten the drudgery of milking, also to shorten the task, by the use of the machine, and whether such a machine could be installed at a cost of not over $150. We will pass this question on to our subscribers. Who has tried the milking machine and found it a success? Give for Cultivator readers information which comes from experience.

Drowning Out Bermuda

Is it possible to drown out Bermuda during the summer time?—Subscriber, Fresno.

We do not doubt that it would be possible but the supply of water required and the loss of the use of the land while it was being done would prohibit such practice we think. However, we will be glad to hear from any subscriber who can inform us.

"POULTRY BREEDING AND MANAGEMENT"

"Poultry Breeding and Management" by James Dryden, professor of poultry husbandry, Oregon Agricultural College, published by Orange Judd Company, New York. Net price $1.60.

James Dryden is one of the most practical poultry people on the Pacific Coast and now he has gone into print. He says:

"There need be no apologies for new poultry books. The industry is important, the poultry constituency large, and one poultry book representing the finding of one author would hardly be presumed to meet all demands. In these days of progress in the science, if it may be so called, of poultry husbandry, it is imperative that new compilations be made and new books published at frequent intervals that the poultry keeper may receive the benefit of early knowledge of new discoveries.

"This book, therefore, has been prepared that it may add to the available poultry literature; not that it may supplant other books, nor that it should be the last word on the subject. The author is fully conscious of its imperfections; but, to every student of poultry culture, and to every poultry farmer, he earnestly hopes that it may bring some helpful message."

There are 17 chapters touching upon the historical aspect, evolution of the modern fowl, classification of breeds and description, principles of breeding, problems of fecundity, systems of farming, housing, fundamentals of feeding, methods, methods of hatching, brooding, marketing and finally a chapter on diseases and parasites. The book is well printed, well bound and fully illustrated.

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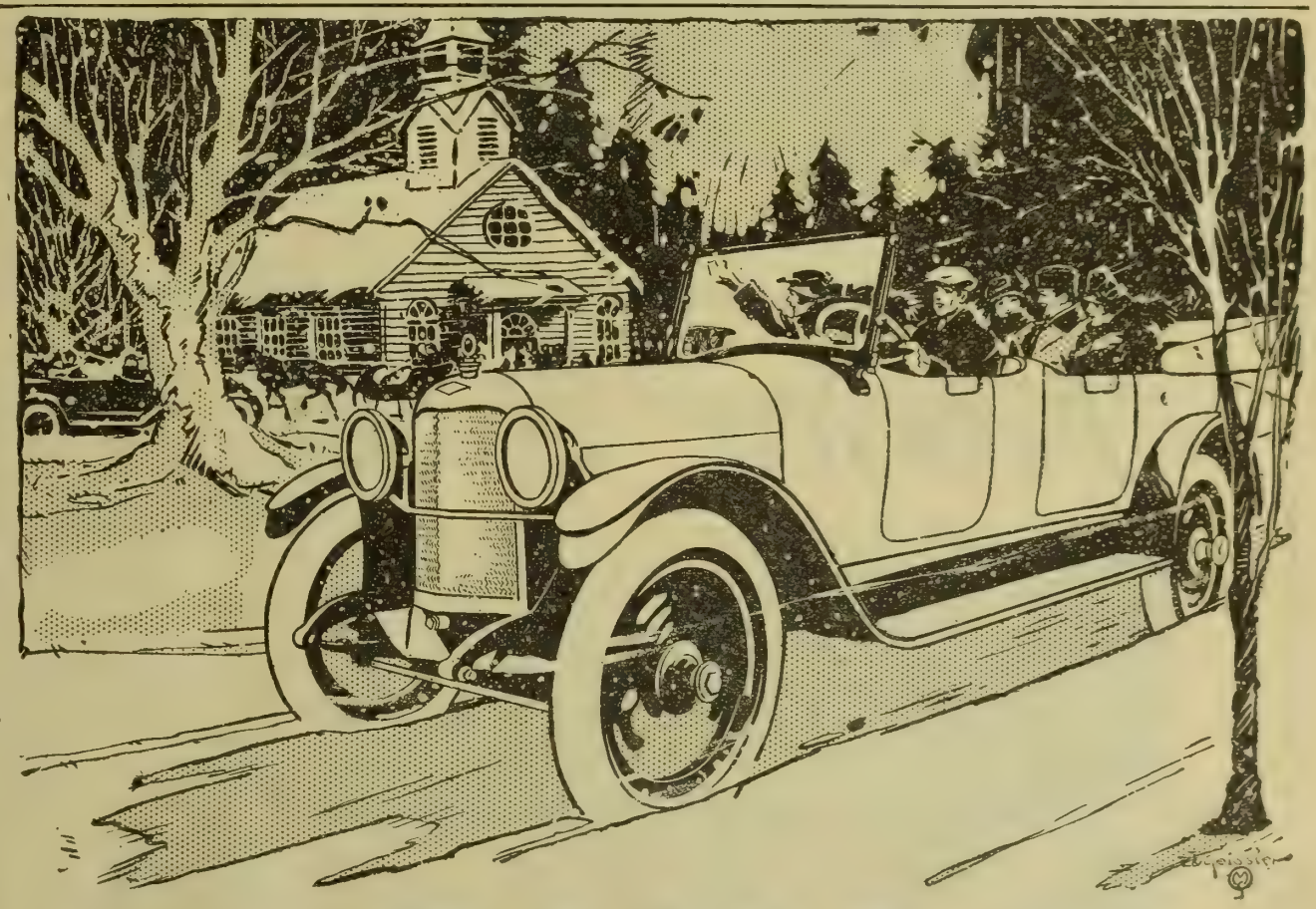
Take three joints of old stove pipe, set in ground at proper depth; next stick some old rod or axle down through the middle; now flatten the top a little, and put bolts through to hold it in place. Fill with slush cement, and after it hardens cut off the old pipe, bolt on the mail box and you have a post that will last forever and has cost only a few cents —Ex.

J. M. Davison of Arlington has been selected as president of the newly organized Southern California Poultrymen's Association.



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CALIFORNIA MILK PRODUCERS ASSOCIATION

Continued from Page 51

selves together in what is now known as the California Milk Producers' Association. The purposes for which this association was organized are primarily as follows: To furnish facilities and agencies through which such bona fide milk producers as desire to become members shall market their milk and dairy products upon a uniform plan in such a manner as to bring about a better standard of quality, a more uniform distribution, and a larger consumption thereof, to encourage its members to better their methods of production, to standardize and develop their product, to find the readiest and most available market for same in Los Angeles and towns adjacent thereto.

The association believes that the interests of the producer and consumer of milk and dairy products have much in common and imperatively demand the production and delivery to the consumer of good, clean, pure milk and other dairy products, to assist in securing effective legislation that will bring about this result, and to lend its aid at all times to the enforcement of such legislation, ordinances and statutes.

The association also gives its attention to improved breeding, economical feeding, and to bring about the operation of model dairies.

It has gathered data and information from all the different sources in regard to the quality, production and consumption of milk and dairy products. It furnishes its members with feed at cost, buying direct from the producer of same.

During the past year the association, which represents practically 50 per cent of the milk supply of Southern California, has been able to secure to its members a better price for their product, has helped them produce their milk more cheaply, has secured an efficient system of sterilization and careful handling of their product, and is at the present time producing about 90 per cent of their product as Grade A Milk, under the regulations required by the state law.

They maintain one of the best equipped laboratories in the state for the purpose of testing their milk supply for bacteria and butter fat, under the able administration of Dr. C. H. Griffen, well known as bacteriologist in this state.

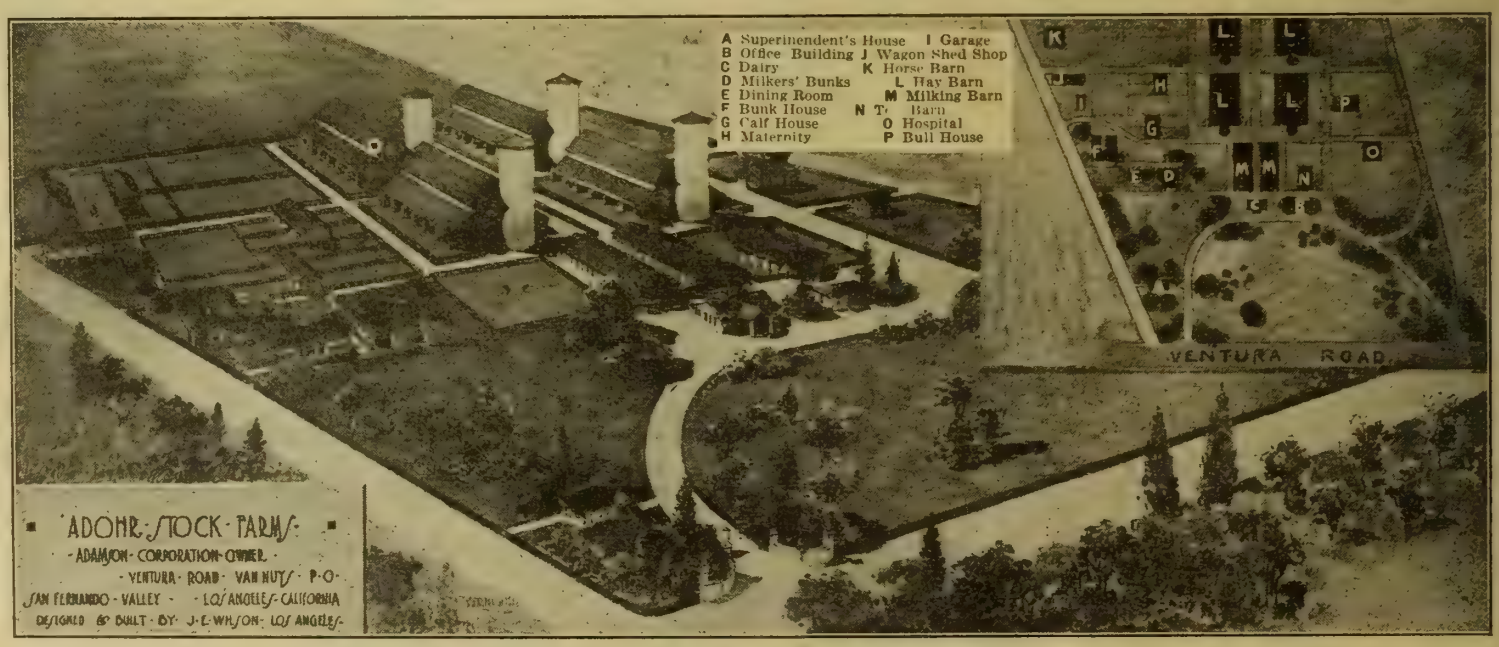
The subject of testing the cows of the association for production is now being carefully studied, and during the next year a campaign will undoubtedly be started to eliminate the unprofitable cows from the herds and start a system of breeding that will bring the herds all up to a higher standard of production.

In the marketing of their product they have secured the hearty cooperation of the creameries with whom they are doing business. It is their desire to cooperate and aid the distributor in every way, as their motto is "Cooperation", and they believe that this should be carried out in all of their transactions with the producer, distributor and consumer alike. Probably never before in the history of the dairy business has an association realized such results in so short a time, and the future is bright with prospects of far greater accomplishments during the coming year.

Mr. Walker of Peters, Lamson & Walker, writes that he has just received a gilt from Mr. R. Wilde of Genoa, Nebraska, the heaviest winner at the National Swine Show at Omaha this year. She is bred to his famous boar, Critic B. He has also received a gilt bred to King the Col. from O. S. Larson of Logan, Iowa. In their grade herd they are now weaning 500 pigs per month and the number is increasing every month as the gilts come in. The last car of hogs brought $9.65, the packer who bought them at $9.60 without seeing them paying five cents more for them upon arrival at the slaughter house.

J. W. Sefton, San Diego County, has one of the largest herds of registered Tamworth hogs in the United States. He raises them as a strictly market proposition and has kept a thorough cost system to show that in four years' time he has made a nice profit on his ranch crops by having the hogs. He is an advocate of the sound theory that the only sensible way to farm in the 20th century is to walk the products of the soil to market. A few months ago Mr. Sefton transferred about 50 head of brood sows to his big ranch in the Imperial Valley, but he retained the other half of the herd on his San Diego Ranch.

Adohr Stock Farms



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The Adamson Corporation announces the establishment of a Guernsey Herd. The intention is to develop a herd that will appeal to dairymen and breeders alike.

The services of Mr. E. W Major, well known as a judge of dairy cattle, have been engaged to select as foundation stock animals which combine trueness to breed type with productive capacity.

Watch For Future Announcements

Edgemoor Farm Ranks With the Best

SOUTHERN California has reason to be proud of her many fine herds of blooded live stock, particularly in the dairy breeds. Few equal and none surpass the Edgemoor herd of Guernseys in San Diego County owned by W. H. Dupee. The farm is located at Santee, just 16 miles from San Diego, and was established about four years ago. It covers 600 acres in the El Cajon Valley. There are 25 buildings on the farm, all new, and built in the most up-to-date style suitable for dairy farm purposes. Architectural plans and interior equipment are modeled after the most practical for the purpose.

The Edgemoor Guernsey herd, which at present numbers 160 head, includes over 40 May Roses, there being 14 Ne Plus Ultras in the lot. We do not know of any other Guernsey herd that has a larger number of Ne Plus Ultra bred Guernseys. Herd bulls at Edgemoor have been selected both for their individuality and blood lines, bulls strong in the great producing lines of the breed. The senior herd sire, Imp Itchen May King, is familiar to every Guernsey breeder on the coast. His get are coming two years old. In conformation King's get are of the highest type. None of them have as yet come into milk. Many of the A. R. records at Edgemoor were made by cows in transit from New Jersey to the coast, and many others were made under regular farm conditions. Edgemoor Guernseys, both males and females, have won championship and grand championship honors at various state fairs as well as at Panama-Pacific International Exposition 1915.

Royal Rose King of Edgemoor, a son of Imp Itchen May King, and Belladia, the great cow which just completed her yearly Class A record of 935.14 pounds butterfat from 19,631 pounds milk (also has Class D record of 669 pounds butterfat), is a typey two-year-old bull from which Edgemoor expects great things. He will be a candidate for grand championship at this year's shows.

Another fine young sire is the Langwater bred bull, Langwater El Dorado, junior champion at 1916 California state fair. He was selected from the celebrated Langwater herd at North Easton, Massachusetts, owned by F. Lothrop Ames, recognized as the most successful Guernsey breeder either at home or abroad. At the October sale of Langwater Guernseys 41 females bred by Mr. Ames sold for $58,000, an average of $1421, highest priced individual brought $6150, both world's records. El Dorado is particularly rich in the May Rose blood, going eight times through the highest producing channels to May Rose 2nd. His granddam on dam's side is Langwater Hope, who has a two-year-old record of 773 pounds butterfat and 1003 pounds in Class A.

The three-year-old sire, Dairymaid's Nonpareil of Iowa, is being used freely at Edgemoor. He is a strongly inbred Glenwood bull and was selected for the present owner by Chas. L. Hill, the noted dairy cattle judge at many national shows. Mr. Dupee wanted a bull carrying high production in his pedigree, together with Glenwood blood, and in Nonpareil he certainly secured a good one. His dam, Elberon's Glenwood of Haddon, has a record of 824 pounds butterfat. His nearest dam on sire's side has an A. R. record of 910 pounds butterfat, making his two nearest dams average 867¼ pounds butterfat.

The star cow at Edgemoor is Imp Itchen Wood Sorrel, a champion and grand champion wherever shown. While her record is but 556 pounds butterfat made in the heifer class, she is equal to making a large record if again put on test, for she is a very heavy and persistent milker, but being the star of the herd it is not deemed advisable to chance getting her out of condition.

It is the sole aim at Edgemoor to breed for large production; show ring performances are of secondary consideration, and with the class of animals in the herd, pronounced by Guernsey experts as second to none, the ambition of the owner is certainly being attained.

LARGE AND MEDIUM TYPE POLAND CHINAS

Shipped on Approval

20 Fine Boars, Ready For Service
30 Bred Sows, Ready within 60 Days

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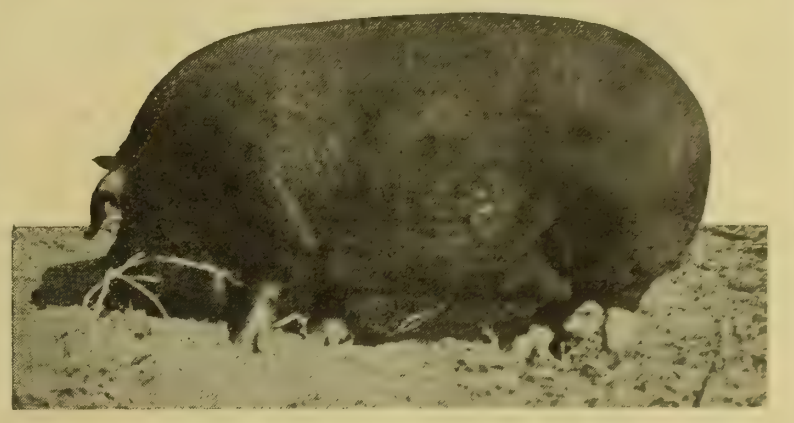

Individuals from my herd won second on boar and sow P.P.I.E. 1915. Champion sow at Fresno and at Hanford 1916. Young stock of this breeding for sale. Write to

FRED D. ROSS — **Hanford, Calif.**

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This sale will be preceded by a two days' meeting. Every man interested in Berkshires, or in pure bred and "better" hogs is cordially invited to attend the meeting and sale. Both meeting and sale held on the University Farm at Davis, Cal.

For further particulars, catalogue, etc., address either

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Our boars and sows are nicely belted.

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When writing advertisers, mention The Cultivator.

A Shorthorn Family Since 1869

Written for California Cultivator.

SHORTLY after the Civil War a Mr. Hall who resided in Minnesota bought a bred Shorthorn heifer of Scotch breeding. For 20 years he bred Shorthorns until his eldest son was capable of running the business. The eldest son was none other than F. L. Hall, now of Perris, Riverside County.

Mr. Hall has only been in California for the past three years, having lived previously in Minnesota where he bred Shorthorns and Berkshires. He exhibited at the county and state fairs in his own state and also showed his stock at South Dakota and other nearby fairs. He has dozens of ribbons and trophies to show that his stock was in the prize winning class frequently.

When the Halls migrated to California they brought their best livestock along and have been breeding from this foundation ever since. This last year saw the Hall Berkshires at the state and Riverside County fairs and they were in the one, two, three class at both fairs. The Shorthorn herd sire is Royal Archer Sultan, a Scotch bred red bull of heavy bone and substance. He scales over a ton and is a four year old. His calves are all typey and built both wide and deep. The females are mostly of Orange Blossom strain and have been the real basis of Mr. Hall's success in the Shorthorn business. He says that prices received for the 1916 bull calf crop were almost double the prices of former years and he plans to increase his herd as soon as possible.

Pure Bred Beef Cattle Reach Their Highest Development in California
Group of Scotch Shorthorns on F. L. Hall Ranch.

In Ames Rival 118 Mr. Hall has a high class young sire. He is a son of Rival's Champion's Best. His best points are his smoothness, ham, and size of bone. Undoubtedly he will make a satisfactory sire. A full sister to Winona's Royal Champion, Jr., champion at Sacramento this year, both sired by Laurel Champion, is one of the very best gilts in the herd.

There are some Grand Leader and Masterpiece bred sows on this ranch which will farrow some show pigs this spring. In the Hall place are 140 acres just off the highway on which alfalfa and grain is grown for the stock.

Hollow Hill Guernsey Farm a Tourist Mecca

Written for California Cultivator.

SITUATED right in the heart of San Bernardino County's citrus belt, Hollow Hill Farm, Colton, is one of the most beautiful in the state. The main highway between Riverside and Redlands passes through the property, and it is a common thing to see as many as a dozen automobile parties filing through the scrupulously clean barns, admiring the many interesting sights. Much has been written about the test barns, the milk barn, the calf barn, patent equipment, bull pens, corrals, etc. Visitors are taken around the plant and finally view the interior of the building where the certified milk is produced, through glass, and while they are eating ice cream or drinking rich Guernsey milk at individual tables placed there for just this purpose. But this story will give Cultivator readers a line on the breeding of the "business end" of Hollow Hill, i. e., the animals.

Mr. W. G. Wilder, the distinguished publisher, who lives in New York City after he has remained at his California home as long as possible every year, is the owner of Hollow Hill and planned every detail of its construction. His home is located on the highest hill surrounding the farm, from which he gets one of the most beautiful and extensive views to be had in California.

Grouped in the hollow portion of the landscape are the many buildings which accommodate the string of over 100 Guernseys. The cows are rich in the blood of the May Rose and Masher families, two of the greatest of the breed. There are three herd bulls heading the Hollow Hill string of cows including: King Masher of Redlands, a four year old son of King Masher and out of Coras Beatrice who has an A. R. record of 368 pounds butterfat in class "G"; King of Hollow Hill, a three year old bull bred by Langwater Farm. He was sired by Itchen Daisy's May King of Langwater whose dam has an A. R. record of 714 pounds butterfat in class "B"; and Coras Glen, a three year old out of an A. R. granddaughter of Governor of the Chene. This youngster is the typyest bull in the herd. He captured championship honors at the 1916 Riverside fair and gives great promise.

The cows have been on official test, and the first to finish a full year's work will be Caroline of Chilmark 24812 A. R., and at the rate she is going she will make over 750 pounds butterfat when she finishes in April if nothing happens. This cow is a grand individual of excellent Guernsey type. She has a two year old record of 308 pounds butterfat.

Another high class cow is Imp Cherry 3rd of the Effords. She is in the state dairy cow competition and was the leading cow for the month of November over all breeds. There are any number of big producers in this herd, and they will be heard from as they gradually complete their year's work. Certified milk having a bacterial count of less than 1000 to the drop (state law allows a maximum count of 10,000) is produced every day on this ranch. Anyone familiar with the difficulties of producing milk of this purity will appreciate the care and work entailed.

Within the past year a fine herd of Berkshire hogs was established at Hollow Hill, and they brought in some good ones. The senior herd sire, Ranchos Otto 20680, is not a show boar any more, but he is a great boar all the same. He is a grandson of Rival's Lord Premier and out of a Masterpiece sow, a combination that has produced a lot of winners. The

junior sire, Ames Rival 31st, bred by Dean Curtiss, is probably the best prospect in the herd. He is out of Belle Rival 17th, and is exceptionally good in the ham, bone and heart, and carries the quality of his breeding. There are 18 brood sows, ten gilts, and some younger boars in the herd at the present time.

Hollow Hill covers 260 acres of rolling land and has one of the most picturesque locations in Southern California.

A Young Bull with a Wide Reputation

When James J. Jeffries and associates paid $2000 for a four-months-old bull calf at the Rhoades-McAlister sale it was considered a sensational price, but there are men today who attended that sale, and since then have seen the way that the daughters of the sire, King Korndyke Sadie Vale, are coming on, two having just made records over 31 pounds, and have seen a granddaughter of King Segis break the world's record by producing over 50 pounds of butter in seven days (King

A Coming Youngster

King Paul Korndyke Vale, the $2000 son of King Korndyke Sadie Vale, who is owned jointly by five different parties.

Korndyke Sadie Vale is a grandson of King Segis through his best son and a brother to Mabel Segis Korndyke, a 40-pound four-year-old granddaughter of King Segis), and noted the number of the largest and most successful breeders in the United States who are getting into the King Segis line of breeding by using sons of King Korndyke Sadie Vale, that have remarked that instead of being a sensational price, it was rather a sale where less than half of the actual value of the animal was obtained.

King Paul Korndyke Vale's two nearest dams average 36.24 pounds of butter in seven days. His dam is by Sir Sadie Cornucopia, whose dam was the first 30-pound cow of the breed and whose sire's dam was the famous Aaggie Cornucopia Pauline, 34.32 as a four-year-old, world's record at the time it was made.

This great young sire will be placed in active service at the Jeffries herd and at the Edgemont Holstein Farm herd, where he will be afforded a wonderful opportunity. Already a number of outside cows have been booked to breed to him by far-sighted breeders who appreciate his wonderful breeding.

"King Paul" is owned jointly by Jas. J. Jeffries, W. H. Taylor, C. W. Anderson, Harlan Dailey, Ben A. and Harold B. Rhoades, and with this class of men behind him there is no question but what he will be made one of the truly great sires of the breed.

Delta Farm and Live Stock Company, San Bernardino County, recently purchased over 100 registered Duroc-Jersey gilts, all bred. They came from the Peters-Lamson-Walker herd and are a splendid foundation. The Delta company also has a large herd of registered Berkshires. As soon as possible a pure bred herd of Guernseys and Holsteins will be put in and from the upward of 1000 acres of land in the project enough feed will be grown to supply this large stock farm. Mr. B. F. Graham of Los Angeles is secretary of the company and Mr. J. J. Johnson, manager. Mr. Von Rosen will have charge of both the cattle and hog departments.

Poland China

DARKNESS A
YEAR OLD DAUGHTER OF I.B.A. WONDER

BREEDING

That Should Suit You

My herd contains LARGE TYPE strains from the herds of Henry Fessenmeyer and J. W. Pfander of Clarinda, Iowa; Isaac Overton, Knoxville, Iowa; Peter Mouw, Orange City, Iowa; M. P. Hancher, Rolfe, Iowa. MEDIUM TYPE strains from the herds of Link Lukens, Disco, Ind.; J. N. Kemp, Kenny, Ill.; Frank Winn, Randolph, Mo. These are among the most prominent and most successful breeders in the country. My foundation stock from them was some of the best hogs they have ever bred. I now have for sale some of the best individuals I have ever raised; prize winning stock. A few bred gilts, yearling sows, a nice lot of fall farrowed pigs and a number of exceptional quality service boars. My best advertisements are the men who have bought from me. I absolutely guarantee to please you or refund you your money.

W. A. Young

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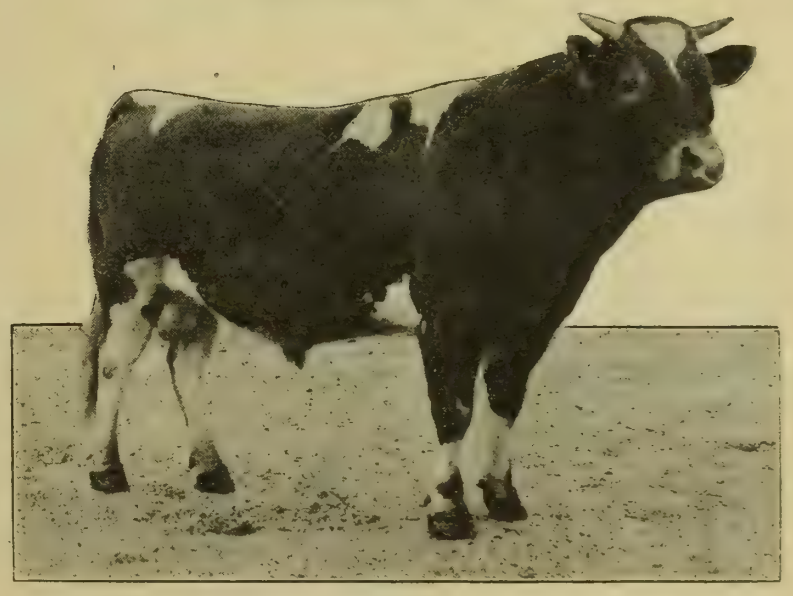
Berkshire Hogs

Utility combined with Show Qualities, bred from such families as Masterpiece, Baron Premier, Ames Rival, Rival's Champion's Best, Artful Duke and Longfellow.

Sows are Prolific and Easy Feeders.
Prize Winners on 1916 Fair Circuit.

Choice boar pigs and some of serviceable age from these sows will be priced on application. We also have a few handsome gilts for sale, either open or bred.

Guernsey Cattle



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Out of an A. R. Granddaughter of Gov. of the Chene

Bull calves from 3 to 14 months of age of Masher and May Rose blood lines at very attractive prices. Some out of A. R. cows and quite a number under test now promising to make splendid records.

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COLTON, CALIFORNIA

Visitors are Always Welcome at Hollow Hill

WOULD YOU BACK A SPRINTER TO WIN A LONG DISTANCE RACE?

Then Why Gamble on Dairy Blood of Unknown Endurance in High Production?

It is the cow that yields large quantities of milk and butterfat and KEEPS UP HER PRODUCTION that makes the balance on the right side of the dairy ledger at the end of the year.

And there is just one way to secure cows that will yield heavily of milk and butterfat, for the greater portion of each year, and for many such years in succession—and that way is to breed up through the use of a purebred registered dairy sire backed by generations of persistent high producers and possessing the true dairy type that makes for constitution, ruggedness, and long life.

Our herd of registered Holsteins has now reached a stage of development where we are able to offer breeding stock that combines the best blood developed through many years of official and semi-official testing and a careful selection of strong, vigorous Holstein type.

Segis Pontiac De Kol Burke

In our senior herd sire, **SEGIS PONTIAC DE KOL BURKE,** we have a bull that has already demonstrated to a remarkable degree his ability to transmit show ring type, and his first daughters to freshen are proving his ability to transmit the wonderful production behind him.

In the show ring his sire was twice Grand Champion at California State Fair, his dam was Grand Champion, he himself was Grand Champion, one of his daughters was Grand Champion, one of his sons was Junior Champion, and another son was Junior Champion at the Panama-Pacific International Exposition.

In production records his daughters are starting off at a most satisfactory gait. Only four have so far finished 7-day records, and they are as follows:

	Butter	Milk
Aralia Mead Pontiac De Kol Age—2 yrs. 7 mo. 12 days.	16.80	370.2
Aaggie Acme Burke Age—2 yrs. 4 mo. 5 days.	15.23	364.2
Aralia De Kol Pontiac Mead Age—2 yrs. 7 mo. 22 days.	23.30	575.9
Cobossie Korndyke Burke Age—2 yrs. 3 mo. 11 days.	19.29	414.2

Thus producing in 7 days an average of 406.1 pounds milk and 18.65 pounds butter at an average age of 2 years, 5 months and 20 days.

GREAT MILK YIELD---HIGH PER CENT OF FAT

Large yearly production of milk that tests high in butterfat is characteristic of the daughters of our herd sire **KING MEAD OF RIVERSIDE.** This sire has had only a very limited opportunity, yet he has already won a place among the greatest sires of the breed. His first six two-year-old daughters on yearly test made an average of 13,905.4 pounds milk and 685.25 pounds butter, average per cent butterfat over 4%. As a four-year-old one of his daughters made a yearly record of 19,577.3 pounds milk and 1095.10 pounds butter, average butterfat for the year 4.49%.

Aaggie Acme of Riverside 2nd

His first daughter to reach mature age is **AAGGIE ACME OF RIVERSIDE 2ND,** the new State Champion Cow in the 7 and 30-day divisions. In 7 days she produced under official test 627.3 pounds milk and 35.37 pounds butter, and in 30 days 2720.7 pounds milk and 142.31 pounds butter.

Sons and daughters of **KING MEAD OF RIVERSIDE** are of the most desirable type and possess the uniformity to stamp their sire as prepotent to an unusual degree.

OUR JUNIOR HERD SIRE

KING MORCO ALCARTRA

Sire: SEGIS PONTIAC DE KOL BURKE.

Dam: TILLY ALCARTRA, the world's greatest dairy cow.

The records of his dam and sire's dam average 842.9 pounds milk and 32.26 pounds butter in 7 days; 29,638.9 pounds milk and 1137.79 pounds butter in one year.

SIR AAGGIE DE KOL ACME

Dam: AAGGIE ACME OF RIVERSIDE 2ND, the champion butter producer of California in class. The records of his three nearest dams average 642.5 pounds milk and 31.28 pounds butter in 7 days, 20,899.9 pounds milk and 1015.41 pounds butter in one year.

Keep Your Eye on These Two

REMEMBER: That we can supply you with a herd bull whether you own a grade dairy herd or a high class herd of registered Holsteins. We can supply you with a high class show prospect, a bull backed by generations of high short-period records, or a bull backed by some of the greatest yearly records yet accomplished. And our prices are conceded to be very reasonable for the class of stock we breed and sell.

Get a MORRIS Bull for your Next Herd Sire

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More calves have been raised on Blatchford's Calf Meal than on all other milk substitutes combined.

100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk.

Prevents scouring and insures the early maturity of sleek, handsome calves.

It is steam-cooked and no trouble to prepare or use.

Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or Blatchford Calf Meal Factory, Dept. 5 Waukegan, Ill.

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Registered young bulls from best families. Some of serviceable age

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Masterpiece, Longfellow and Robin Hood Strains. Fine individuals of both sexes—we pay registration fee.

Careful attention given to mail orders

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Whittier, Calif.

El Dorado Holsteins

Headed by
SEGIS PONTIAC DE KOL BURKE LUIT.

Out of a 32.76-pound 4-year-old. His sire is a son of Riverside Sadie De Kol Burke, 32.29 pounds butter in 7 days.

Herd officially tested for 7 and 30 days.

Alex Whaley, Tulare, Cal.

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Dairy Cattle Judge and Expert

Formerly with Universities of Minnesota and California

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Perfection and Beau Donald breeding. Noted for their size, bone and quality.

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Tulare County's First Thirty- Pound Cow

Written for California Cultivator

W. J. HIGDON, Tulare, writes us the details of the story about his grand young Holstein heifer, Paula Segis 184828. Paula freshened November 25 and finished her first seven day test on December 2. She made 30.49 pounds butter and 607.4 pounds milk. Mr. Higdon continued her on test for the 30 day period and she rewarded his faith in her by producing 123.55 pounds butter and 2557.7 pounds milk. Paula was sired by Sir Ormsby Burke Segis, 23 A. R. O. daughters, he by King Segis. Her dam, Paula DeKol Ormsby 99214. is a daughter of Sir Hengerveld DeKol Ormsby, 23 A. R. O. daughters.

Paula Segis 184828

Five-year-old who made 30.49 pounds butter in seven days and 123.55 pounds in 30 days in December. Owned by W. J. Higdon.

Paula Segis freshened at five years, two months and six days. Up until the day she freshened she ran with the herd and did not receive a pound of grain to prepare her for the test. Even during her seven days test she was fed no balanced ration but only 17 pounds of ground barley and 17 pounds dried beet pulp, fed dry together with all the alfalfa hay and silage she would eat. That she made her fine record under these conditions is really remarkable. Mr. Higdon bought this cow last summer from the Davis herd in Washington. She was one of 11 other head in the shipment, all bred to the $10,000 bull, Sir Bessie Fobes Tritomia, a son of Jesse Fobes Bessie Homestead, 34.96 pounds butter in seven days. As she dropped a fine heifer calf when she freshened Mr. Higdon feels that he made a good investment when he bought these cows. Three other young cows in this herd will freshen soon and be put on test, and as they are by the same sire as Paula Segis and out of dams with higher records there may be some more 30 pound records made.

A REGISTERED HOLSTEIN BULL SALE

On Saturday, January 6, 19 registered Holstein bulls were sold at public auction at Gonzales by California Breeders Sales and Pedigree Company of Sacramento. The consignors to the sale were A. W. Morris & Sons Corporation, Woodland; Henderson Company, Fred W. Kiesel, and Dr. E. J. Weldon, Sacramento. These breeders consigned a very desirable lot of young bulls, eleven of them calves, seven yearlings, and one just past two years. The 19 head sold for a total of $3875, an average of $204, with a top price of $500 secured for one of the Henderson Company bulls.

While these prices were very low for the quality of bulls offered both the consignors and the sales company express satisfaction with the outcome of the sale for the bulls all went into grade dairy herds that will unquestionably be greatly benefited, as will also the entire dairy community into which they went. Out of the total number of buyers at the sale only three had ever before owned a pure-bred sire, and this fact alone is sufficient recompense for the considerable amount of labor and expense involved in the organization and completion of the first public sale of registered Holstein bulls ever held on the Pacific Coast.

Col. Ben A. Rhoades was the auctioneer, with Frank L. Morris in the box and Dr. E. J. Weldon and C. L. Hughes in the ring.

L. D. Collins reports sale of two bred Duroc-Jersey gilts to J. E. Owens.

COST What you put into a Cream Separator VALUE What you get out of your Cream Separator

It isn't the "out go" but the "income" that determines the real value of a Cream Separator

It's Cheaper to Buy a DE LAVAL CREAM SEPARATOR

VALUE depends upon the amount and the quality of service the article gives you—what you get out of it.

You get by far the greatest actual VALUE for your money when you buy a De Laval—BECAUSE it will give you much better and longer SERVICE than any other separator.

From the standpoint of its greater durability alone, the De Laval is the most economical cream separator to buy, and when you also take into consideration its cleaner skimming, easier running, greater capacity and less cost for repairs, the price of the "cheapest" machine on the market is most exorbitant compared with that of the De Laval.

And there is no reason why you should let its FIRST COST stand in the way either, because the De Laval may be purchased on such liberal terms that it will actually pay for itself out of its own savings.

DE LAVAL DAIRY SUPPLY CO.

LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST.
We specialize in Alpha Gasoline and Distillate Engines, Ideal Green Feed Silos, Irrigation Equipment, Centrifugal and Deep Well Pumps and Alpha Spraying Outfits. Send for special catalog.

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Anoakia Breeding Farm

ARABIAN-THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned Imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three year-olds.

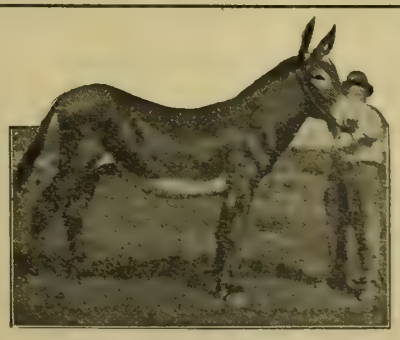
POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent Santa Anita, Cal.



California Wonder

KINGS COUNTY JACK RANCH

Breeders and dealers in American Jacks and Jennets.

Jacks and Jennets for sale at all times. Come and see them.

John Burrell

R. F. D. B. Box 74
Hanford, Kings County, Cal.

Tulare Guernsey and Holstein Farm

Guernsey herd of A.R. cows headed by DAIRYMAID'S PRINCE 26352, whose sire is a son of Dairymaid of Pinehurst, A.R. record 17,285 pounds milk and 910 pounds butterfat in one year. His dam is POLLY'S BEAUTY, A.R. record 16,629 pounds milk and 774 pounds butterfat in one year as a 4-year-old.

Holstein herd of choicely bred females, many with good A.R.O. records, headed by PRINCE RIVERSIDE WALKER, whose sire is Prince Gelsche Walker, and whose dam is Aaggie Acme of Riverside, 808.82 pounds butter in one year, and she has a 3-year-old daughter that made 1095.1 pounds butter in one year.

CHOICE BULL CALVES OF BOTH BREEDS FOR SALE.

W. J. HIGDON - - - TULARE, CAL.

PRIZE WINNING
HAMPSHIRES

The above illustration shows one of our best brood sows with litter of pigs. We have many others just as good.

We have reasons for choosing the Hampshire breed above all other breeds because we have experimented and KNOW what they can do. The farmer who wants a hog that puts on 200 pounds of firm meat at six and a half months of age ECONOMICALLY, that thrives under adverse conditions, that resists disease, is prolific, and a hog that the packer likes, buys the Hampshire. If you visit our ranch we will show you.

Herd won highest honors at P. P. I. E. 1915 and California State Fair 1916.

WE SELL ANIMALS OF EITHER SEX,—ANY AGE

LLANO VISTA RANCH

PERRIS, CALIFORNIA

ED. LANGDON, Mgr. F. V. GORDON, Pres.

PREPOTENCY

GRAND LEADER 2nd, WORLD'S FAIR GRAND CHAMPION

The Prepotent Sire

The get of this great boar shows the prepotent qualities of himself and his ancestors.

His son, Star Leader, junior and reserve grand champion at P.P.I.E. His daughter grand champion California State Fair 1916.

His daughters won first in all of senior sow classes California State Fair 1916. A daughter was junior champion Oregon State Fair 1916. A son was champion of Stanislaus Live Stock Show 1916. At P.P.I.E. "sire and his get", first and second premiums (the most valuable and sought for prize among breeders) also went to Grand Leader 2nd. He also took first and get of sire at California State Fair 1916.

A. B. Humphrey

Escalon **22 Miles East of Stockton** **Calif.**

At Stockton Take Santa Fe or Tidewater Southern Electric Railway Autos Take Paved Mariposa Road.

McAlister Holsteins Have Made Great Records

Written for California Cultivator

SOUTHERN California has a great many fine herds of Holstein cattle, but none hold a higher place than the McAlister herd located at Chino. The McAlister animals have never been shown extensively at the fairs but have put in their time at the pail where they have made and broken many existing records.

There are about 200 head of registered animals in the herd, of which 185 head are females. The senior herd sire is the famous bull, King Segis De Kol Korndyke, who is the only bull in the world from a 37-pound cow, to have four 30-pound daughters. He is the sire of the world's champion junior four-year-old for seven and 30 days, Mabel Segis Korndkye, and also the sire of the most sensational young bull of the breed, King Korndyke Sadie Vale, whose two first three-year-old daughters made 32 pounds and 31 pounds butter in seven days respectively, while the average production of two of his two-year-old daughters excels that of any other bull.

One of the McAlister junior herd sires is a son of King Korndyke's Sadie Vale, and out of a cow which they consider the best individual in the herd. Another young sire is a son of Winnie Korndyke Cornucopia De Kol, who recently broke the world's milk record for ten months, and who is the only cow of the breed to give over 31,000 pounds milk, and 1200 pounds butter in one year.

Every cow in the McAlister herd is put on official test as soon as she freshens. In the past seven months they have not had a two-year-old heifer to make below 17.54 pounds butter in seven days, or any second calf heifer or cow to make less than 21 pounds butter in seven days. One of the junior two-year-old heifers broke the state record for both seven and 30-day periods, and three other first calf heifers in the last month have made over 21 pounds butter in seven days.

It has been proven by the latest researches that the germs of such contagious diseases as tuberculosis, abortion and sterility of dairy cattle are transmitted to the young stock through the milk and this can be only positively prevented by the feeding of boiled milk. With this danger ever in mind the first aim on the McAlister ranch is to take every precaution. Every calf is fed on boiled milk when eight days old and the strictest sanitation employed with the growing of young stock.

Undoubtedly many of the present Holstein records for milk and butter production will be broken during 1917 and it is safe to say that the names of some of the McAlister cows will appear on the honor roll.

Star Rena Wayne Pietertje 2nd

Butter, 3½ years, 34.35 pounds in seven days. Former world's champion three-year-old. Owned by McAlister & Sons, Chino.

The Whittier State School has Fine Lot of Holstein Cattle and Berkshire Hogs

Written for California Cultivator.

STATE institutions are as a rule leaders in the development of livestock, and Whittier is no exception. The school has made some state records on butter production with the Holsteins and carries a number of animals on official test all the time.

The Pride of Whittier State School

The most recent achievement was the performance of the three year old heifer, Windsor Milkmaid Segis 210838, who as a senior three year old broke the state record for butter production in seven days. She made 26.04 pounds butter and 566.1 pounds milk. In 30 days she made 97.89 pounds butter and 2446.8 pounds milk. The Holstein foundation was secured from the McAlister and Shoemaker sale a few years ago, a great many of the cattle coming from Colorado. King Segis De Kol Mead 132363, the young sire at the head of the herd is a highly bred sire who has been getting some great calves. When his heifers come in milk and are put on test they should make some fine records.

The herd of purebred Berkshires is another source of pride at Whittier. Two of the Curtiss bred gilts in the herd are show animals. There are any number of other good individuals but these two stand out. Mr. Balis, who is superintendent of the livestock department of the school, is particularly fitted to handle the work. The boys at the institution do all of the work and under Mr. Balis' guidance and advice they are making good stockmen as well as better citizens.

Edgemont Holstein Farm Up-to-Date Plant

Written for California Cultivator

EFFICIENCY, that is the watchword at the Edgemont Holstein Farm located at Burbank just across the hills from Hollywood, Los Angeles' finest suburb.

While the ranch is not large, by rotating the crops it produces an amount of feed that would do credit to ranches the heavy and persistent milking qualities of this herd. The females are all fashionably bred, and the herd sire is the famous young sire, King Paul Korndyke Vale, a son of King Korndyke Sadie Vale. The two nearest dams of this youngster average almost 37 pounds of butter in seven days.

The dairy plant deserves praise.

Edgemont Farms
A ranch where intensive farming in its most advanced stage is practiced.

several times its size. Thirty tons of corn to the acre was the record this fall, and a crop of barley had been cut ahead of the corn. A 60 foot concrete silo was erected this year and filled to its capacity. It has saved many dollars in reducing the feed bill.

The herd includes 40 head of registered Holstein and Guernsey cattle. Every head is a perfect dairy type, and on looking over the individual production sheets one is impressed with Concrete floors and mangers are used. The milk house is especially good and is equipped with all modern devices for the quick and sanitary handling of milk.

The ranch produces a "Special Milk" from a tuberculin tested herd. The combination of Holstein and Guernsey milk is making a great hit in Hollywood where it is now retailed. The average bacteria count on this milk is now running under 4000.

Normandy Farms

Are now prepared to receive orders of any size for pure bred

BERKSHIRES

The Large, Prolific, Growthy Kind

—at Prices that are Right

FOUNDATION STOCK, SHOW MATERIAL, HERD HEADERS

You are welcome at Normandy Farms at any time. Enquire at Huffaker Stables, Visalia, for "Pete". Tell him you want to go to Normandy Farms.

Arlington M. Smith

Visalia -:- -:- -:- California

Yolo County Beef Cattle

CUT THE HIGHER COST OF LIVING

YOLO COUNTY'S rich natural pastures, miles of grain fields and broad green stretches of alfalfa make **YOLO COUNTY** the ideal district for each and every form of stock raising. **YOLO COUNTY** has world's champion dairy cattle, the best of beef cattle; Hereford and Shorthorns; herds of registered hogs and sheep of all breeds. **YOLO COUNTY'S** stock breeders are making money. **YOLO COUNTY** has room enough and acres enough to double her stock output. **YOLO COUNTY** invites you to come and share in her stock prosperity. For full particulars

Write to The Yolo County Board of Trade, **Woodland, California**

THE DE LAVAL LINE

Acme Feed Cutter and Silo Filler and the Ideal Green Feed Silo

The best investment for the Dairyman and Stock Raiser

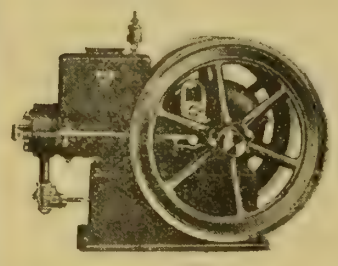
DE LAVAL
Automatic Oiling Cream Separators
DE LAVAL MILK CLARIFIERS

JAMES BARN EQUIPMENT

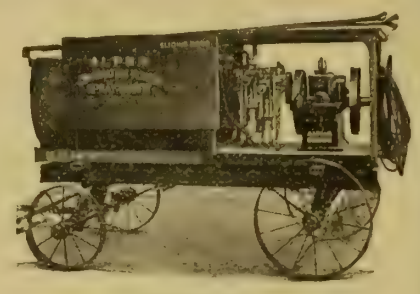
Steel Stalls
Stanchions
Litter Carriers
Feed Trucks
Calf Pens
Bull Pens
Cow Pens

Cow Comfort

Sanitary Milk and Cream Coolers, Babcock Testers, Milk Fever Outfits, Milk Pails, Refrigerating Plants, Pumping Plants, Viking Rotary Pumps, Centrifugal Pumps.



ALPHA
Gasoline and Distillate Engines are Ideal Power
All Types and Sizes for all Fuels. 1½ Hp. to 100 Hp. No Batteries, No Coil. No Cranking, No Trouble.



THE ALPHA
Automatic Power Sprayer, Fitted with the Alpha Automatic Pressure Governor. A Safe, Dependable Rig.

Write for Special Catalog on Equipment which Interests you.

De Laval Dairy Supply Co.

"Everything for the Dairy"

SAN FRANCISCO

WIND MILLS

Our steel mills are well made. Thoroughly guaranteed. Large bearings. Heavy gears. Write for complete information. Angle towers also furnished.
ARNOTT & COMPANY, Inc.
Wholesale Implements
112-18 South Los Angeles St., Los Angeles

Cultivate the habit of reading advertisements and get the news of the manufacturing world.

Linnview Farm BIG TYPE **Poland Chinas**

We have a choice lot of young sows and boars ready for delivery, sired by champion Iowa boars and out of big boned, prolific sows. A Wonder, Iowa King and Big Orphan blood—none better.
O. L. LINN, Route A, Modesto, Cal.

Hardy Northern Grown **Berkshires**
Are Making Good in Southern California
Write for Illustrated Literature
Silver Birch Farms, Box C. C., Newport, Wash.

BERKSHIRE CONVENTION

The Western Berkshire Congress and sale will be held at the university farm, Davis, February 13-15, or rather the meeting will be held Tuesday and Wednesday the 13th and 14th and the sale the 15th. A. J. Lovejoy, one of the first and the greatest of Berkshire breeders, will be present and make addresses. There will be a student judging contest, ladies' judging contest, and a royal good time as well. All Berkshire breeders are invited to make consignments. A committee will be appointed to pass on all sale animals. If an animal is not considered a worthy representative of the breed it will be returned and not offered for sale. Every animal sold will be a guaranteed breeder by the consignor.

L. E. Frost of Chicago is managing the sale and Auctioneer Hord of San Francisco will cry it. President Guilford is urging every believer in the Berkshire breed to be at this meeting and sale.

Some Trophies to Be Awarded at the Berkshire Congress and Sale

The movement as started is receiving the support of retail dairymen and city councils of the county as well as that of State Dairy Inspector C. A. Starkweather. Petition for establishment of the district was presented to the county board of supervisors at its regular meeting, January 8.

MILK INSPECTION

We note in a Central California exchange that a movement is under way for the establishment of a milk inspection and grading district of Stanislaus County which will fully comply with the state law regulating the sale of milk by retail in the several towns of the county, but will also affect all milk sold to creameries, cheese factories and condensaries as well.

Riverside County Hampshire

Hampshire hogs are much in favor with Southern California farmers. Owned by Llano Vista Ranch Company.

Warranted to Give Satisfaction.

Gombault's Caustic Balsam

Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

Berkshire Hogs—Milking Shorthorns
Breeding Stock For Sale
G. A. Murphy, - Perkins, Cal.

SHORTHORNS SHROPSHIRES BERKSHIRES

Herd headed by a son of White Rock, one of the best sons of White Hall Sultan. We are offering a splendid lot of young bulls and heifers. Many of them are sired by Prince Imperial, a $10,000 bull. There are some attractive bargains in this lot.

Flock headed by International prize winner. Special offering of pens consisting of six ewes and one ram, not related. A good way to start a small pure bred flock.

Six great boars in service. A very superior lot of bred sows for sale now. Also boar and sow pigs at prices that make it easy to get into the pure bred hog business.

Butte City Ranch

Box C -:- -:- **Butte City, Glenn Co, California**

—We are glad to answer letters and send pedigrees and descriptions.—

The Reason Our Dairymen Should Have Silos

Written for California Cultivator

THE problem which looms biggest, just at this time, to the Southern California dairyman and which will become increasingly intense unless remedied, is that of cow feed. First and foremost the dairyman must possess good stock; a good cow, then good feed. A cow with any number of "A. R. O." relatives cannot amount to much without proper feed. The dairyman who spends all his income on buying high priced feed will get "no better fast."

The territory which is located close enough to Los Angeles and her surrounding cities to furnish fresh raw whole milk grows, it is conservatively estimated, one-third of the alfalfa which is fed. This is caused by the high price of land, climatic conditions, etc., and in the years to come this territory will produce less and less alfalfa, which will compel the dairyman to ship in an increasing amount of hay at a large expense. The one salvation of the dairyman in this territory is the silo. By means of the silo one acre can be made to produce as much animal nutrition as three acres of alfalfa.

Frampton Brothers at Artesia raised over 30 tons of corn to the acre, then planted potatoes and raised a bumper crop on the same land. They raised enough corn on nine and one-half acres to feed 40 cows 40 pounds of ensilage per day for a year. This ensilage saved them enough, and they had dried beet pulp, to pay the entire first cost of their two 14 ft. by 41 ft. 6 inches monolithic concrete silos. By careful cost record the Framptons found they produced the corn and placed it in the silo at a cost of $1.05 per ton of ensilage. While others were losing money on their dairies by paying $20 per ton for hay, the Framptons had the cheapest feed known in their dairy experience.

A silo can make the difference between success and failure. It is probably more economically necessary in Southern California than "back East" in Wisconsin, Ohio or Kansas where a man cannot be in the dairy business without one.

Not alone for the dairyman in a limited hay producing section is the silo a necessity but also for the stock, butter and cheese men. The Tehachapi Cattle Company of Bakersfield have six concrete silos 20 feet by 60 feet of a total capacity of over 3000 tons

Devon Cattle in San Diego County

of ensilage which they fill with kaffir corn. The manager doubts if they would be in the beef business if they could not have silos.

A silo not only saves 40 per cent of the corn crop but often saves the entire first cutting of alfalfa. When the first cutting is too weedy to feed or is captured by fox tail it can be placed in the silo and not only saved but 15 per cent added to its nutritive value. The State University has proved for us that fox tail is very nutritious and that when siloed with alfalfa is very palatable and none wasted.

There is no more limit to the crops that can be saved by placing in a silo than there is a limit to the good things the housewife can preserve so appetizingly in the fruit jar.

Edgemont Holstein Farm

Registered

HOLSTEINS

and

GUERNSEYS

"The Best in the West"

Herd Tuberculin Tested

High Class Cattle of both breeds for sale at all times. Visitors welcome.

Edgemont Holstein Farm

C. W. ANDERSON, Prop.

Burbank, - - California

Shorthorns

HERD ESTABLISHED 1880

We have been breeding beef cattle on our farm for 37 years, working towards a definite type and standard of perfection. We have had a reasonable amount of success in our work and think that our present herd is the best we have ever owned. That the judges at the state fairs and stock shows agree with us is indicated by our 1916 winnings. We can at all times furnish single animals of the best breeding and individuality. We can also fill orders at very short notice for entire herds for foundation purposes. If interested write us for full particulars.

Berkshires

HERD ESTABLISHED 1892

Twenty-five years ago our herd was started and we have been improving it ever since. At this time our herd has the finest individuals we have ever owned. Our sows are right in type with almost perfect lines. They have strong constitution, good bone, size, depth, length and quality. They have large average litters of strong, active pigs. Our herd boar, Artful King 11th of Iowana Farm breeding is a royal specimen. Pigs from our mating are winning favor with many breeders. Our 1916 State Fair and Stock Show awards speak for their show ring quality. We will gladly quote you prices on breeding boars, sows and gilts, bred or open, or on weanling pigs.

Our 1916 Winnings at California Fairs

24 CHAMPIONSHIPS 51 FIRST PRIZES 30 SECOND PRIZES

H. L. and E. H. MURPHY, - - Perkins, California

Poland Chinas

This grand breed of hogs, THE FARMER'S KIND, has been bred on my farm under my personal oversight for many years. The result is a herd of hogs that win 1st Prizes, Championships and Grand Championships wherever shown. Better than this they are all individuals of strong constitution, good bone, wide sprung ribs, splendid hams, straight, smooth and right in every way. They are easy keepers, coming to market weight and condition at six months of age. They make a profit as a market pork hog under present conditions of high feed prices. Years of experience convince me that they are the best hog for California conditions and that they are in every way

The Hog for the California Farmer

TWO OF MY HERD BOARS

SURPRISE

First in Sacramento, 1916; first in Hanford, 1916. Sired by Gold Coin, who was third at San Francisco, 1915. His dam was Lady Style, who was fourth at San Francisco, 1915.

CHIEFS VICTOR

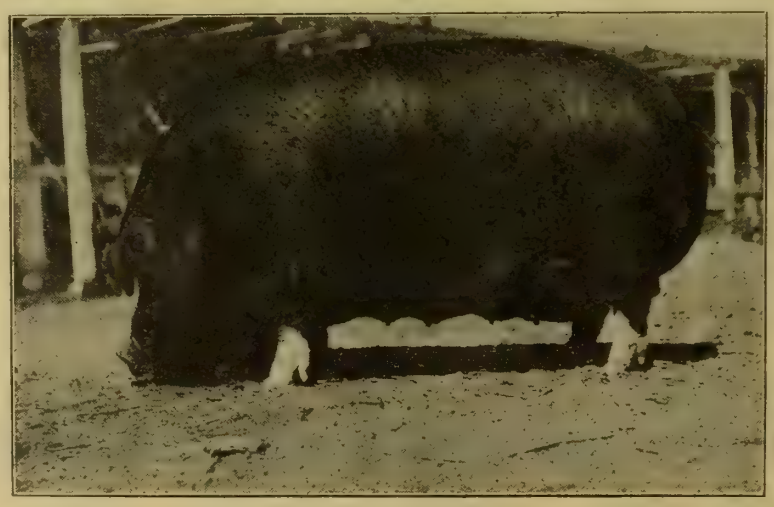
Champion and grand champion Sacramento, 1916; second at San Francisco, 1915. He is a half brother of Banker's Boy, my great boar that won first at San Francisco, and which I sold to Anita Baldwin for $1000.

Herd Boars

I have five distinct strains on my farm, each headed by a boar that is of championship stock. You can pick from my herd just the blood lines and breeding that you need to start or add to your herd. I can at all times supply your needs at prices that you can afford to pay.

Visitors Welcome

My farm is located near Hanford and I shall be glad to welcome you and show you as fine a herd of Poland-Chinas as there is in the state. COME AND SEE.



MISS BEAUTY

This sow was the champion at San Francisco in 1915 and champion at Sacramento in 1916. Her sire was Hustler, who was first under six months and first in young herd at the International Stock Show, Chicago, 1912. Her dam, Black Beauty, won first in 1909 at Sacramento, at Oregon State Fair, at Portland, and at the A.-Y.-P. Exposition, Seattle.

Breeding Sows

Every sow that I keep for breeding is of as high a quality as the boars to which I breed them. The result is to be seen in large litters of strong, active pigs that start right and grow rapidly into the fine prize winning kind of hogs. The kind you want.

Foundation Herds

I can furnish foundations of unrelated strains, all of champion and grand champion stock and shall be pleased at all times to figure with anyone on costs. This is the way to START RIGHT.

M. Bassett

HANFORD -:- -:- **CALIFORNIA**

Imperial Valley's Largest Stock Ferm

Written for California Cultivator

IT is claimed one acre of best Imperial Valley soil will produce two or three crops a year. There are few places where the soilwill do that.

The Timken Ranch Company, El Centro, is developing several thousand acres on their seven different ranches. We saw the second crop of corn being taken from one field in 1916. The company's ranches are located in different parts of the valley. One of the largest and finest is near Brawley, another at Heber, one near Imperial, and the remainder in the rich Holtville vicinity. Every one of these ranches had to be leveled and checked, fences strung, buildings erected, silos put up, and a fortune invested in implements and live stock.

It can be imagined what a man-sized job it was to put these vast properties in running order, and after two years of effort the concern is just getting fairly started. The management of this company is looked after by Mr. C. O. Bullis, who has personally supervised the work. Mr. Bullis has enough energy to satisfy two ordinary men, but he needs it to get the results he has accomplished in such a short time.

They raise almost everything on the Timken ranches that is raised elsewhere in the valley. This year they had hundreds of acres in cotton and long staple worth 24 cents per pound and short staple worth 18 cents brought in a nice revenue. Thev have many acres planted to grapefruit and lemon trees, dates, ornamental trees of many varieties, etc., but the principal crop, the headliner so to speak, on the Timken ranches is live stock.

Large bands of sheep are pastured every year. They are brought down from the Arizona and New Mexico ranges and fattened and lambed in the valley. Finished off on grain these sheep make a fine quality of mutton and are much sought after by the packers. One band of ewes lambed two crops the last year on a Timken ranch.

The pure bred live stock includes Berkshire, Duroc-Jersey and Yorkshire hogs, Holstein cattle, and jacks. These herds are distributed on the different ranches. The three young Holstein herd sires were purchased from A. W. Morris & Sons' Inc. herd during the latter part of 1915. They were only calves at that time and have since filled out and are about as fine a trio as can be found in the state.

Goldstone Sir Alcartra Pietertje 169206 is the best show type of the three. He won grand champion honors at the Imperial fair 1916. Segis Pontiac De Kol Colantha 169205 is a son of the senior and grand champion Morris bull at California state fair last year.

Aralia De Kol Pontiac Dutch 174906 has the best breeding on his dam's side especially of the three bulls. He is out of a 24-pound three-year-old and her dam has a 30-pound seven-day record. Four of his dams average 27.96 pounds butter in seven days and 20,000 pounds milk in one year. His dam's sire has four 30-pound daughters. There are no females in the herd at present as the modern dairy barns have not been completed.

The Berkshire herd was first assembled from purchases made at San Francisco world's fair. The best known blood lines of the breed are represented in the Timken herd.

The Duroc-Jerseys are a wonderful lot, especially some of the more recent importations, which include Model A D, the second prize boar in his class at the National Swine Show last year. He had an easy time outclassing his field at El Centro show in December. He is certainly championship timber.

Has Prince Gelsche Walker Blood

Miss Gelsche Walker Korndyke, new state record junior two-year-old, 23.16 pounds butter, 503.3 pounds milk seven days completed January 10. A daughter of Prince Gelsche Walker, owned by Santa Anita Ranch.

Another shipment of fine Berkshires just arrived from the Elmendorf herd in Kentucky. This new blood will add materially to the quality of the herd.

Probably by the end of the present year the preliminary work on the various ranches will have been completed and then the live stock which has been gathered together will have free and unhampered opportunity to expand. So far, the most important matter has been the completion of the many buildings, laying out fields for crop planting, etc. Of course the live stock has increased but it has been a market proposition strictly. In the future more attention will be given to the pure bred end of the business.

Dr. W. O. Johnson, Holtville, has recently brought in some high class registered Holsteins which together with his Hollywood bred bull makes Mr. Johnson a fine foundation. Some of the heifers came from Frank Guerin, W. J. Higdon, Miss Holdridge and the Rowles herd near Modesto. Several head in this shipment got in the money at the county fair.

S. T. Marshall, Imperial County, is one of the most enthusiastic stockmen in the valley. Mr. Marshall deplores the present movement in cotton as he thinks too much good alfalfa is being plowed up and planted to cotton for the good of the community. He has brought probably more pure bred hogs into the county during the past five years that any other one man.

Ultman and Son, Imperial County, have over 500 head of pure bred Duroc-Jerseys. The valley is a Duroc stronghold and ships many thousands to market annually.

Peter Hovely, Imperial County, is a breeder of registered Holsteins. His herd is not very large but of strong breeding.

Berkshires

I have culled my herd of Berkshires down close until there remains but a dozen head of strictly high class breeding stuff. If you want to get a few fancy pigs sired by a son of Rival's Champion's Best let me know at once, as they won't last long.

Shorthorns

Headed By

Royal Archer Sultan

By Archer, he by Scottish Archer and out of Royal Blossom, a granddaughter of Whitehall Sultan. A photograph of this bull and a group of cows is shown elsewhere in this issue.

Have been breeding Shorthorns since 1889.

Let me price you the only two young bulls I have left from the 1916 crop or come and look them over.

F. L. HALL, Perris, Riverside Co., Cal.

Geo. A. Smith & Son

CORCORAN, CAL.

Wish to announce that we have for sale from 1 to 100 Registered Holstein Heifers.

Descendants of
King of the Pontiacs
Pontiac Korndyke
Rag Apple Korndyke 8th
King Segis
Hengerveld De Kol
Colantha Johanna Lad
and other celebrated sires.

From 1 to 400 Registered Poland-China hogs any age and either sex.

Extra special inducements in bred sows and bred gilts at this time.

Write or come and see the stock.

Holstein Friesians

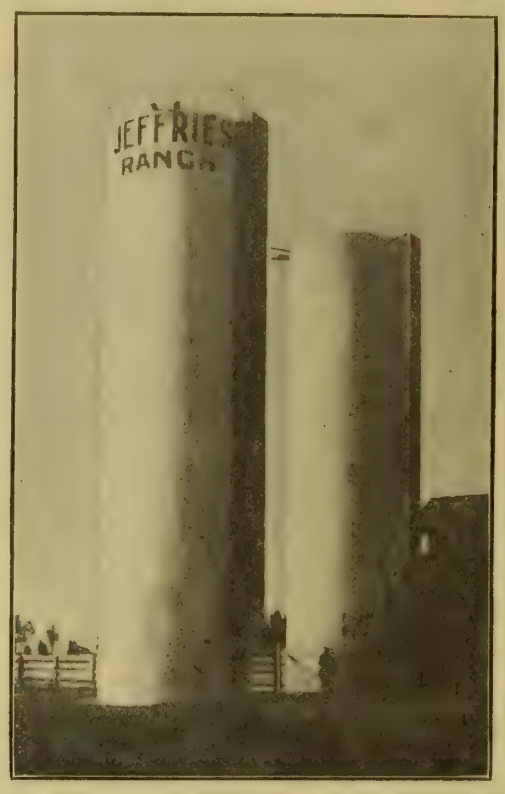
Best by Test

My herd is small but carefully selected. Won Grand Champion Cow at Imperial Valley 1916 Fair with "Nancy Mercedes De Kol Netherland."

A. M. DRAPER

Route B -- -- Holtville, Calif.

Monolithic Reinforced Concrete SILOS



Twin Silos 14x60 ft.—Capacity 256 tons each, on James J. Jeffries Ranch, Burbank, Cal.

Our concrete Silos are:

Durable---Fireproof---Element Proof

Reinforcing is the reason.

Are not built of pieces and can not go to pieces.

A few names of prominent stock raisers in Southern California using our concrete silos:

JAMES J. JEFFRIES
EDGEMONT HOLSTEIN FARM
ADOHR STOCK FARM (Adamson Corp.)
PELLISSIER HOLSTEIN FARM
WELDON DAIRY RANCH, Tulare County
FRAMPTON BROS.
McGRATH RANCH
LA VEGA RANCH

We also sell

Redwood Stave Silos

For the dairyman who has a small herd or rented land or who does not desire the greater initial cost of a concrete silo, we recommend the ARTESIA REDWOOD STAVE SILO. We build them of highest grade clear redwood lumber fitted with Easton patented doors and anchors. They stay ROUND.

Some well known breeders using our Redwood stave silos:

BETTINGER RANCH
CARVER RANCH
FLOOD RANCH
BROUGHER RANCH (Orange County)
MARTINEZ RANCH
BRICE RANCH
ESTRADA RANCH
FOGLER RANCH (San Bernardino)

We will assist you in working out your feeding problems.

Built and Guaranteed by a Responsible Firm

ARTESIA LUMBER & CEMENT CO.

W. L. JENCKS, Mgr.

ARTESIA :: CALIFORNIA

Los Angeles Office:
931 Central Bldg.

We have erected more silos in Southern California than all other companies combined.

A New Guernsey Dairy for Los Angeles County

Written for California Cultivator

AS the demand for the highest grade milk increases in the large cities plants where certified, special or guaranteed milk is produced, are becoming more numerous.

The production of this high grade milk is an interesting and fascinating business. There is no limit to the expense of buildings and equipment. The majority of certified dairies are built and operated at enormous expense, and often they are both impractical and unprofitable.

The plant which the Adamson corporation is erecting at the present time out on the Ventura road, Los Angeles, is being built along modern, sanitary and practical lines. There will be dairy and calf barns, creamery plant, refrigerator, etc. There will be comfortable quarters for the men and other conveniences, but the owner is going to produce guaranteed milk at a profit and in order to do this and at the same time put in a plant that will compare favorably in every way with others of its kind, every unnecessary item of expense will be eliminated. Mr. Adamson wishes to have a dairy and buildings a little different from

Imperial Valley Junior Champion Guernsey

the average in that it can be reproduced by anyone either on a larger or smaller scale.

Guernseys are the breed of cattle which Mr. Adamson decided upon. The first unit of fifty cows will be bought and installed as soon as the buildings are completed, which will be some time in the early spring.

The Adohr Stock Farms are ideally situated in every respect. The Los Angeles market is but 20 miles distant. The Ventura highway runs through the property, city light, power and water will be used, and other facilities are of the best. In short this farm will be a credit both to its owner and the community.

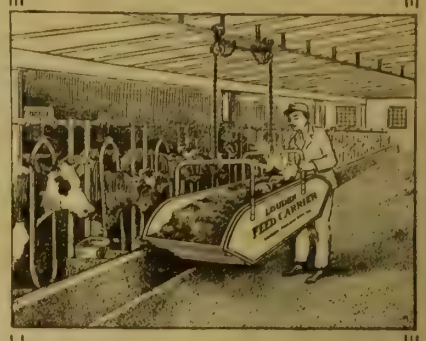
James J. Jeffries, Farmer

Written for California Cultivator

WITH the same energy and ambition which marked his entire career in the boxing world a few years ago, James J. Jeffries has recently entered a new field of endeavor, that of farmer and stockraiser. As the Jeffries ranch is located near Burbank and within 40 minutes ride of Los Angeles, the value of the land made it imperative that Mr. Jeffries should stock the place with dairy cattle. With this in mind the owner commenced looking around for a herd of purebred cattle. He was a conspicuous figure at all the big auction sales of Holsteins in Southern California last fall and rarely failed to bid in the best animals offered. At the Rio Vista sale he was one of a half dozen bidders for the great young bull, King Segis Pontiac Jannek, a son of King Segis Pontiac, a bull that sired more high priced bulls than any other sire of the breed. One of his sons sold for $50,000, another for $35,000, and one four months old calf for $20,000. Jannek is out of a 29.71 pound dam and is considered one of the most promising young Holstein sires in the state.

The Jeffries place consists of over 100 acres. The owner is building a beautiful country home of the low, Spanish mission style of architecture. One of the features of the unique house is an enormous fireplace built in the center of an outdoor court where barbecues can be given. The whole scheme of the building is to make an attractive homelike place where the innumerable friends of the former heavyweight boxing champion

QUICK FEEDING—Without The Waste and Labor



Why hitch up a team twice a day to feed the stock, or make innumerable trips with a wheelbarrow?

With a Louden Overhead Feed Carrier you can carry at one trip enough dry feed or ensilage to feed from thirty to forty head of cattle. There's no waste of feed, no wasted effort, and the feeding is done in half the time required by any other method.

We have Louden Feed Carriers in various styles and sizes, at a wide range of prices that puts them within easy reach of every barn owner.

We have a carrier suitable for YOUR barn, and we'll guarantee it to earn its purchase price again and again in its saving of time, labor and feed.

Ask us for Feed Carrier booklet and prices.

LOUDEN Feed Carriers Litter Carriers

Catalog and Prices on Request
Barn Plan Book Free

American Pump Company
422 E. Third St., Los Angeles
73 Fremont St., San Francisco

MONTELENA HERD

Large Yorkshire Swine

THE IDEAL HOG FOR THE PROGRESSIVE FARMER

MONTELENA BIG DICK
First Aged Boar and Reserve Grand Champion

Won 9 Prizes With 8 Entries at Sacramento. Service Boars and Fall Pigs, Both Sexes, for Sale.

A. L. Tubbs Co.

Calistoga, Calif.

Shropshire Rams

FOR SALE

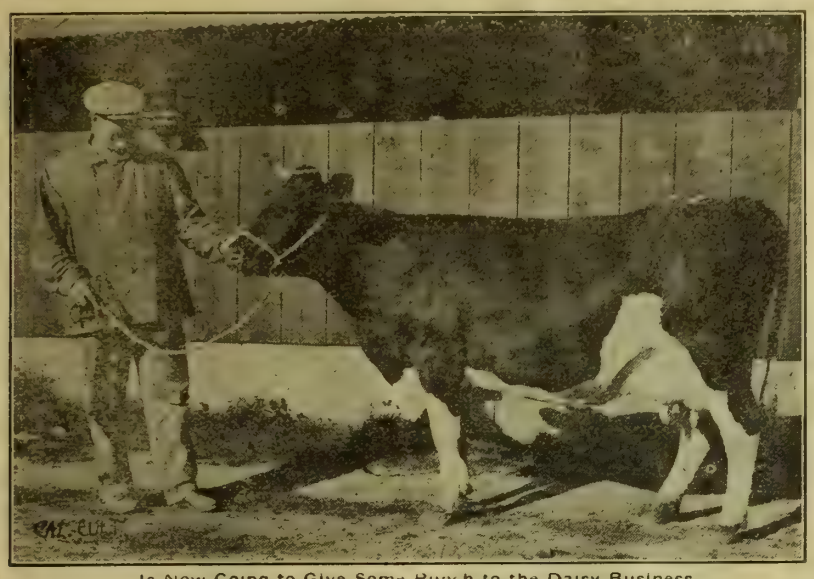
Four firsts, three seconds and one third awarded at Solano County Fair. Individuals or car lots.

J. R. Bloom

Dixon - California

can be entertained and made to feel at home.

Almost any day of the week, and particularly on Sundays, the Jeffries ranch is overrun with visitors. Mr. Jeffries' keenest pleasure is to guide the visitors around the farm and tell them about his cattle, how much milk he ships into the city every week, how low the bactera count is kept, etc. In conversation with the writer a few weeks ago he expressed himself as determined to have a herd of Holsteins which would make big butter and milk producing records, and a herd that would compare favorably with the best in California. He realizes that it will take some time to found the kind of a herd he wants, but that will not deter him. "This is the real life," he said as we walked through the big barn. "I rarely go into town any more and have so much more to interest and amuse me here than I could ever find in any city. I think the breeding and feeding of livestock is the most fascinating occupation in the world. It is like an animated picture show here all the time, and I get more genuine satisfaction out of this farming business and take more pride in my farm and the animals than in anything I have yet tried." That tells the story of Jim Jeffries in a few words. The pure country air, exercise, and mental action has brought back the "silk" to the great muscles which for years were the marvel of the sporting world. The "gym" on the place is put to daily use, as Jeff takes as much pride as ever in his physical condition. But the largest part of each day is taken up with the livestock that is at once his hobby and his work. Ted Cameron, a Davis boy, was recently secured by Mr. Jeffries to manage the dairy herd, and judging from appearances the selection was a wise one. When employer and employee have a mutual admiration for each other, results are bound to be gratifying.



Is Now Going to Give Some Punch to the Dairy Business
Jim Jeffries and one of his favorite Holstein-Friesian Cows.

A farmers' union in Stanislaus County has this season shipped five carloads of hogs to market, saving $50 to $125 on each car over prices paid by local buyers.

— FOR SALE —
Three Highly Bred Holstein Bull Calves

These young bulls priced right to move quickly; must have room.

No. 1 Born September 4, 1916

Sire: Prince Gelsche Walker, the $12,500 bull. Dam of this calf has record of 25 lbs. butter, 625 lbs. milk 7 days; 814 lbs. butter, 19,272 lbs. milk 1 year. The first six dams of this calf average 28.47 lbs. butter in 7 days.

No. 2 Born September 27, 1916

Sire: King Veeman Pontiac Hengerveld, who is a son of King Segis Pontiac Alcartra, the $50,000 bull and from a 29-lb. daughter of Sir Veeman Hengerveld. We just finished testing the dam of this calf, she making 27.78 lbs. butter 7 days as a three-year-old. First five dams of this calf average 30.2 lbs. butter in 7 days.

No. 3 Born July 28, 1916

Sire: Segis Pontiac De Kol Burke, who is a son of Riverside Sadie De Kol Burke, who has a record of 2065 lbs. butter, 54,808 lbs. milk in two years. Dam of calf has record of 823 lbs. butter, 19,439 lbs. milk in one year.

Our herd consists of 120 females headed by the two young Sires;

King Segis Alcartra Abbekerk, whose sire is King Segis Pontiac Alcartra, the $50,000, bull and whose dam is a 30-lb. four-year-old daughter of Tidy Abbekerk Prince, who has eight daughters above 30 lbs. and one 40-lb. granddaughter. The first eight dams of this bull average over 30 lbs. butter 7 days.

King Segis Alcartra Prilly, sired by King Segis Pontiac Alcartra, and whose dam is a 30-lb. four-year-old daughter of the great dam Prilly Princess, who has two 30-lb., one 29-lb. and one 26-lb. daughters—next dam the great foundation cow Prilly, who holds the world's record for six highest A.R.O. daughters. The first six dams of this bull average over 30 lbs. butter 7 days.

Bridgford Co. **Knightsen, Cal.**

A GUERNSEY BULL

in a grade herd in Minnesota increased its production 24%.

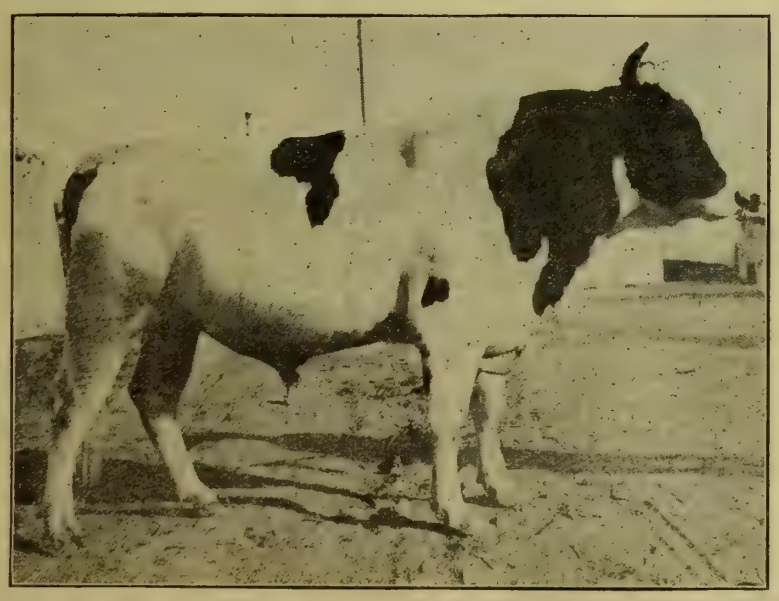
Guernsey Grade Cows produce butter most economically.

It has that wonderful natural yellow color.

Write for our Booklets

The American Guernsey Cattle Club
Box P.C. Peterboro, N. H.

TIMKEN RANCH CO.



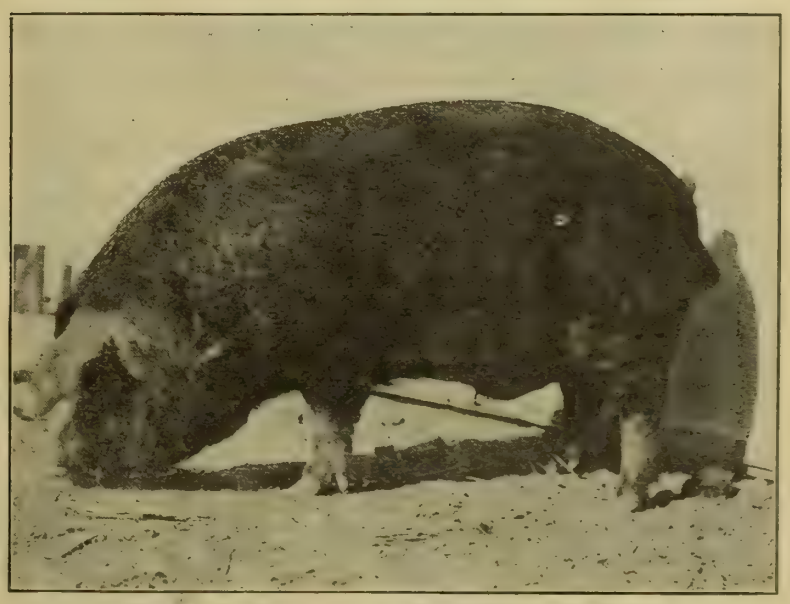
GOLDSTONE SIR ALCARTRA PIETERTJE 169206
A son of a 24-pound 3-year-old. Won Grand Champion at 1916 Imperial County Fair. We have two other young sires just as good.

Announce the establishment of pure bred herds of Holstein-Friesian Cattle. Duroc Jersey and Berkshire Hogs.

Foundation stock selected from high class and reputable herds only.

Nothing for sale at present, but in the near future will have something attractive to offer.

ONE OF OUR DUROC JERSEY HERD SIRES



MODEL A. D. 78193. Son of ILLUSTRATOR'S CHIEF
Second Prize Yearling Boar at Omaha National Swine Show, 1916, and Grand Champion Boar Imperial County Fair.

Timken Ranch Co.

EL CENTRO, CALIF.

H. H. TIMKEN, Pres. **C. O. BULLIS, Mgr.**

Rosemont Holsteins

OVER 100 HEAD IN ALL
Two Herd Bulls

20 A.R.O. Cows including one 30 pound cow and a 25 pound three year old.

KING PONTIAC NETHERLAND SEGIS 3rd

A senior two-year-old grandson of King of the Pontiacs. Weight, 1850 pounds. His dam has a record of over 30 pounds butter in 7 days.

OUR COWS ARE SURE BREEDERS AND HEAVY, PERSISTENT MILKERS

Sharon Rose La Ciesta 2nd and her four daughters, including Sharon Rose Novina, an 1830-pound senior two-year-old, and Sharon Netherland Acme, 20.53 pounds butter in 7 days as junior three-year-old.

Gerben Abbekerk Maid, senior four-year-old; 622 lbs. milk, 30.01 lbs. butter in 7 days; with fifth calf—and her family, which includes the three-year-old heifer Stanislaus Abberkerk Maid who just completed a 7-day record of 25.33 lbs. butter.

Write for Prices on Some Nicely Marked Bull Calves Out of A. R. O. Dams

We have a fine lot of Registered Percheron mares and stallions from one to eight years of age which we will sell at a sacrifice. Guaranteed sound and right in every way.

STALDER BROS.

Riverside, California

Fontana Land Company has the Largest Swine Breeding Plant in the West

Written for California Cultivator. By F. F. Stonerod

PIGS as far as the eye can reach; black pigs, red pigs; dozens of permanent buildings; farrowing houses by the score; a watering trough a half mile long; hundreds of acres of pasture, with a self feeder that "works" in every one; these are but a few of the wonders to be seen on the Fontana Land Company's vast pork making and breeding farm on the state highway between Los Angeles and San Bernardino.

Certainly "pigs is pigs" on this ranch. Mating some three or four hundred pure bred sows, and about a thousand grade sows twice a year is some job. Keeping tab on the pedigrees of this vast army of pure bred pigs, and looking after the farrowing, feeding and marketing of the other thousands of grades is enough to make one dizzy to contemplate the task.

There are two different breeds of hogs raised at Fontana, Berkshires and Duroc-Jerseys. During the latter part of 1916 the well known firm of Peters, Lamson and Walker transferred their fine herd of Durocs from their Imperial Valley ranches to Fontana and assumed charge of the entire swine department. This was a keen business stroke on the part of the Fontana people, for they got not only one of the very highest class lot of purebred Duroc-Jersey herds in the state but the services of L. L. Lamson and R. K. Walker, two highly efficient young breeders who received their training at such agricultural schools as Iowa and Illinois. They are believers in the theory that a well fed pig is the cheapest pig to raise regardless of the price of feed (always granting that the killers will pay a fair premium for a hard finished hog). Feeding ground milo, cocoanut meal, sour milk and tankage these days is a rather expensive proposition but it is about as cheap as trying to market alfalfa or milk fed hogs at a two cent less price. The hogs which Fontana sends to market are the real thing. The packers cannot put up the cry that they are not finished, for they get a grain ration from the time they are old enough to walk till they hit the shambles. They do get a premium over the market but that premium is not as large as it should be.

The system for handling the hundreds of tons of grain at Fontana is a splendid one. Grain is dumped into a hopper at the ground level, taken up to the top of the elevator on a belt carrier and dropped into enormous bins. When ready to be fed the carrier system is reversed, the whole grain being lifted from the bins and taken overhead where it is dropped into the hopper which lets it down to the grinding machine. The number of pounds of each different kind of feed in the ration fed is determined and the mixture is then taken to the self feeders in the pasture lots by wagon or motor truck. A feature at Fontana is the use for roughage of pomace, or grape seed residue, from the wineries adjacent to the ranch. The pigs seem to like this feed and can be seen nibbling at it all day long.

Two railroad lines run through this property, which makes the loading of market stuff unusually convenient. Mr. Lamson told the writer that the shrinkage on the last shipment of hogs to Los Angeles was not one per cent. That statement shows how well the hogs are finished.

The watering devices are really of the best imaginable. A little narrow cement trough about five inches wide on the top runs through the feed lots. The water runs by gravity constantly and is fresh and available at all times.

The California Duroc fraternity is already familiar with the quality of the Peters-Lamson-Walker stock. They bred some fine stuff for several years in the Imperial Valley and have recently added some Eastern show winners to the herd in both boars and bred gilts. Next year they will probably have a string ready for the fair circuit. Looking over a hundred or more smooth, blocky gilts in a Fontana field a few weeks ago the writer was struck by the uniformity and evenness of the bunch. Surely these gilts bred to any one of the many boars on the ranch will farrow a great lot of pigs.

The Berkshire herd consists of nearly 100 head of pure bred sows and gilts. Ames Rival 116 is probably the best individual sire in the herd, although there are several youngsters which are promising. One of the best sows is Kintyre Lady 5th a half sister to the sow Santa Anita Rancho bought at the P. P. I. E. for $800.

Seeing is believing, and a visit to Fontana is worth while. To breed and properly care for 15 or 20 sows and their increase is no small undertaking. To look after over 1000 sows and their increase is herculean, but it is being done at Fontana and done well.

There are 18,000 acres of land in the tract and over 5000 acres are in citrus fruit, mostly oranges. Livestock is only one department of the business all of which is under the able management of Mr. A. V. Miller.

Bunch of Duroc-Jerseys

Pure bred Duroc-Jersey gilts on the Fontana Ranch. The 1916 crop of market hogs on this ranch is expected to exceed 10,000 head.

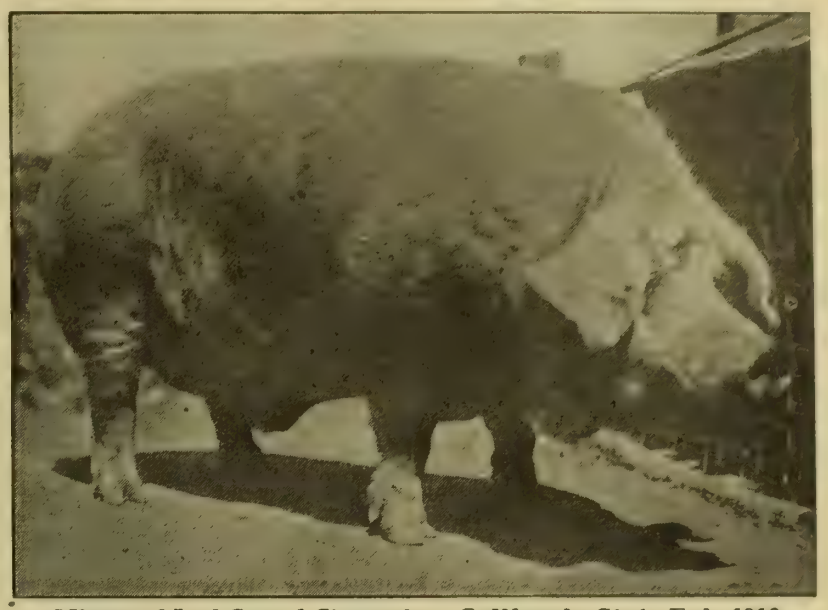
J. D. Huston, Imperial County, has one of the largest herds of pure bred Jerseys in the state. Mr. Huston ships sweet cream to the Los Angeles market and converts a large part of his raw product into a fine quality of cheese. There are over 100 head of cows and young stuff on the Huston place.

J. L. Peck, Imperial County, breeds registered Duroc-Jerseys. He is one of the best posted hog men in the valley. At the recent county live stock fair Mr. Peck captured a large part of the prizes, especially on young stuff.

W. A. Thompson, Imperial Valley, is another well known Duroc breeder in the South. He has over 100 head of brood sows at present and breeds mostly for market purposes.

The Billiken Herd

of Prize Winning Chesters



Missouri Lad Grand Champion, California State Fair 1916

No herd carried away more ribbons at the 1916 California State Fair than did the Billiken Herd. Grand champion boar and grand champion sow; first in get of sire and first in produce of dam, 13 firsts, 9 seconds, 2 thirds, one fourth and one fifth. The best and most popular Chester blood lines are represented in this herd. Both sexes and all ages for sale. Cholera immune and free certificate of registration with every animal sold. Write for Booklet, "Chester Whites."

C. B. Cunningham

Mills, Sacramento County, California

Better Berkshires

Our Satisfied Customers
Are Our Best Advertisements

NEW ERA HOMESTEAD FARMS
Haiku P. O., Mani Co., Territory Hawaii.
July 5, 1916.

Oak Grove Dairy Farm, Woodland, Cal.

Dear Sirs—Am pleased to advise you that "Masterpiece Artful Stumpy" duly reached here well and contented on the 2nd inst. I am well satisfied with the sow. She is of excellent conformation and I consider her a credit to you. She is a good advertisement for you. I shall not hesitate to recommend you. Thanking you for your good service, I am

Yours very truly,
F. G. KRAUSS.

Oak Grove Dairy Farm, Woodland, Cal.

Dear Sirs—The gilt made a quick trip. Arrived in fine condition the morning of the 22nd. Have delayed writing as I wanted to size her up and watch her actions. Am well pleased with her—believe she will develop into an A1 brood sow. Will grow her out to the best of my ability. Her head suits me O. K. and mated with Winona Masterpiece Champion the pigs should have dandy heads. Am expecting some fine, growthy pigs. Will let you hear about how she grows out and about the pigs. Very sincerely,

A. N. BLACKMER.

We have a limited number of extra fine, Spring of 1916, open gilts. These are all daughters of Artful Masterpiece 110970 and Improver B 181000. Artful Masterpiece was Grand Champion California State Fair 1912 and 1913. Improver B was Grand Champion at the State Fair 1914. These gilts are the growthy, straight, good boned, typey kind; just the kind to add to your herd. Write to

Oak Grove Dairy Farm Woodland California

Classified Liners

The direct selling method from producer to consumer, and a clearing house for over 31,000 readers, weekly.
Liner rates: Single insertions 3c per word; yearly contracts 2½c per word. 35c per issue minimum charge.

TREES

For Sale — Washington and Thomson Navels, Valencias, Seedless Grapefruit, Eureka, Lisbon, Villa Franca and Seedless Lemon, Harman Avocados. Buds were selected from the best bearing trees and will yield bumper crops. Also 40,000 Mission and Manzanillo Olives. The above stock is growing in Rialto, Whittier, Glendora and Fallbrook. Budding cloth 30c yard, post paid. No frost damage. We solicit your patronage. Prompt replies to inquiries. Cyrus W. Wilhite, P. O. Box 154, Glendora, Cal. Phone 303.

250,000 Home Grown Fruit Trees—Apples, pears, plums, peaches, apricots, figs, ornamentals, etc.; finest ever grown. Investigate the low prices of our first class stock before ordering elsewhere and save money. Inspection of nurseries invited. Orange County Nursery & Land Co., P. O. Box 235, Anaheim, Cal.

Consulting Forester. Trees removed, trimmed, pruned, topped and transplanted. Expert witness. Tree surgery, tree diseases. Planting plans. 15 years' experience. Yale Forest School '04. Member Society American Foresters. David G. Kinney, 453 Holland Ave., Los Angeles. Phone Garvanza 327.

To Our Friends and Customers, we wish to announce that all of our trees have been sold for this season, for which we thank you. Will be in the market next season with more first class trees. Geyer Bros., 214 S. Alamansor St., Alhambra, Cal.

Citrus Trees—All leading varieties. Large line, Lisbon & Villa Franca Lemon and Washington Navel trees. All first class and clean. Special prices to dealers or in carload lots to growers. Randall Bros.' Nurseries Co., Whittier, Cal.

Apricots, Peaches, Pears, Plums, Apples, etc, 5c up. Olives; Mission, Ascolano, Manzanilla. From select bearing trees 20c up. Guaranteed to grow and true. Send for quotations on all your wants. Julius Mayr, Hemet, Cal.

Prunes, Pears, thousands, trees all kinds, buy direct from the man who grows. Save 50 per cent. Write for planters' catalog and price list. 26 years in business. Carlton Nursery Co., Carlton, Oregon.

Grafted Walnut Trees—Placentia, Perfection and Eurekas. Finest selected scions on California black roots. C. W. Story, Rivera, Cal. Whittier Exchange 4721.

Broad Leafed Mission and an extra early strain of Manzanillos. If you want the early ripening and early bearing kinds, we have them. Every tree guaranteed. Olives exclusively. H. Detmers & Son, Exeter, Cal.

Walnuts—Placentia and Eureka, grafted on black root. Royal Apricots on plum. Will do well on wet land. A general line of high grade nursery stock. Get my prices. A. R. Marshall's Nurseries, Cor. 5th and Broadway, Santa Ana, Cal.

Orange, Lemon and Grapefruit trees for sale. Splendid stock, absolutely clean. Grown from selected buds. Also fine lot of Citrus Seedbed Stock. Write James Mills Orchard Corporation, Hamilton, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

Apricots and Olives—Royal Blenheim and Tilton apricots. First class trees. Large stock of Mission, Manzanillo and Ascolano olives. Balled or open root. No scale, no defoliation. C. E. Moyer, Hemet, Cal.

For Sale 23,000 trees, Valencia oranges, 18,000; Eureka lemons, 5000, all two years old, extra fine this spring. Frank R. Baxter, R. F. D. 1, Fullerton, Orange County, Cal.

Walnut Trees—Franquette, Mayette and Mammoth on Black Root; also grafting wood and Black Seedling trees. Lowest prices. Mammoth Walnut Nurseries, Watsonville, Cal.

Mission Olive Trees—Raised from my own bearing trees. This is only sure way to get what one wants. W. A. Hayne, Box 461, Marysville, Cal.

$1000 Per Acre can be made growing our new varieties of blackberries. Also finest persimmons. Get catalog. Fitzgerald's Nursery, Stephenville, Texas.

Citrus Trees—Selected stock, 1, 2 and 3 years old. My prices are right. Write for information. P. E. Zug, Glendora, Cal.

Avocados—Seeds, seedlings and budded trees (Chappelows only). Prices on application. Chappelows Nursery, Route 1, Box 104, Monrovia, Cal.

Washington Navel, Valencia Seedless Grapefruit, Seedless Eureka Lemon, two years best stock. J. S. Ogawa, R. A. Box 114, Sanger, Fresno Co., Cal.

Olive Trees—Mission, Manzanillo, Ascolano. Propogated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, Cal.

Olives—Manzanillo and Mission, Apricots, Pears, Apples, Peaches, etc. Thrifty trees. Prices on request. Kavan Nursery Co., San Bernardino, Cal.

Walnut Trees grafted on northern black root. Placentia Perfection, El Monte, Eureka. Scions personally selected. Eureka Walnut Nursery, Montebello, Cal.

For Sale—Improved Seedless Grapefruit, Valencias and Lemons. All buds carefully selected. Low prices. Sherwood Nurseries, Fullerton, Cal.

For Sale — 1600 one-year-old Valencia orange trees on two-year sour stock. A. O. Hayes, San Dimas.

Place Your Order for Eureka and Placentia Walnut Scions now. E. Holve, Fullerton

Royal Apricots, Placentia Perfection and Eureka Walnuts. K. B. Utigaard, Hemet, Cal.

TREES

All Kinds of Fruit, shade and ornamental trees. Eulata and Mayflower Peach. Orange, Lemon and Pomelo. North Sacramento Nurseries, R. F. D. No. 3, Box 44, Sacramento, Cal.

Mission Olive Trees—2 years old. 9000 to sell. Will sell reasonable. George DuQuette, Pacoima, Cal. Phone 414 San Fernando.

Budded Avocados—All leading varieties. Address Mather's Avocado Nursery, 137 N. Fair Oaks Ave., Pasadena, Cal.

For Sale—Fine two-year-old Chase Walnut trees. Magnolia Nursery, Whittier, Cal.

For Sale—Manzanillo Olives, finest nursery stock in South. For price address E. A. Norwood, Redlands, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Fruit and Nut Trees grafted. Chas. Pfeffer, 39 Clifton Ave., San Jose, Cal.

HOGS

Smith's Poland-Chinas—Sows and gilts bred to Joker, first prize boar at Wisconsin State Fair 1915. These sows and gilts were sired by Iowa Wonder, who is a son of the great A Wonder, the most celebrated Poland-China boar living or dead. Litters from this mating are the best I have ever seen anywhere. Prices low, quality considered. Will sell one or a carload. As a special inducement each purchaser will be given a year's subscription to the American Swineherd, the best swine paper published, and a copy of the Handbook on the Sow, also a copy of the Pig Feeders' Manual. Geo. A. Smith, Corcoran, Cal.

Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

Make Big Money with our Big Type Poland-Chinas. Smooth, easy feeders that make greatest weight in shortest time at lowest cost, topping the market at 225 lbs. in 6 months 300 head, both sexes, all ages, reasonable prices. Best Eastern blood lines. Satisfaction guaranteed. Ranch in Tulare County, but address owner, R. H. Whitten, 610 B. Security Building, Los Angeles.

Billiken Herd of Chester Whites—The big prize winners at the 1916 California state fair. The breed that makes money for the rancher and dairyman. Have 4 nice young service boars left and 20 young open gilts that will be bred as desired by buyer. Write for the Chester White booklet that tells all about them. C. B. Cunningham, Mills, Cal.

Poland-Chinas—Twenty good gilts and three 2-year-old sows for sale. Either sired by or bred to I. B. A. Wonder, reserve champion at P.P.I.E. A few good young boars ready for service, sired by I. B. A. Wonder. A fine lot of fall pigs. I please you or refund your money. W. A. Young, Lodi, Cal.

Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P.P.I.E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

Superba World's Grand Champion Poland-China boar and one of the greatest sires of the breed. Spring boars ready for service, also few sows bred to this noted sire, reasonably cheap. Rough's Greenfields, Arlington Sta., Riverside, Cal.

50 Bred Sows and Gilts, 50—Of true Berkshire type and quality; bred to grand champion boars are included in our private sale list now ready for mailing. Write for it today. Silver Birch Farms, Box C. C., Newport, Wash.

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Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, Cal.

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HOGS

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For Sale—Bargain, colts. 14 colts, 5 head about 9 months, six yearlings, one 2-year-old, two 3-year-olds. Three head yearlings from saddle stock, balance from heavy work mares and Percheron stallion, 14 head, $700 cash. Box 128, Lancaster, Cal.

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For Sale—From 1 to 100 extra fine, straight, well marked, light colored, highly bred, registered Holstein heifers from 6 to 12 months old. They are rich in the blood of King of the Pontiacs, Pontiac Korndyke, Hengerveld De Kol, Rag Apple Korndyke, 8th, King Segis and other most celebrated sires of the breed. Prices very reasonable. Write Geo. A. Smith, Corcoran, Cal.

D. O. Lively, 215 Hobart Bldg., San Francisco, offers for sale a registered Hereford bull 22 months old and a registered Shorthorn bull coming three years old. Correspondence solicited.

Breeders of Registered Shorthorns—Milk strain. Choice young stock for sale. John Lynch Ranch, Box 321, Petaluma, Cal.

Have a Nice Registered Holstein bull calf from dam with 18.025 lbs. record. Is 3 years old. J. W. Benoit, Route C. Modesto, Cal.

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Our Baby Chicks are hatching every week now. Have you ordered yours? You know what you want and we think we can fill the bill. High quality, reasonable price and prompt service. Won't you write us for prices and circular describing our R. I. Reds, Barred Rocks, Black Minorcas, White and Brown Leghorns? We want your business and future good will—it takes a fair play deal to get that. Our hatchery is up to date, and we recken we know our business. Let's get acquainted. A postcard will introduce us. Roofden Poultry Ranch & Hatchery, Campbell.

Extra Quality White Leghorn Chicks 12c each until March 1, then 10c. Carefully line bred from MacFarlane, Young, Cypher's and Martin strains of foundation stock. Eggs $1.50 per 15, $2.50 per 30, $5.00 per 100, $50 per 1000. Acres of free range connected with our breeding pens, 20,000 feet under roof. Only Jubilee incubators used, disinfected every hatch. Don't save 2c per chick in buying and lose a dollar per pullet in raising, get the best and succeed. Newton Poultry Farm, Dept. 3, Los Gatos, Cal. Catalogue free.

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Money to Loan on Farms, city and suburban property. C. G. Paul, 407 Chamber of Commerce Bldg., Los Angeles.

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Wanted—Men, with rigs preferred, in each California county to represent California's largest and most read California weekly. Good pay and permanent connection to right persons. Address Circulation Department, California Cultivator, 115 North Broadway, Los Angeles.

Wanted—Man to work 35 acres young Valencias, Anaheim. Must loan me $1000 or purchase with cash or other property part interest in grove. Herbert F. Clark, 31 N. Granada, Alhambra.

Sudan Grass Seed Wanted. This year's crop. Send sample and price and state amount you can supply to J. P. Cundell, Lathrop, Cal.

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For Sale—Rumley Tractor, 16 h. p., little used. Would consider trade for team of mules, or $800 cash. A. W. Leichtfuss, Orange, Cal.

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There are many sections in Southern California where land values are not prohibitive for the man of limited capital. One of these is the Antelope Valley. Lancaster is the principal town and is just 80 miles from Los Angeles. This valley has been on the up trend ever since it was demonstrated that water could be secured at a reasonable cost. As a matter of fact the soil is very similar to the soil of the country which lies to the east of Los Angeles, and where land values have risen steadily with the rapid growth of population. As a livestock or fruit proposition the Antelope Valley offers attractive possibilities. Any district which is within 100 miles of a center of population and has adequate railroad facilities is bound to be settled and developed rapidly once its advantages are widely known. Alfalfa, grains and grasses all thrive in the Antelope Valley. With intelligence a 200-pound hog at seven to eight months of age can be finished and marketed as cheaply as it can be done anywhere, and the short distance from the market saves many dollars to shippers as the per cent shrink on finished hogs is nominal on an 80-mile haul. There are other parts of the Southwest where equal opportunities are to be found, but the point is that with the ever increasing growth of our population and the corresponding decrease in livestock production and its by-products, every available acre of arable land must sooner or later be cultivated and cropped.

TESTING SHOWS WORTH

The Henderson Ranch Company has sent us a list of the last eight cows freshening on the ranch and from it we note that there are some remarkable showings of butter fat percentages. There are also some good seven-day productions.

Bessie Oak Segis, tested at 2 years, 11 months, 18.61 pounds butter from 290.1 pounds milk in seven days. Average per cent fat was 5.13. This cow showed the highest percentage of any, remarkable for a Holstein, proving that butter fat can be bred into a cow.

Other producers on the ranch with their seven-day tests are: Sunnyslope Anna Prilly, two years, eight months, 13.93 pounds butter, per cent of fat was 3.1. Cleopatra Walker Colantha, two years, nine months, 15.10 pounds butter; per cent fat 3.24. Margill Pauline Pet, six years, 21.01 pounds butter; per cent fat 3.36. Nina Walker Pauline, two years, five months, 17.66 pounds butter; per cent fat 3.56. Daisy Oak Segis, four years 10 months, 20.5 pounds butter; per cent fat 4.02. De Kol of Glennaire, two years, five months, 18.05 pounds butter; per cent fat 3.82. Susie Fayne Walker, heifer, seven and one-half months after calving, 13.30 pounds butter. Lorenzo Clothilde Hengerveld, four years, 18.26 pounds butter; per cent fat 3.28.

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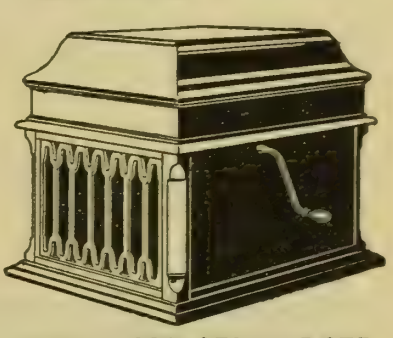

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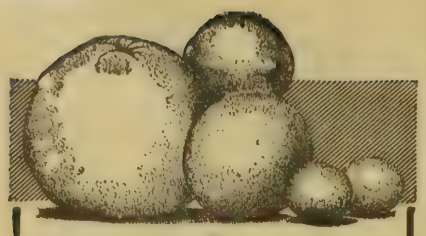

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And a little bit of sweetness, and a little bit of song,
Not a day will seem too toilsome; not a day will seem too long;
And your work will be attractive, and the world will stop to look,
And the world will see a sweetness like the tinklin' of a brook,
In the finished job; and then the world will turn to look at you
With a world's appreciation of the thing you've found to do.

Just a little bit of lovin' and a little bit of song,
And some pride to sort of make it straight and true and clean and strong;
And the work that you're a-doin' pretty near before you know
Will have set the world a-talkin', and you'll see that you have done
More than you had dreamed or hoped for when the task was first begun;
And you'll find the bit of lovin' you have put into the same
Has come back to you in lovin', and come back to you in fame.—Exch.

HERE'S TO CALIFORNIA
By Kathleen Norris in American

(Concluded from last week.)

THERE was a great year when the output of wheat was more valuable than that of gold. But gold was a first love with the early Californians, and they followed the gold. Wherever the feverish rumor flew, they hurried after. They left homes and wives and children to flock into the mountains, and many of them never found anything but thirst and hunger and left only their bones to tell the story. Meanwhile the city property that in itself was worth a gold mine, or the untilled fields that were some day to feed half the world, lay neglected. Even after this time gold played an important part in the history of the state. In 1870 everybody in San Francisco was buying silver stock in the Nevada mines. One of these mines produced three hundred million dollars' worth of ore in eighteen years! The mere figures were enough to drive sober reason from one's head! Car conductors, sober young wives, little seamstresses, rich and poor, wise and unwise, they flung whatever they had madly into the game, indeed they flung more than they had.

Nothing else interested the city, while this mad fever burned it. Strangers talked eagerly and nervously in the streets, today's beggar was tomorrow's millionaire. The terrible question of holding or selling turned men's hair white and broke them on the wheel. This one, hitherto respected, successful, happy, put a shot through his brains; that one reeled home and sat for dazed hours in the bay-windowed parlor and looked mutely at the silk-clad, confident wife and the pretty daughter, just freed from high school and the retinue of sympathetic maids—ruined, and more than ruined. Even today in the city a busy young stenographer or a school teacher will point you out a business block teeming with prosperous life, with the philosophical smile that is characteristic of the Californian: "That belonged to my father before the silver slump!"

This was long ago—for California. For we measure phases by decades rather than by centuries: 1870 is buried in the past; I have seen New England villages where the Revolution seemed nearer, and the Civil War only yesterday. Since 1870 so many things have happened to California that she may well regard vigilante committees, land quarrels and gold fever as the impulsive mistakes of her girlhood. The idle, glowing flower garden, humming with bees, that lies between her mountain chains, the imperial forests, the empty harbors and untouched fields, have welcomed the world in the last 40 years, and the world has poured in.

California is the most cosmopolitan of all the states. She has not only all the nationalities of Europe, but she has the Oriental races, Mexicans, Filipinos, and Southern and Central Americans walking her streets. She has citrus plantations and oil wells in the south, she has every ordinary farm product—fruits, vegetables, cattle, sheep, swine and poultry, wheat, barley and corn—in her great central valleys; she has mines of all sorts and colossal lumber interests in the north; she has an enormous wine industry, and she provides not only herself but half the Union with salt and pepper and spices. And within a few miles of each other the humble potato and the aristocratic alligator pear, or the finest grapefruit in the world, are found growing.

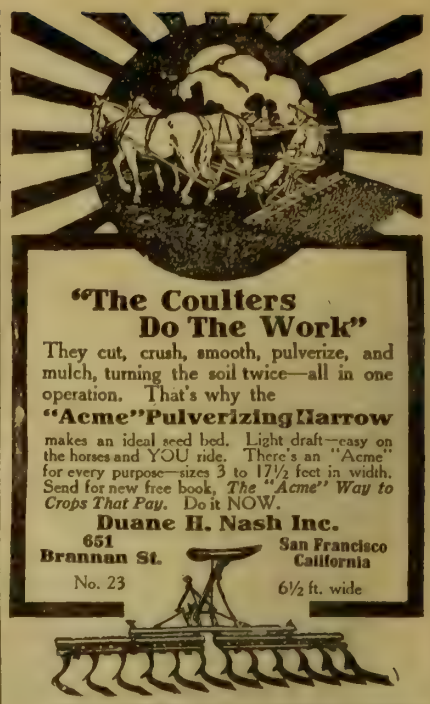
Even the dispassionate outsider must admit that California is economically the least dependent of the states, a fact that one happy memory of mine substantiates. For, years ago, I was a small visitor on a thousand-acre ranch which supplied every human need, except, the mistress used to laugh, "the bones for my corsets." Oysters, honey, leather, kerosene, cheeses, homespun, wine, raisins, bricks and flour were all placidly produced at need; there were clear water springs, and even a delicious geyser of what we called "soda water."

This was, of course, only an old farmer's whim. Yet it is possible today, on 40 acres of land, to have a livelihood, a bank account, and a home in any one of a hundred fertile canyons There are little families there raising a few peaches and a few calves and a few pigs, sowing a few acres of alfalfa (three or four crops a year!), renting out the team to neighboring farmers at three dollars a day, sending a few pounds of butter to market every week, and perhaps drying a few hundred pounds of apricots every spring—who spend during the year perhaps one tenth of the money they make. There are splendid schools all throughout the state, and although a too kindly climate encourages the building of rather unsubstantial wooden houses, and one laments the contrast to the beauty of New England villages, yet the gardens atone for everything, and the wide-spread content and thrift more than make up for the lost beauty.

Socially, of course, the cities are still suffering from growing pains. We are still nouvelles arrivees, unsteady on our feet, uncertain as to background. Many and mysterious were the causes that brought the early settlers to the last frontier, and many and mysterious were the exigencies they met in the days of settling. Younger sons and remittance men came from abroad, the impoverished South after the war sent other hundreds swarming westward, and always-shrewd New England claimed her share of the new find. There was some intermarrying with the old Spanish element, and there was a small but steady influx from Hawaii, clergymen's families, or dark-eyed girls of mixed blood, who came up by sailing vessel to make a part of the city. Fortunes, in the early days, were more quickly mended than manners, and the heart of many a social leader must have quaked when the conversation turned upon lineage.

Yet of all the conflicting elements there has been welded a population worthy of the miracle state. California has a definite personality, a personality unmistakably courageous, hospitable, broad-minded and independent. She is unbound; she welcomes innovation; she holds an imported convention guilty until it is proved innocent. She rises to the horrible emergency of earthquake and fire only a little less buoyantly than she turns her energies to the creation of a record-breaking exposition.

San Francisco, dragging its trunks over miles of hot pavement, moving its cooking stoves to the windy edge of the sidewalk, crashing and tumbling in a smother of dust and ashes about its own ears, was still laughing and confident San Francisco. She was no more laughing and confident when, only nine years later, she flung her doors open to the world, and close to the blue edge of the bay and under the incessant blue of the approving skies was hostess at the most beautiful of all the great fairs. For ten months the cream and blue and apricot and crimson buildings swarmed with visitors, the flags of all the countries in the world blew in the sun, the Tower of Jewels twinkled and glowed, and the great transplanted trees threw a delicious shade across the white roadways. And when the fair was over, California was not tired, not discouraged, not even in debt.



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She found that her fair was the first that had ever paid for itself, and so she had another celebration for that.

She celebrates everything, does California. And so tenacious is her loyalty, and so eventful her history, that scarcely a week passes without its anniversary and its jubilant commemoration. Ocean fogs pour over her from the blue Pacific, trade winds sweep up and down her coast cities, and she has a fair rainfall—admitted. But somehow her sons and daughters think of her as always sunshiny, always warm and serene and welcoming, a gracious figure of hospitality, and of giving, between the great desert and deep sea.

CANDIED AND PICKLED FIGS

Recipes Given by W. V. Cruess in His Address Before Fig Growers at Fresno

Candied or Glace Figs.

Figs, because of their texture, size, and flavor, are especially desirable for the preparation of glace or candied products. Candying figs consists in impregnating them with enough sugar in the form of repeated addition of syrups of increasing concentration so that they will finally after a short drying retain their original shape and can be handled much as any other candy. The method in brief is as follows:

Choose figs (preferably Kadota or similar variety) ripe but still firm.

Puncture the fig with numerous holes made by copper or wooden needles. Holes made by toothpicks are satisfactory.

Boil figs in water until tender, but not until soft.

Place in a syrup testing 30 per cent Balling and bring to boil. Pour into earthenware crock and leave 48 hours. Use ordinary Balling sugar tester for testing syrup. (See Circular 146, University of California Experiment Station, on use of Balling tester.)

Drain off syrup and add sugar to bring it to 35 per cent. Heat to boiling and pour it over fruit. Leave 24 to 48 hours.

Repeat this at 40 per cent, 45 per cent, 50 per cent, 55 per cent, 60 per cent, 65 per cent and 70 per cent sugar, allowing 24 to 48 hours between each boiling of syrup.

Leave figs in 70 per cent syrup 48 hours. Remove it. Wipe off excess syrup from figs and spread to dry about one week on a wire screen. The figs are then ready for use or may be coated as follows:

Make a very strong syrup consisting of about four pounds of sugar to one pint of water. Heat to boiling. Dip figs in this quickly and spread out to drain. A coating of sugar will form on the surface. The figs must be packed in rather open containers to avoid mold. Wicker baskets, etc., are suited to this purpose. Dried Smyrna figs, soaked in water till full size, boiled in water until tender, and treated as above give a good glace fruit, the dried Mission and Adriatic did not give such good results.

Sweet Fig Pickles.

A very pleasing sweet pickle may be made from figs, using either the fresh or the dried fruit. The following recipe is furnished by Mrs. A. E. Christie of Berkeley:

The fruit is first steamed or boiled a short time until tender. Then the figs are drained free of water; placed in jars, and covered with a boiling hot spiced vinegar prepared as follows. One quart of vinegar, 2 lbs. of sugar, ½ oz. of cinnamon, and ½ oz. of mace. Grind spices and tie in a muslin bag. Boil spices, sugar, and vinegar a short time and pour boiling hot over the fruit. Add whole cloves to taste and seal jars hot.

HELPFUL THINGS

Written for California Cultivator By Martha

Cornmeal is the housekeeper's friend in many ways. If you have felt hats or any woolen garment you would like to dry clean cover a small quantity of meal with gasoline and apply wih a soft cloth to the article to be cleaned. To clean kid gloves put them on the hands and wash them in the mixture of meal and gasoline as if using water, and they will come out clean, soft and unfaded. There is nothing better than white corn meal for cleaning light colored furs. Lay them out flat, sprinkle plenty of meal through the fur and with the hand rub it well all through the fur, and when the article seems clean, shake and brush until every particle of the meal is removed. To clean the hair without washing, sprinkle plenty of meal through the hair up close to the scalp, then brush it out with a clean stiff brush.

One of the most helpful things in the home is a bottle of boric solution, and this is easily prepared by adding a heaping teaspoon of granulated boric acid to one pint of boiled water. This boric solution makes an excellent gargle for sore throats or a lotion for sore eyes, and there is nothing more healing for burns and for small cuts and wounds as it is a fine disinfectant and cleanser. A little salt added to the boric solution makes a fine douche for catarrh in the head, and the best way to use any solution for this trouble is to put it in a nasal dish and snuff up into the nostrils. One of these dishes can be bought at any drug sore.

There is nothing more helpful in the kitchen than some asbestos mats. You can buy asbestos by the piece and make the mats any shape or size you want or you can buy them ready made. Put one of these mats on the stove under the pan of milk which is being heated for toast, and the milk will become very hot, yet there is no danger of its sticking to the pan or scorching, and boiled milk is indigestible. Place such a mat under the pan in which you cook oatmeal or custard, if you have no double boiler, and save scorched or burned food. An asbestos mat with a cover made to fit, of coarse linen, is handy when you have hot dishes to set on the table, and these covers should be made so they can be easily laundered.

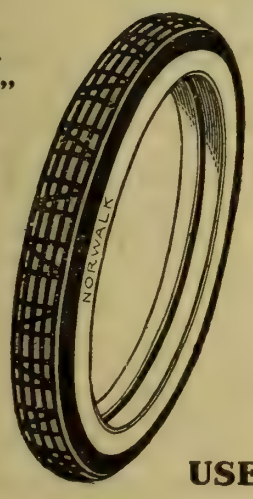
ALL NOTABLES

There is a certain colored man whose last name is Washington. Heaven has blessed him with three sons.

When the first son arrived the father named him George Washington. In due time the second son came. Naturally, he was christened Booker Washington. When the third manchild was born his parent was at a loss at first for a name for him. Finally, though, he hit on a suitable selection.

The third son, if he lives, will go through life as Spokane Washington.

"Some Rubber"



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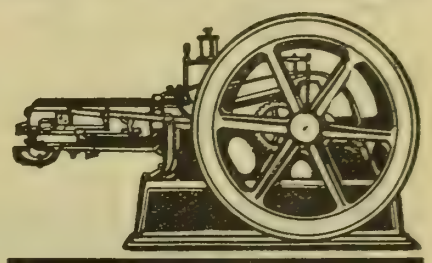

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No. 2.—KING PONTIAC NETHERLAND BARRILOS. Born March 18, 1915. Sire: KING PONTIAC MUSA NETHERLAND 89775. (Same as No. 1). Dam: SLEEPY BARRILOS OF MILLBRAE 161752. Official records 678.4 pounds milk and 30.88 pounds butter in 7 days, 2923.2 pounds milk and 122.56 pounds butter in 30 days. A wonderful producing cow who has a 31.86-pound 4-year-old daughter and a 24.95-pound 3-year-old daughter. Bull is a good individual.

No. 3.—RAG APPLE CLOTHILDE KORNDYKE 2ND. Born March 12, 1916. Sire: RAG APPLE CLOTHILDE KORNDYKE 105151, a son of Sir Rag Apple Korndyke, who is out of a 36-pound daughter of Pontiac Korndyke. Dam: GLADYS OF MILLBRAE 214830. As a senior 4-year-old she made official records of 729.4 pounds milk and 29.35 pounds butter in 7 days, 3064.1 pounds milk and 121.12 pounds butter in 30 days. As a senior 3-year-old she made 509.7 pounds milk and 21.07 pounds butter in 7 days, and 249 days from calving made 285.1 pounds milk and 13.64 pounds butter in 7 days. This is a very typey youngster and fit to head any pure bred herd. His dam is one of our best prospects, and is almost sure to increase her record.

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Woodland, Yolo County, Cal.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Lice

My cows have lice. Is kerosene emulsion all right to use on them to kill the lice and nits? If not please suggest the least expensive remedy you know?—Subscriber, Rio Bravo.

Yes the kerosene emulsion is all right, but do not get it too strong of kerosene or it will remove all the hair. The hair will come in again, but zenoleum will do as well and not affect the hair. Use a teacup of the zenoleum in a bucket of warm water and wet the cow all over. Then put on a blanket until she is dry. Repeat it in a week to get any that may hatch out later.

Urinating Too Frequently

Will you advise as to treatment for four-year-old horse that is troubled with too frequent passing of urine. He feels well and seems in good condition otherwise. He is fed on alfalfa hay alone. The trouble is of several months' standing.—Subscriber, Lancaster.

If the alfalfa hay was cut too green it may be the cause of the frequent urinating. It may be well anyway to change the feed for a short time. Also give this; Iodide of potash two ounces and water enough to make one pint. Give one ounce of the solution in the drinking water once a day. It might be well also to get some ground flaxseed with the oil left in. Make a tea of this by placing a handful in a clean bucket and pouring on a gallon of boiling water. When cool fill the bucket with cold water and let the horse drink it. Give this once a day; it is soothing to the kidneys and will regulate the amount of urine as well.

Indigestion

I have a young cow that is sick and wish to know what is wrong. She lies around about all the time and sometimes grunts when she walks. She is fed alfalfa hay, bran and some rolled barley, but has a very poor appetite. She drinks very little water and for the last week has fallen off half in her milk. Her hair also looks rough. Please tell me what is wrong with her and what to do for her.—Subscriber, Alpaugh.

The word indigestion means a faulty or improper action of the digestive organs on the feed. Usually this is followed by fermentation of the feed and the formation of gasses which causes bloating, but sometimes there is no fermentation and the food becomes dry and hard. This sometimes happens in one of the pouches or organs through which the food passes before reaching the true stomach where the gastric juices are found and true digestion takes place. These conditions cause pain, and the cow will show such symptoms as you describe. She needs a physic. Give the following: Three pounds of epsom salts, one pound of common salt, two ounces of aloes and one ounce of powdered nux vomica. Dissolve it all in two gallons of hot water. Divide into four doses of two quarts each and when cool give the first dose as a drench. Give the second dose in 12 hours and the other two doses 24 hours apart. In the meantime allow the cow all the water she wants to drink but not too cold. If you succeed in washing out the stomachs with this treatment she will probably go on again all right.

Abortion

What is the cause of cows slinking their calves?—Subscriber, Willows.

It may be due to contagious abortion which is due to a germ. Better consult a veterinarian that is near you and have him attend to them for you. It is difficult for one who has no instruments to carry out full instructions that are given in a written article.

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W. F. Young, P.D.F., 244 Temple St., Springfield, Mass.

Los Angeles Market

LOS ANGELES, Jan. 17, 1917.

BUTTER

Wholesale prices:
Rects. wk. ending Jan. 16, 241,223 lbs.
California extra creamery 37
Prime first 35
Extra creamery past wk. (Prod. Exch.)

Jan.	10	11	12	13	15	16
'17	36	36	37	37	37	37

CHEESE

Brokers' prices:
California fresh, lb. .....20@21
Eastern Daisies 24
Oregon Triplets, lb. .....22@22½
Tillamook 22½

EGGS

Rects, wk. ending Jan 16, 1079 cases.
Exchange quotations:
Fresh extras 42
Case count 4½
Pullet 33
Fresh extra past wk. (Prod. Exch.)

Jan.	10	11	12	13	15	16
'17	40	40	40	41¼	41	42

POULTRY

We quote from growers:
Broilers .....25@26
Fryers .....23@24
Hens .....17@21
Roasters 22
Geese, Young 18
Ducklings, lb. .....18@20
Roosters, old 10
Turkeys .....22@25

LIVE STOCK

CATTLE—We quote cwt. f.o.b. L. A.
Beef steers, av. 1000 to 1100 lbs..8.00@8.50
Cows and heifers .....6.00@6.25
HOGS—
Heavy, av. 250 to 300 lbs.....8.50@9.00
Mixed, av. 200 to 250 lbs.....9.00@9.25
Light, av. 175 to 200 lbs. .....9.00@9.25
Rough, docked 20 lbs.; piggy sows, 40 lbs.; stags, 40%.
We quote per cwt. f.o.b. L. A.
Prime wethers .....7.00@7.50
Ewes .....8.00@8.50
Lambs .....12.00@12.50
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:
Northern .....2.90@3.10
Local .....2.60@2.35
Lompoc .....3.00@3.25
Sweet, cwt. 3.85
Seed: Early Rose, cwt. 3.00
White Rose 2.85
Am. Wonder 3.25

ONIONS

Wholesale selling price:
White Globe, cwt. 6.00
Brown, cwt. 5.50
Garlic, lb. 8

VEGETABLES

Wholesale prices:
Artichokes, doz. .....90@1.25
Brussels Sprouts, lb. 10
Beets, doz. bunches .....35@40
Cabbage, fy. sack 2.00
Red, lb. 4½
Carrots, doz. 30
Chicory, doz. 40
Cauliflower, doz. 90
Celery, cr. 4.25
Cucumbers, Hothouse, doz. .....1.00@1.50
Escarole, doz. .....35@40
Kale 25
Horseradish, lb. 15
Lettuce, doz. 30
Leeks, doz. .....40@50
Mint 40
Onions, green, doz. .....17½@20
Oyster Plant, doz. 40
Parsley, doz. 20
Parsnips, doz. 40
Peppers, Bell .....22@25
Radishes, doz. .....17½@20
Rhubarb—Strawberry 1.25
Crimson Winter 1.15
Romaine 50
Spinach, doz. 30
Squash, lug, Sum....1.25; Chayote 85@90
Hubbard, lb...1¾@2 Cream, lug....60
Tomatoes, crate 2.25
Turnips, doz. 40

FRUITS

Wholesale prices:
Apples—
Bellflower .....1.20@1.35
W. W. Pearmain .....1.25@1.60
Newtown Pippin, Yellow.....1.35@1.50
Bananas, lb. .....4¼@4½
Grapes—
Red Emperor, cr. 2.00
Pears—Winter Nelis lug 1.50
Persimmons, lb. .....9@10
Pineapples, lb. .....9@10
Pomegranates, half box.....2.00

CITRUS

Navels 2.25
Lemons, $1.75@2.50 Juice 1.25
Grapefruit .....2.40@2.50
Limes, basket 85
Tangerines, lug 1.50

BEANS

Wholesale Prices:
Lady Washington .....11.00@11.25
Limas 8.75
Pinks .....8.00@8.25
Manchurian Reds 7.80
Baby Mex. 6.00
Small White .....11.00@11.25
Blackeyes 5.90
Tepary 6.50
Garvanzos 6.00
Lentils 18.00
Idaho Pinto 5.00

HAY

Hay market is very firm and while no advance is noted offerings are quickly picked up.

We quote ton f.o.b. L. A. to producers:
Barley .....13.00@17.00
Oat, tame .....15.00@18.00
Alfalfa, local .....16.00@19.00
Northern .....14.00@16.50
Stock .....10.00@13.00
Straw .....9.00@11.00

GRAIN

Wholesale selling price f.o.b. L. A.
Wheat—No. 1 .....3.05
Corn—No. 2 yellow, 2.55; white.....2.60
Oats—California feed 2.80
Standard 45
Cal. Seed Oats 2.60
Barley—No. 1 bright feed.....2.50
No. 1 dark feed 2.45
Seed 2.55
Milo 2.40
Egyptian Corn 2.45
Rye 3.25

FEED STUFF

Wholesale, cwt. f.o.b. L. A.
Alfalfa Meal 1.35
Bran, heavy 1.90
Shorts and Middlings 2.35
Alfalfa Molasses 1.55
Meat Scraps, accd. to quan.....3.20@3.30
Beet Pulp 1.30
Cracked Corn 2.60
Cracked Wheat 3.15
Cotton Seed Meal 2.40
Bone Meal 2.45
Feed Meal 2.75
Green Bone 2.25
Middlings 2.35
Oil Cake Meal 2.40
Fish Meal .....3.60@3.70
Rolled Barley 2.50
Rolled Oats 2.50
Hulled Oats 3.30
Feed Meal 2.65; Scratch Feed..2.60@2.70

San Francisco Markets

SAN FRANCISCO, Jan. 16, 1917.

BUTTER

Dairy Exchange quotations, lb.:
Rcts. wk. ending Jan. 15, 381,500 lbs.
Fresh extras 36½
Prime firsts 35
Firsts 34½
Extra Cr'y (Exch) past wk. & yr. ago.

Jan.	9	10	11	12	13	15
'17	35	35	35½	36	36	36½
'16	..	28	28	27½	27½	28

CHEESE

Dairy Exchange Quotations:
Cal. Flats .....17@18 Y. Am...19@20½
Ore. Trip. .....19½ Y. Am.....21

EGGS

Rcts, wk. ending Jan. 15, 9745 cases.
Dairy Exchange quotations:
Fresh extras 43
Select Pullets 42
Fresh Ranch (Exch.) past wk. & yr. ago.

Jan.	9	10	11	12	13	15
'17	39½	40	40	43	43	31½
'16	..	30	29½	29½	30	30½

POULTRY

We quote from producers, lb.
Hens, large ..21@22; Leghorns ...19@20
Fryers, lb. .....24@25
Broilers .....26@28
Roosters, old ...13@14; young .....24@25
Squabs, doz. .....2.50@3.50
Ducks .....18@20
Geese .....18@20
Turkeys, dr. 28@30; live 25

LIVE STOCK

Prices gross weight:
Cattle:
Steers, lb., 6@7¾, cows and heifers, 4½@6½; calves, 6½@8½.
Sheep:
Wethers, 8½@9; ewes, 7½@8; yearling, 9@9½; milk lamb, lb., 10½@11.
Hogs:
Hard grain fed, 8¼@9¾; undesirable, 4@6.

POTATOES

Wholesale selling prices at wharf:
Delta Burbanks .....2.35@2.60
Salinas .....2.50@2.75
Oregon .....2.50@2.65
Watsonville .....2.40@2.60
Yakima Gems .....2.40@2.50
Sweet, Cellar .....2.50@2.75

ONIONS

Wholesale selling price on wharf:
Cwt. .....5.00@5.50
Garlic, lb. .....3@5

VEGETABLES

Wholesale selling price:
Artichokes, doz., large 60-85; small, 35-40
Celery, cr. .....3.50@3.75
Cucumbers, bx., hothouse.....1.00@2.00
Lettuce, crate .....1.00@1.25
Mushrooms, bx. .....40@60
Peas, lb. .....5@10
Rhubarb, box .....1.25@2.00
Peppers, Bell, lb. .....20@25
Squash—
Cream, bx., 1.00-1.25; Hub, sk. 1.35-1.50
Tomatoes, crate .....1.00@1.50

FRESH FRUIT

Wholesale selling price:
Apples, bx.—Bellefleur .....60@75
Newtown Pippins .....85@1.25
Bananas, bunch .....1.00@1.50
Pears—Winter Nelis .....2.00@27.5
Other Winter .....1.00@1.75
Pineapples, doz. .....2.00@2.50
Navels .....1.25@2.65
Tangerines, half orange box.....1.50@2.00

DRIED FRUITS

Wholesale quotations:
PRUNES—Bulk basis, per lb.: 30s and 40s, 6½c; 50s, 6¾c; 60s, 7¼c; 70s, 7¼c; 80s, 7½c.
Other fruit, 50-lb. boxes:

	Stand-ard	Extra Choice	Extra Choice	Extra Fncy.	Extra Fncy.
Apples	8c	8½c	9c	....	
Apricots	15¾c	15⅞c	16c	16⅝c	
Peaches	6¾c	7c	7½c	8⅛c	9⅛c
Pears	8c	8½c	9c	10¾c	....

California Associated Raisin Company's prices on 1916 crop: Package Sun Maid Seeded, 36-16s, per case, $3; package Sun Maid Seeded, 48-16s, per case, $3.95; Bakers Sun Maid Seeded, 25-lb. boxes, per box, $1.75; fancy Seeded Muscats, 36-16s, per case, $3.05; fancy seeded Muscats, 45-12s, per case, $3.15; fancy bulk Seeded, 25-lb. boxes(per box, $1.75; choice Seeded Muscats, 36-16s, per case, $2.90; choice Seeded Muscats, 45-12s, per case, $2.95; choice bulk Seeded, 25-lb. boxes, per box, $1.75. (Wood cases if desired.)

Loose Raisins in 50-Lb. Boxes

One-crown loose Muscatels, floated, per box, $4; 2-crown loose Muscatels, per box, $3.25; 3-crown loose Muscatels, per box, $3.50; 4-crown loose Muscatels, per box, $3.75.

London Layers

Three-crown London Layers, 20-lb. boxes, per box, $1.50; 4-crown clusters, 20-boxes, per box, $1.75; 6-crown Imperial Clusters, 20-lb. boxes, per box, $2.60; 5-lb. boxes, 50c additional; 10-lb. boxes, 25c additional; fancy clusters, 1-lb. cartons, 20 to case, per case, $1.85; fancy clusters, 2-lb. cartons, 12 to case, per case, $2.20; fancy clusters, 5-lb. cardboard cartons, 4 to case, per case, $2.35. Bulk layers, in 50-lb. boxes, per box, $3.25; bulk layers, in 100-lb. boxes, per box, $6.25.

All f. o. b. common shipping points. Regular California dried fruit terms. Prices guaranteed to April 1, 1917. All raisins not shipped before January 1, 1917, to be paid for at that time. The company will carry the raisins free of expense to time of shipment, which must be before March 1, 1917, unless otherwise arranged.

No export rebate will be allowed.

Prices subject to change without notice.

NUTS

Jobbers' Prices:
Almonds.—Exchange opening prices: Nonpareil, 20½c; Ne Plus Ultra, 17c; IXL, 18c; Drake, 16c.
Peanuts .....5½@6½

BEANS

Jobbers' prices, cwt. recleaned:
Limas .....7.90@8.10
Garbanzos .....4.00@4.50
Small White .....10.50@11.00
Large White .....10.00@10.25
Pinks .....7.00@7.25
Black Eyes .....5.25@5.50
Horse Beans .....4.25@4.75
Red Kidneys .....11.75@12.00
Cranberry, California .....7.25@7.50

SEEDS

Prices in round lots, lb.:
Millet, recleaned .....3@3½
Alfalfa .....20@21
Rape .....2¼@2½
Flax .....5@6

HOPS

Prices to growers at shipping points:
Sacramento, lb. .....8@9½
Sonoma .....10@11
Mendocino .....9@10
Oregon and Wash., lb. .....7½@10½

HAY

Scott, Magner & Miller say under date of January 13:

Receipts this week 1745 tons, last week 1073 tons, the week previous 1330 tons. The market has remained firm and all arrivals are placed without difficulty. Fancy wheat and red oat are in good demand, red oat easily placed at top figures. Stock hay is also in demand and very scarce. The car situation is a little easier. Quite a little time in unloading cars could be saved if railroad companies would spot cars on team tracks promptly after arrival. Several round lots of grain hay have changed hands in country districts at high prices, which would indicate that some dealers are looking for advances in the local market, the market being at least $1.00 per ton higher all around this week. Country trade has been exceptionally good. All sections are ordering hay and reporting good demand owing to the lack of green feed because of cold weather. Alfalfa is in good demand and prices have advanced. Straw is scarce, selling at top figures.

We quote car lots f.o.b. San Francisco.

New crop.	
Wheat, Fy., lt. bales.	20.00@21.00
Wheat or Wh. & Oat, No. 1.	17.00@19.00
Wheat or Wh. & Oat, No. 2.	15.00@17.00
Oat, Choice Tame	18.00@19.00
Other Tame	14.00@16.00
Wild	14.00@16.00
Barley	14.00@16.00
Alfalfa	13.00@16.00
Stock	13.00@14.00
Barley Straw No. 1	70@90

GRAIN

Grain Exchange prices, cwt.
Wheat, California Club .....2.50@2.55
Wheat, No. Bluestem .....2.80@2.85
Corn, Eastern Yellow, sk. .....2.05@2.10
Corn, Egyptian White .....2.10@2.20
White Feed .....2.00@2.05
Red Seed .....2.65@2.75
Barley, feed .....2.17½@2.22½
Shipping .....2.30@2.32½
Rye, cwt. 2.75

Citrus Fruit Market

LOS ANGELES, Jan. 17, 1917.

Stormy weather has prevented some harvesting of fruit and this has enabled the cleaning up in the Eastern market, but even there the weather has not been the most favorable. Auctions have shown some averages running below cost of packing and transportation. This, however, is for fruit which has been injured by frost.

The lemon market is in better condition and even the auctions show some very satisfactory sales.

Shipments

Shipments of oranges from Southern California to date since November 1, 1916, 3834 cars, lemons 958, total 4772; to same date last season, oranges 2084, lemons 1140, total 3224. From Central California to date this season, oranges 3790, lemons 123, total 3913; to same date last season oranges 4097, lemons 97, total 4194. From Northern California to date this season, oranges 838, last season 759.

FROM THE AUCTION

January 10

Boston: Nine cars. Navels, $1.65@3.05; lemons, $2.80@3.05.

Cleveland: Eight cars, $1.55@2.75; lemons, $2.70@2.95.

St. Louis: One car, navels, $2.05.

Cincinnati: Two cars, navels, $1.40@1.60; lemons, $2.30@2.40.

January 11

New York: Navels, $1.60@2.60.

Boston: Seven cars, navels, $1.50@2.25.

January 12

New York: Seven cars navels, 1 lemon. Lemons higher. Navels, $1.45@2.40; lemons, $2.40@3.10.

Boston: Five cars, $1.60@2.30; lemons, $2.65@3.15.

January 15

New York: Twenty-three navels, 3 lemons. Navels, $1.50@2.80; lemons, $2.55@2.90.

Boston: Sixteen cars, navels, $1.40@3.05; lemons, $3.30@3.65.

January 16

New York: Fifteen navels, 2 lemons. navels, $1.10@2.70; lemons, $2.45@2.90.

WEATHER CONDITIONS

For the Week Ending Jan. 13, 1917

	Rainfall Wk.	Rainfall Season	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	.00	13.52	19.64	58	32
Red Bluff	.00	11.46	11.56	62	26
Sacramento	.00	6.52	8.31	52	30
San Francisco	.13	9.81	9.73	60	40
San Jose	.14	6.43	7.10	62	30
Fresno	.38	5.21	4.24	52	32
San Luis Obispo	.15	14.03	7.83	74	34
Los Angeles	.44	7.98	6.17	76	42
San Diego	1.14	4.14	3.96	76	42

Paicines Ranch Company

SHORTHORN BULLS

The dam of the champion steer of the United States, exhibited at the International, was out of a dam bred by Paicines Ranch Company.

We have to offer 12 head roan registered weanling Shorthorn bulls; 50 head unregistered weanling Shorthorn bulls.

For prices and particulars apply to:

David J. Stollery

320 Sharon Bldg. - - San Francisco, Cal.

Poland China Boar

"WONDER'S BLUE VALLEY" 255267

Weighed 600 pounds at less than one year old. Won second in futurity and open class at the State Fair in 1916. Sired by "Blue Valley Again"; dam by Rood's A Wonder.

Price $100.00

Also May and June boar pigs, sired by "Cantrell's Ideal," son of the famous "Big Joe". Dams are big type sows of best breeding. Prices $25.00 and $35.00. Write to

NATE HAUCK, - Alton, Humboldt Co., California

Are Your Cows a BURDEN?

Many cows are a constant drag on their owners when they could just as well be good producers—if properly handled.

Don't forget that your cows can get physically "off color" just as you sometimes do. Watch the milk yield; if it is going down without apparent reason, something is wrong with the cow. Overfeeding is likely to make the condition worse; she needs a medicine that will clear up and strengthen her organs of production.

Kow-Kure is making thousands of new friends among the best dairymen every year, because it supplies this great need. It is a cow *medicine*, pure and simple—not a food. It has great curative and tonic powers that immediately act upon the digestive and genital organs and enable the cow to thrive on her natural food. Kow-Kure has back of it twenty years of success in making backward cows profitable and in the prevention and cure of Abortion, Barrenness, Retained Afterbirth, Milk Fever, Scouring, Lost Appetite, Bunches and other common ills.

You can buy Kow-Kure from the best feed dealers and druggists. Sold in 50c. and $1.00 packages.

KOW-KURE

DAIRY ASSOCIATION CO.
Lyndonville, Vermont

FREE BOOK
"The Home Cow Doctor"
This useful book that should be in every farmer's library is yours for the asking. It may be worth hundreds of dollars in a critical moment.

Germain Seed and Plant Co., Los Angeles, Cal.
Portland Seed Co., Portland, Ore. Spokane Seed Co., Spokane, Wash.

Elliott-Brant Rancho Guernseys Are Persistent Producers

PRINCESS OF MEADOWBROOK, a six-year-old cow, averaged 40 pounds a day of 5% milk for over a year. This rich milk brought 16 cents per quart, a gross income of $1,168 for the year, or $3.20 per day.

LOIS VALENTINE'S LAD'S LASSIE, a two-year-old heifer, averaged nearly 30 pounds milk per day for a year, producing more in her tenth month than at any time previous. The gross income from the sale of her milk was $842.40, or $2.33 per day.

It cost about 25 cents per day to feed these cows.

Compare these results with those of other herds and breeds.

Elliott-Brant Rancho, - Owensmouth, Cal.

ABORTION IN CATTLE

PREVENTED AND CURED PERMANENTLY
YOUR COWS MADE PROMPT, REGULAR BREEDERS BY
STERILOID

STOP LOSING CALVES

TREATMENT: If STERILOID is used at the first sign of abortion the cow will go her full time and have a healthy calf. If your cows or heifers do not come in season, or fail to get with calf, use STERILOID. Cows get with calf after only one treatment. Write today for FREE BOOK. It explains the causes and symptoms of Abortion and tells how to cure Abortion, and make your cows regular, healthy breeders with STERILOID. Also contains letters from breeders who have used STERILOID successfully.

GUARANTEE: We will refund money in every case when STERILOID FAILS to make good. Price $1.00. Mailed postpaid, in plain wrapper.

MARTIN REMEDY CO. Dept. L, 398-408 Columbus Ave., New York City. Reference Colonial Bank

FOREST GROVE LAUREL 8TH
First and Reserve Grand Champion
California State Fair 1916

The Type We Are Breeding For

Hardy, prolific sows of best blood lines and breeding. Strong, upstanding, prepotent boars. In short the best possible specimens of the Berkshire breed. We plan to do this by breeding large numbers and from them making a rigid selection.

James Mills Orchard Corporation
Hamilton City, California

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.
Unsigned communications receive no attention.

Joint Ownership

If a husband and a wife hold property jointly would a deed of gift of his or her part in the property to him or her, with the understanding that the deed is not to be put on record until after his or her death, be legal and avoid legal procedure? — Subscriber, Lakeport.

In the above case it will be unnecessary for any deed to be given. In view of the fact that if the deed under which you hold title is made to the husband and wife as joint tenants with right of survivorship the one who survives acquires the whole title to the property. All that is needed in such case is to file a petition in the superior court setting forth the fact of the death of the other joint tenant, which is a very inexpensive procedure.

Trespassing Animals

I own 300 acres of land fenced with four strands of barbed wire. Some neighbors on adjoining land persist in raising hogs. I intend now to farm this land. Now what legal redress have I? And what measures must I take to protect myself?—Subscriber, Oakhurst .

It will undoubtedly be true that you would not be required to make a hog tight fence, as you are only required under law to enclose your property by "substantial fence or other enclosure". If your neighbors' hogs then enter on your premises you are entitled to bring action against your neighbor for a sum which will compensate you for all damages sustained by reason of trespass and also for the amount which you have expended in the care of the trespassing animals. In order to secure the payment of this sum you are entitled to hold the trespassing animals, and with that end in view on the filing of your verified complaint you are entitled to have a writ of attachment issued out of the court wherein the complaint is filed, directed to the sheriff or constable requiring him to hold the animals pending the decision of the case. In this form of action you are not required to put up the usual bond or affidavit of attachment, and no animal is exempt from attachment or execution in this proceeding.

Damage from Irrigating Water

Can I collect damages done me by neighbor letting water come on my place?—Subscriber, Fresno.

The more approved rule is that the upper owner of the land is not permitted to discharge waters from his land upon the lands of a lower owner to any greater extent than the natural flow of waters over those lands would have discharged if natural conditions had been left undisturbed. Thus, permitting irrigating water to flow over upon the lands of another would be an actionable trespass.

Community Ditch

We have a community irrigation ditch that runs along railroad fence. All holes on railroad property are constantly filled with water. Is there any law fixing the distance ditch shall be from property line, and in case of wreck would ditch owners be liable to damage or is it railroad's duty to fill these holes?—Subscriber, Reedley.

The duty of keeping the artificial ditch or canal in repair generally rests upon the party who enjoys its benefits. If such party exercises reasonable care and diligence in making such repairs he will not be responsible for accidental damages to another. It is therefore probably true that as between the owners of the irrigation ditch and the railroad the liability would rest upon those using the ditch for neglect in keeping said ditch in repair. As between a person injured and the railroad, the cause of action would lie in the first instance against the railroad, which might be subsequently recoverable against the owners of the property. I know of no law fixing any distance which the ditch should be kept from the railroad line, except, of course, you are not entitled to trespass upon the railroad right of way.

Fence Over Line

I bought a 20-acre place five years ago. The owner of land joining me on the south had built a barbed wire fence before I came here, which was supposed to be on the line between our places, but instead the first post is the only one on the line, the other end post sets three or more feet on my place. What legal steps would you advise to force him to move fence to the line?—Subescriber.

The best method would be to bring ejectment against your neighbor, in which action the true line of the premises could be determined and adjudged.

Contract

Where daughter takes care of parent, what kind of contract may be drawn up as to disposal of parent's property which will assure the caretaker of receiving compensation, justice to other heirs and to the parent? —Subscriber.

A contract may be drawn up providing for a certain stipulated compensation and made chargeable against the estate generally, or against any particular piece of property of the estate. It would be best for you to go to an attorney to draw such contract as such matters have been frequent source of expensive litigation.

Willing Property

In making a will where you want to leave your property to your husband and children should their names be followed by the words "their heirs? Who would get the property at my daughter's death, she now having children? If there were no children would her husband inherit her portion or would it go to my other children?—Subscriber.

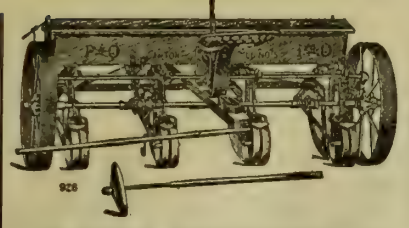
The words "their heirs" is required in some jurisdictions in order to convey a fee simple estate. Omitted, an estate for life only is conveyed. That rule has been abolished in this state. If a woman dies, leaving no husband but leaving a child or children, the whole estate goes to such children. If she left a husband as well as children, one-third goes to the surviving husband and the remainder in equal shares to the children. If there are no children and only a surviving husband, one half of the estate goes to the surviving husband and the other one half to the decedent's father and mother in equal shares; if either of them is dead the whole of the said estate goes to the other; and if there is no father or mother then the one half goes in equal shares to the brothers and sisters of decedent. The above applies, however, in the case of a married woman only to her separate estate, the rule being, as to community property that the whole of the community property goes to the husband upon the death of the wife, regardless of whether there is or is not issue.

Homesteading

What is meant by "homesteading" property? What is the advantage and what is the procedure?—Subscriber, Los Angeles.

A full statement of the law of homestead was made on page 100 of the Cultivator of August 5, 1916. A short resume follows: By homesteading property the husband or wife, or both, file a declaration of homestead in the office of the county recorder describing the property upon which they reside at the time the document is recorded. Thereafter that property is termed a "homestead". It is exempt from execution up to the amount of $500, and if made upon community property or upon the separate property of the spouse executing said homestead, descends to the surviving spouse upon the death of either without entering into the estate or being liable for the debts of the estate. In fact, the surviving spouse has practically a joint tenancy, and upon the death of the other may file a petition in the superior court setting forth the death; upon the death being determined the property is decreed to be the property of the survivor.

P&O
Beet Seeders



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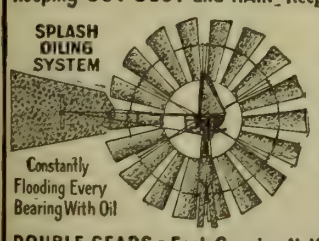

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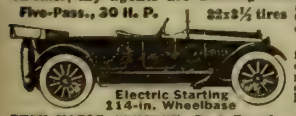

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Use of Ditch

My place is in two water districts, No. 8 and No. 4. A river runs through the place. My main place is No. 8, 93 acres; three acres are in 4. One share of water stock to each acre. The three acres in 4 have always been farmed by a neighbor using water in his own ditch. He has paid me rent. The place has been cropped since 1905. Now this man has sold the place. The new man refuses to let me irrigate my land from his ditch. Will not rent my piece of land neither will he buy it. I have to pay my assessments in 4 just the same. There is no way to get water to this three acres except to get it through his ditch. Will you please answer in your valuable paper.—Subscriber.

Very frequently in cases of these irrigation districts, the several owners of property served by the ditches have a common interest in the water course which serves them, in which case a court of equity would have jurisdiction to adjust and settle their relative rights. It is probably the case in this instance that you have a right to have the water flow through the ditch on your neighbor's land to your own, but it would be necessary for you to examine the records of the irrigation district in that respect. It is hardly probable that you would need to pay an assessment without the right to have the water come to your land.

Repairs to Rented Engine

A hired a gasoline engine belonging to B for a certain sum agreed upon. While A had the engine in operation a certain part of the governing mechanism became loose and fell off, causing the engine to race. Before the engine could be stopped considerable damage was done to the governing mechanism. Proceeded at his own expense to replace the broken parts except a certain pinion which was not damaged enough to hinder the proper operation of the engine. After the accident, in a conversation with B, A learned that B had had trouble with the governing mechanism on previous occasions, but failed to warn A that anything was likely to happen to that particular part. The engine was returned to B in working order, A agreeing to pay the rental price as agreed upon. B insists that A replace the damaged pinion with a new one and pay the cost of having it put on.—Subscriber.

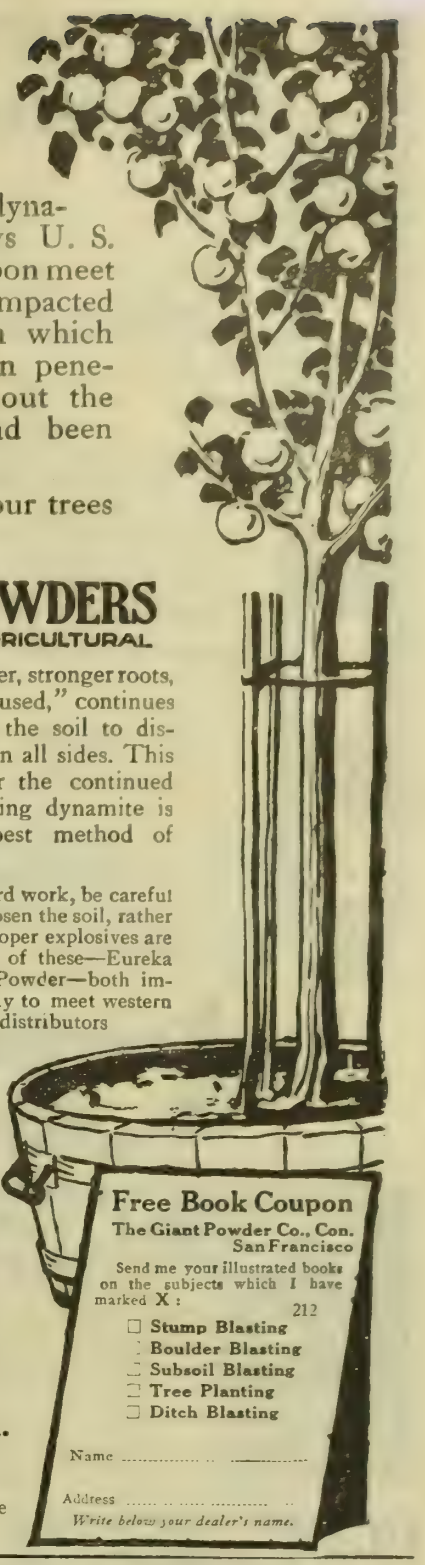
Extraordinary expenses connected with repair of the thing rented are chargeable against the owner, and if it is necessary for the person hiring the article to make such repairs he may compel reimbursement, provided, however, it was not damaged through his fault. The person hiring the article is therefore required to pay only the necessary expenses ordinarily incident to its use. Therefore, if the engine was not in good mechanical condition at the time it was rented to A, not only is A not liable for the replacement of the damaged pinion but it is probable that he could recover the amount paid by him in order to put the engine in proper working condition.

Sale of Bred Cow

Last spring I sold a cow to a neighbor—the words used at the time of the deal were—"I'll take the cow if you'll breed her for me." The price had been agreed on. The cow was bred twice to one bull and twice to two others, to no purpose. The neighbor claims I have failed in my word and that I should pay for returning to examine and put right, but I claim that if I pay him two dollars, the fee I charge for breeding, I am not liable legally for any other damage.—Subscriber.

If the contract is to be considered as one simply for service, you undoubtedly did all that you were required to do. If, however, which is probably the case, the agreement made at time of purchase was one of warranty, then the purchaser would doubtless have a right of action against you for the difference between the value of the cow as she is and that which she would be if capable of producing. In several cases where statements have been made such as the above it has been held that such statement constituted an implied warranty, and for breach thereof the purchaser can recover either the amount paid for the animal upon returning it, or the difference in value.

Would you plant your fruit trees in large tubs?



"Without the use of dynamite in tree-planting," says U. S. Bulletin No. 38, "the roots soon meet with the smooth and compacted sides of the hole, through which they have great difficulty in penetrating. The tree is in about the same situation as if it had been planted in a large tub."

But when you plant your trees in holes blasted with

GIANT FARM POWDERS
STUMPING — AGRICULTURAL

the trees will grow faster, develop deeper, stronger roots, and bear earlier. "When dynamite is used," continues the bulletin, "cracks are formed in the soil to distances of five or sometimes six feet on all sides. This makes the very best conditions for the continued growth of the tree. For tree planting dynamite is recommended confidently as the best method of preparing the soil."

In selecting explosives for your orchard work, be careful to get those that will crack, powder and loosen the soil, rather than pack it or throw it in the air. The proper explosives are the Giant Farm Powders. There are two of these—Eureka Stumping Powder and Giant Stumping Powder—both improved forms of dynamite, made especially to meet western agricultural conditions. They are sold by distributors everywhere. Ask your dealer for them.

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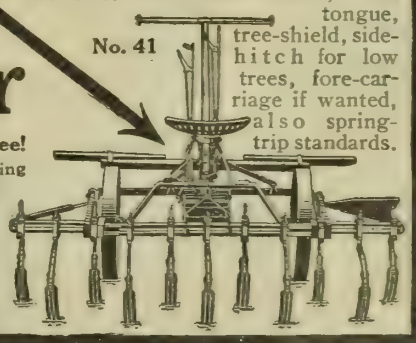

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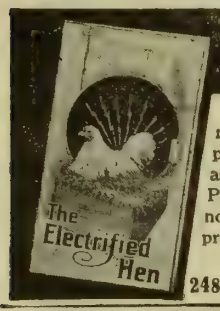

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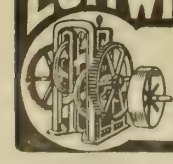

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The Green Feed Calendar

Written for California Cultivator by Jean A. Koethen

(Concluded from Last Week)

MR. J. M. Davison, president of the Arlington Poultry Association, is doing some very careful experimental work on the problem of forage plants in double runs. For each laying house holding 1000 hens he has two yards, each 80 feet by 330 feet. These yards are so arranged, one at the front and the other at the rear, that the hens go into the one by a door at the front and into the other by a door at the end, and there is practically no confusion when the yard is changed. Each of these yards, planted to barley, provides 1000 hens with forage for a month, but Mr. Davison has not as yet found anything but barley that will last so long. Barley is planted (not sown broadcast, but drilled in deep furrows) from October to May, and the hens are turned in on it when it is from two to three inches high. The hens begin near the house and eat clean as they go till the entire yard is cleaned. They are then turned back into the other yard where a fresh crop is growing, and this yard plowed and replanted.

What to grow during the warm summer months is the question Mr. Davison has not solved as yet, but he is trying to solve it with Sudan grass which is very drouth resisting and grows well in hot weather. He will plant his runs with this in May or June and hopes by free use of irrigation to keep them green till October.

For such a system of double runs as Mr. Davison's Professor Rice of the Cornell station recommends "oats and peas sown together very thinly with a liberal seeding of red clover and a very little rape. The oats and peas furnish a rapid growth of green food, some of which will get tramped down, and some will go to seed, but it will serve to protect the clover and rape." The combination of oats and peas and rape would do well for California, but I doubt if the clover would grow as rapidly as such a crop should. Cowpeas could well be alternated with barley during the spring months, or at least mixed with it.

Asked about the green crop as a cheapener of feed, Mr. Davison replied:

"I am very glad to give you any information I can, but I want to say in the beginning that for the poultryman who has a large flock and who wants to feed them in such a way that he will get a good enough egg production from them, I do not know of any cheap feed when all good grains are the price they are now, any more than I know of any cheap flour. It seems to me absolutely necessary that to get the best results we must feed a good quality of wheat or corn or oats or milo or barley or kafir or rye, and at the present time none of them are cheap, and it is a very unprofitable and expensive proposition to cut down on the quality of the feed just because it costs less money. It does not pay. Of course the green feed is one of the great helps, but that applies as well when grains are low as when they are high, and on a large scale I never figured so much on the green feed as a cheapener of the feed but rather as a stimulator of higher production. I know, of course, that any reasonable way of raising green feed makes it a cheaper feed than grain, and that fact, coupled with the fact that it adds much to the health of the flock, makes it one of the most important considerations in operating a chicken ranch."

Mr. Davison keeps 3000 hens and is making them pay, so I think we may accept his slogan, "Not cheaper feed, but more eggs", as adapted to all California. If we are getting 20 eggs where we got 18 before, we may snap our fingers at the high prices of feed. Green feed does stimulate egg production. It keeps the hens healthy and cuts out expensive epidemics and more expensive loss by death. Grown in the runs it keeps the soil sweet and the hens busy. If it is not the "secret" of getting eggs, it is the sine qua non of successful poultry husbandry.

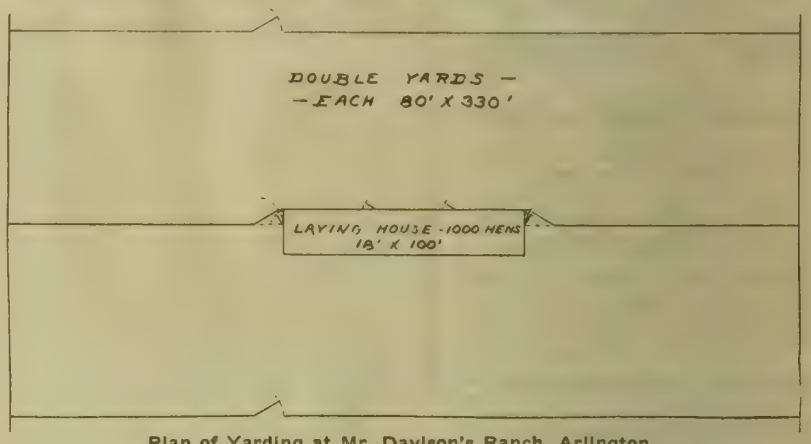
Calendar

A planting schedule for the different greens that may be planted through the year might be arranged as below, though any farmer will see ways of changing it:

September to January. — Barley, rape, mustard, cowpeas planted in runs; lettuce and turnips in gardens; kale and chard in boxes.

January to May.—Oats, barley, rye, mustard, rape and all suitable green crops in runs; kale transplanted into garden or runs; chard into garden. Last planting of lettuce for chicks in April.

May to September.—Sudan grass rape, possibly mustard in runs; continue transplanting kale and chard; make the most of alfalfa and sprouted oats. Oats and barley sprout well if soaked and buried in the ground and kept moist.



Plan of Yarding at Mr. Davison's Ranch, Arlington

In the dust bath—which must always be provided—should be mixed reliable louse powder, to keep hens free from vermin.

The proper way to feed oyster shell is to have a small box of it within reach, so the fowls may help themselves at will.

Wonderful Egg Producer

Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and make hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs" and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this year's production of eggs, so if you wish to try this great profit maker, write E. J. Reefer, poultry expert, 4261 Reefer Bldg., Kansas City, Mo., who will send you a season's supply of "More Eggs" Tonic for $1.00 (prepaid). So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied your dollar will be returned on request and the "More Eggs" costs you nothing. Send a dollar today or ask Mr. Reefer for his Free poultry book that tells the experience of a man who has made a fortune out of poultry.—Adv.

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Free 66 page Catalog. Hens, Cocks, Pigeons, Incubators, Brooders, etc. Write today to
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Letters to a Beginner

Written for California Cultivator By Jean A. Koethen

DEAR GEORGE:—If you are not satisfied with three months' hatching (and I suspect you will be heartily glad to stop with less) try getting out a few hundred chicks in September and October. September is a splendid month. The weather is so warm that you can use fireless brooders, and that is a considerable saving. You can put these fireless brooders right out in the pullet and cockerel coops in the orchard, and by the time they are old enough to range, unless the season is unusually dry, there will be green feed everywhere for them. I like to hatch in the fall, but it has its disadvantages. Fall pullets lay at an earlier age than spring pullets, but they lay smaller eggs, and these eggs, coming at the season of low prices, are not worth much till summer. Then your fall pullet is at her best, for when the spring pullets are beginning to drop their feathers she lays right on.

Renewing the flock by means of the yearly hatch is the most expensive part of poultry husbandry. There is so much loss all the way along, such a tremendous shrinkage between the breeding pen and the finished product, the laying pullet! Most poultrymen feel that they must raise each year half the number of hens they keep—that is, if you aim to keep 1000 layers, you must raise 500 pullets each year. This gives you a practically new flock every two years. When we learn, as we doubtless shall, to increase the longevity of our layers so that they shall be good for four years instead of two, the expense of hatching will be cut in two. Experiment station investigators are turning their thoughts to this very thing, and the latest bulletin of the Connecticut station put longevity, "the ability to live and produce a profitable number of eggs for three years or over," next to vigor and fecundity as a test for the selection of breeders. We all know that many hens do lay to a good old age. Careful selection will make these hens the mothers of the flock.

Some breeders think we shall go even farther than this and learn to pick out for our mothers the hens whose eggs produce pullets rather than cockerels. That there are such hens has been proven. Now, if we can just be patient and painstaking enough to find them, and make our hatch three-fourths or seven-eighths pullets, another problem will be solved. I don't doubt we shall do this very thing, if we really wish to do it, for Providence is very kind to folks that are in dead earnest.

Don't forget to order your day-old chicks in good time, and from a breeder who can show you the record their mothers have made, and be sure you get your own incubators in working order and running several days before you want to put in the eggs. Mary will see that your hatching eggs are keep in a cool place and turned every day. That is just the sort of puttering job women like.

Affectionately,

Aunt Jenny

EGG LAYING CONTEST

The American School of Poultry Husbandry of Leavenworth, Kansas, of which T. E. Quisenberry is president, is conducting an egg laying contest, The First American Egg Laying Contest. Thirty states are represented in contesting pens and 22 varieties of poultry. A Kansas White Leghorn pen won the cup for best November record, laying 87 eggs.

Summer Time on Richland Egg Ranch, Kings County

WORTH WHILE SUGGESTIONS

Don't think that there is too much science in the modern method of breeding, feeding and rearing chicks and chickens. Too much science misapplied is worse than no science, or anything haphazard. Intelligently directed effort always brings results.

Ever turn over the soil in the henyard? Try it and watch the improvement this winter and next year in the better conditions surrounding the flock. The results will pleasantly surprise you. Lime always goes on the soil first, before turning it over.

Build a few trapnests out of old boxes and get a line on a few good layers this fall and winter.

Sour milk will prevent a whole lot of trouble if fed to the youngsters.

Lawn clippings, where it is possible to get them, will furnish a fine feed.

Aristocracy from the Panama-California Exposition

These hens, property of C. H. Hosford, made the highest score at the Panama-California Exposition during 1915.

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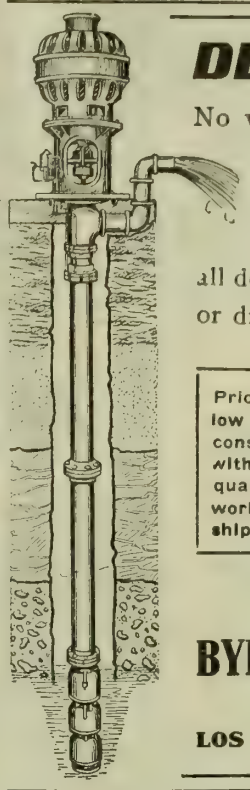

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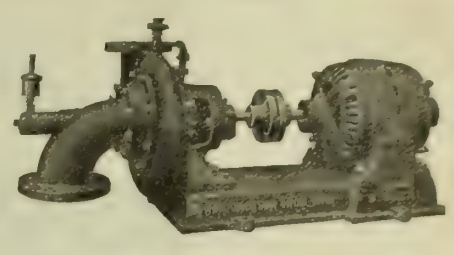

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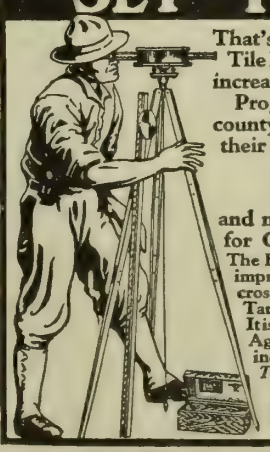

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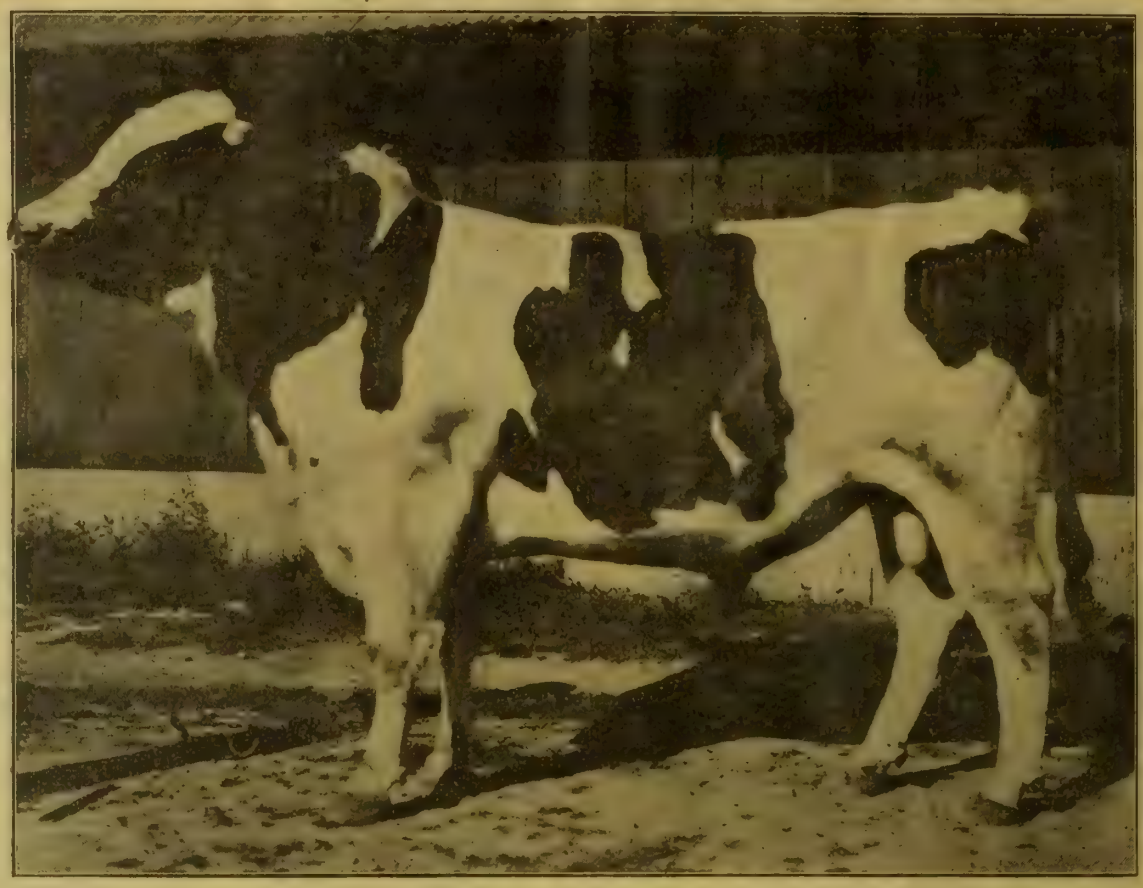
KING SEGIS PONTIAC JANNEK

A Sire With a Royal Pedigree



H. B. No. 161758

Born September 20, 1914

His sire is the great sire and show bull King Segis Pontiac whose dam, Pontiac Clothilde De Kol 2d not only made world's records for seven, thirty and 365 days but was the first cow in the world to make over 30 pounds of butter in seven days at three successive freshenings.

The dam is a show cow as well as a great producer. Calving early in January she won second prize in the aged cow class the following September at the New York State Fair, defeating a long string of cows fresh and ready to freshen. She milked 100 pounds of milk in a day in official work.

One brother to this bull is sire of a 40-pound cow, another is the only sire to have two 28-pound junior two-year-olds.

KING SEGIS PONTIAC 44444
58 A. R. O. daughters—
K S P Ruby 31.07
Butter, 30 days 121.74
K S P Dione, 6½ yr..... 29.15
Butter, 30 days 115.27
Butter, 365 days, 4½ yr....724.52
Empress Pon. Heng. 3½ yr. 28.17
K S P Jewel, 4½ yr..... 26.28
Butter, 30 days 101.70
14 others above 20 lb.
Grandsire of—
Susie Segis De Kol, 4½ yr. 30.70
Full brother to the sire of—
Mabel Segis Korndyke, 4 yr. 40.32
Butter, 30 days 165.22
(World's records in class)
King Segis De Kol Korn. Topsy
Butter, 7 days, 4½ yr.....33.10
2 others above 30 lb.

JANNEK ALBINA DE KOL 3D 69108
Butter, 7 days, 4½ yr.... 29.71
Milk 605.30
Butter, 30 days 116.50
Milk 2578.10
Dam of—
Brookside Jannek De Kol, 27m 17.26
Granddam of—
Albina Josie 40.12
(Record not yet reported)
Butter, 7 days, 4 yr..... 33.03
Three-fourths sister to—
Winna De Kol Korndyke.. 31.22
Butter, 30 days 122.52
From a sister to the dam of—
Winana Pietertje De Kol 2d 31.12
Butter, 30 days 124.75

KING SEGIS 36168
87 A. R. O. daughters—
Queen Segis Lilith..... 35.07
Hilldale Segis 33.17
Segis Beets Girl..... 32.60
Butter, 30 days 132.30
Belle Segis, 4½ yr. 31.87
5 others above 30 lb.
50 others above 20 lbs.
29 granddaughters above 30 lb.

PONTIAC CLOTHILDE DE KOL 2D 69991
Butter, 7 days 37.21
Butter, 30 days 145.29
Butter, 365 days 1271.60
(World's relord when made.)
Milk, 7 days 646.10
Milk, 30 days 2588.40
Dam of Queen Segis of Brookside 24.49
Five granddaughters above 30 pounds.

KORNDYKE QUEEN DE KOL'S PRINCE 26025
67 A. R. O. daughters—
Leda Inka Alcartra Forbes 2d
Butter, 7 days 35.42
Diotime Clyde Korndyke.. 31.91
Winana De Kol Korndyke 31.22
Lunde Korndyke 30.82
Butter, 30 days 124.02
Butter, 365 days 1090.91
37 others above 20 lb.

JANNEK ALBINA DE KOL 50851
Butter 22.04
Milk 436.80
4 A. R. O. daughters—
Jannek Albina De Kol 3d, 4½ yr. 29.71
Butter, 30 days 116.50
Jannek Albina De Kol 4th, 4½ yr..... 23.65
Brookside Albina Cornucopia
Butter, 7 days, 3½ yr..... 20.02

My herd of registered Holstein-Friesians has been assembled during the last six months and as rapidly as the females freshen they will be put on official test. Many of the cows already have A. R. O. records.

In addition to the great young sire whose pedigree appears on this page I have an interest in King Paul Korndyke Vale, a son of King Korndyke Sadie Vale, a bull calf purchased at the Rhoades dispersal last September. When old enough for service this youngster should get some sensational heifers as his two nearest dams average 36.24 pounds butter in seven days. I will use King Paul on some of my females.

Bull calves out of officially tested cows offered for sale from time to time. Prices submitted on request.

You are invited to visit the Jeffries Ranch

Ted Cameron
Herdsman

JAMES J. JEFFRIES, Owner

Burbank, California

Ranch ten minutes from Burbank

CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES January 27, 1917 SAN FRANCISCO

California Dates

Tractor Attachment for Ford Cars

We secured our factory November 1 last. We made our first deliveries in December and now, in January, in less than sixty days after we commenced the manufacture of our Tractor Attachment for Ford cars, we are obliged to treble the capacity of the plant. That tells its own story. Every Tractor Attachment that goes out brings new orders. There has not been a single criticism or objection. Every buyer so far is a pleased customer, and the tractor is doing more than we claimed for it. It is built on honor, is pronounced by mechanical experts to be a splendid piece of mechanism, and seems destined, through its very low cost, wonderful power, and complete adaptability to every class of farm work, to mark a new period in the development of the farm.

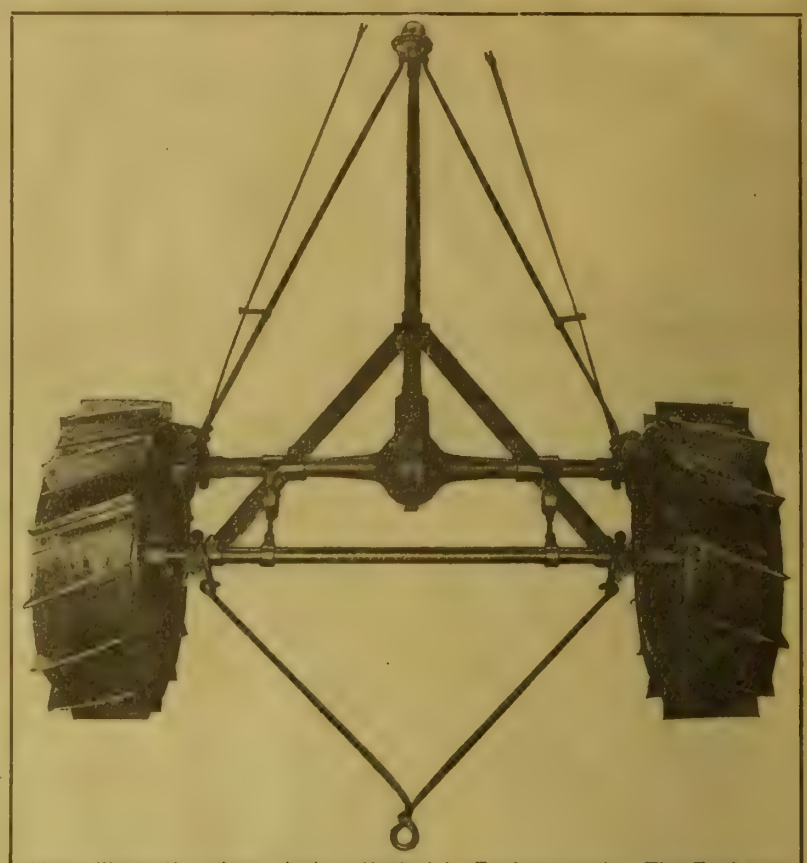
Tractor wheels are 30 inches high with 10-inch face and grousers set diagonally.

We have been granted basic patents by the U. S. Patent Bureau. Imitators will doubtless spring up, but if you purchase one of the imitations you will be buying an injunction as well as a tractor.

The secret of the power is in the gear reduction. By a 30 to 1 reduction on the tractor the speed of the car is transformed into power. In other words the gasoline that will propel your car twenty miles an hour on the road, will give through our attachment a speed of from two and a quarter to three miles an hour. In low gear the power is almost unlimited; in fact, so much power is developed that all general farm work is done in high gear.

When it is desirable to use the Tractor in hauling heavily loaded wagons to market, the grousers can be detached or bands (which we supply) can be readily slipped over the rear wheels and locked, giving a wide, smooth tread, permitting the Tractor's use on any improved roadway.

It will haul an ordinary four-horse load on the highway at a speed of five miles per hour.



Above illustration shows device attached to Ford rear axle. The Ford rear axle with propeller shaft housing and universal joint is easily recognized. Camps are clearly shown, also dead axle for traction wheels.

Farm Tractor to Touring Car in 20 minutes

In addition to its low cost, one very great advantage is the speed with which the Tractor can be attached and detached and the Ford transformed from a touring car into a valuable farm tractor, or the tractor back into a touring car.

The Tractor wheels are mounted on a dead axle, which is attached to the rear axle of the car, and by means of split brackets to the drive shaft housing. This gives a three-point suspension as a means of support to the car.

To attach the tractor, remove the rear wheels of the Ford and replace with spur gears which drive the tractor wheels. Both sides of the tractor wheels are equipped with dust proof collars.

The adjustment takes about 20 minutes, the average time of harnessing a team. In fact, the change has been made at our factory in seven minutes.

For sharp turns, such as in orchards, etc., it is only necessary to remove one of the brake bands; the other wheel acts as a pivot.

The Saving

According to Federal statistics a horse averages 100 working days a year. But the horse has to be fed and cared for 365 days in a year. Our Tractor Attachment demands neither expense nor care when not in use, and in twenty minutes' time the Tractor can be changed back into a pleasure car. Just do a little figuring on your investment in two or three horses and their care. Why not sell the horses while there is a good market for them? Your tractor will pay for itself in a few months in the saving on feed.

Reserve Power—We have frequently done the work of six horses, and so much power is developed through gear reduction that there was not any evidence of heated bearings or strain on the car. But we do not recommend such heavy work as a steady practice. You can depend upon the Tractor doing the work of from two to four horses day after day, with plenty of reserve power for emergencies.

Guarantee—The Tractor Attachment is sold under a 60-day guarantee to replace any parts defective in workmanship or material, and under an absolute guarantee to do everything we claim for it. It will work in sand or mud in which a heavy tractor would be helpless.

Agencies—We give the choice of two agency propositions:

1. Exclusive county control for 90 days upon the purchase of a Tractor Attachment at the list price and the payment of fifteen $10 deposits for the sale of fifteen Tractor Attachments within three months after the receipt of the attachment. If selling ability is shown the agency will be continued indefinitely.

2. A commission on sales in open territory upon the purchase of a Tractor Attachment at the list price, and without cash deposits. The commission will not be as large as under proposition No. 1 and territory is subject to sale.

Write for our terms to agents. Liberal commissions.

Hauling a spike-toothed harrow.

Price

The price of Tractor Attachment is $150 f.o.b. Los Angeles. We have secured special freight rates. If you wish an early delivery send check for $10.00, balance to be paid by draft attached to bill of lading.

If you wish further and detailed information, address the

MORE THAN SATISFIED

Woodland, Cal., Dec. 28, 1916.
Los Angeles Auto Tractor Co.,
Los Angeles, Cal.

Dear Sir—I received the attachment all in good shape. Got one and a half day's work before rains. Am more than satisfied with same.

What is the cost of the ring gear on tractor wheel? Yours truly,
R. E. FISHER.
58 Second Street.

WIRES DUPLICATE ORDER

Oakland, Cal., Jan. 12, 1917.
Harlan W. Brush, 428 American Bank Bldg., Los Angeles, Cal.

Ship tractor attachment and bands to Stockton. Draw on Stockton Savings and Loan Society Bank, Stockton. Letter following. **Tractor all right.**
ED. WALKER.

LESS THAN SIX CENTS AN HOUR

Pomona, Cal., Jan. 17, 1917.
Mr. Harlan W. Brush, Pres.,
Los Angeles Auto Tractor Co.

Dear Sir—Our tractor attachment for Ford Car is giving good satisfaction. Using same for orchard work on seventy acres and expect to be able to do the work on this acreage. Burning 10½c distillate and find we use about one-half gallon per hour. The usual 10-hour job—cultivating 10 acres one way—we do in not more than six hours, with positively no perceptible damage to car. Our car is an old one picked up cheap but overhauled and engine put in good shape. Have not as yet given it hard test pulling on road, but feel that it will do the work in a satisfactory manner. The thing that appeals to me is that when not in use it does not eat. Have auxiliary water tank on car and find cooling system keeps engine cool under all conditions.

Yours very truly,
T. B. EREDENDALL.

LINDSAY SURPRISED

(From Fresno Morning Republican)

Lindsay, Jan. 15.—An orchardist living on the west side created no little amount of interest on the streets here today when he passed through hauling his fruit to the packing houses by means of automobile power. To his car he had attached tractor wheels, which was hauling a wagon containing 123 boxes, or six and a quarter tons of fruit. The attachment, which was made in Los Angeles, can be adjusted in thirty minutes, and with it the car performs the work of four horses. The orchardist stated that he brought his fruit seven miles over muddy roads without difficulty. Returning home he removed the tractor wheels and came back to town in his automobile as usual.

Los Angeles Auto Tractor Company

52nd Street and Santa Fe Avenue **Los Angeles, California**

California Cultivator

Vol. XLVIII No. 4 . LOS ANGELES: January 27, 1917 One Dollar Yearly

Swine Breeders in Convention

State Convention Meets in Los Angeles and Holds Most Important Session of its History. Packing House Managers Participate and Agree to Establish Grades and Prices According to Quality

By F. F. Stonerod

WITH the largest and most enthusiastic gathering of swine breeders in the history of the organization, the annual meeting was held in Blanchard Hall, Los Angeles, January 18 and 19. This was the first time the breeders ever convened in Southern California, but it is safe to say it will not be the last time if the many remarks heard at the convention are a criterion.

This was a convention worth while indeed. Attendance exceeded all expectations, enthusiasm ran high, cooperation between packer and producer was of the closest, and it was the unanimous opinion of all that this convention accomplished more real good in the two-day session than all previous conventions combined.

Problems of most vital interest to the producer were discussed, but the climax of the meeting came when J. L. Thatcher arose in session and asked President Cunningham if a committee of three producers and three packers could not be appointed to discuss ways and means whereby the marketing problem in California today might be solved. "If the packer will give the shipper who sends a prime hog to market a price based on a per cent dress basis we are willing and ready to have the packer cut the price of the unfinished hogs. In other words, if the packer will pay at the rate of ten cents per hundredweight for every one per cent an animal will dress out over 77 per cent, we want him to deduct the same ratio for every one per cent the animal dresses out under 77 per cent. The entire trend of the convention previous to Mr. Thatcher's motion was toward the market problem.

Of course this matter will not be entirely settled until the two committees reach an agreement as to the dress per cent basis that will be adhered to by the packers. The question of how the shipper will know the exact dressed weight of his animals after they are slaughtered, and several other minor questions, will have to be solved before they will be published. But these are only incidentals that will be easily and quickly adjusted.

The convention opened at 10 o'clock Thursday morning. Mayor Woodman of Los Angeles was down on the program to deliver the address of welcome but being unable to be present his secretary welcomed the breeders to the city.

Mr. McWilliams was followed by President Cunningham, who called the meeting to order after a few short and pointed remarks about the association and the importance of the swine growing industry to the state. Secretary Thompson then read the minutes of the last meeting and afterward announced the next meeting for May 28 to June 1 at Davis during farmers' week when several other livestock conventions will be in session.

L. L. Lamson of the firm of Peters, Lamson and Walker then read his interesting paper on "Feeding and Growing Market Hogs." Mr. Lamson was loudly applauded when he said, "The herd boar is one-half the herd the first generation, three-fourths the herd the second generation, seven-eighths the third generation, etc. ad infinitum." He mentioned that three lots of market hogs had been fed different rations with varied results on the company's farm. One lot cost $10 per hundredweight gain, lot two cost $6.88 and lot three cost $6.76. The hogs fed ground milo, sour milk, tankage and pasture made the largest and cheapest gains.

William Bernstein, the noted breeder from Hanford, talked on "The Breeding Herd and the Purebred Business." Mr. Bernstein is widely known as a breeder and exhibitor. In his remarks he said that when a breeder sells inferior boars to go into a grade herd, he made a big mistake and if breeders did not use more care in this respect the harm done would be irreparable.

Secretary Thompson next read a paper written by Joe Biddle of Hanford, who could not be present. Mr. Biddle laid stress on the fact that farmers did not trim or spay their hogs enough with the result that too many piggy sows and boars were sent to market which helped to keep the average price low.

Someone in the audience brought up the question of crossing two different breeds for market purposes. He said that he had gotten fine results from crossing. He was answered by another gentleman who advised that the first cross only of purebreds got good results, that if caried any farther crossing was a dangerous practice. Uncle Jim McCord of Hanford then arose and said: "I find that by crossing Chester Whites on Duroc-Jerseys, Duroc-Jerseys on Berkshires, Bershires on Hampshires, Hampshires on Poland-Chinas, etc., that I get a great variety." His remarks were the cause of much good-natured banter.

One of the feeding questions discussed was the feeding of alfalfa either cut or ground. Professor Thompson said that the feeding of too much alfalfa was a common mistake. "The son, "has a tendency to grow round instead of evenly, potbellied in other overfed alfalfa hog," said Mr. Thompwords.

University experiments showed that a ration of alfalfa meal with grain made better and cheaper gains than chopped or cut hay or whole hay and grain. Brood sows require a different ratio of this ration than market hogs.

D. O. Lively of San Francisco then moved that the convention adopt the feeding methods and rations as practiced at Davis during the recent experiment where such cheap and rapid gains were made on ground milo, tankage, alfalfa, etc. Mr. Lively said there should be some method of getting such valuable data in the hands of the farmer as soon as experiments were completed. His motion was adopted.

A Tehachapi grower asked the breeders the remedy for a sow eating her pigs and was answered by A. J. Lovejoy in one sentence. "Feed less grain and more protein." Mr. Thompson then introduced Mr. Lovejoy to the assembly. To many he needed no introduction for "Andy," as he is af-

Continued on Page 104

Is Fumigation to be Simplified?

Hydrocyanic Acid in Liquid Form Which Will Permit of Dispensing with Acid and Cyanide May be a Possibility. More Uniform Results with Less Injury to Tents

IN recent months some interest has been awakened among California scientists, growers and fumigators as to the possibility of using liquid HCN for fumigation, believing that thereby the process of fumigation might be still more simplified than has been the case through the cyanofumer, which was a great step forward in the art of fumigation. We have taken up this matter with the leading manufacturers and dealers of sodium cyanide and are informed that it is a well known fact that HCN liquifies at a temperature below 26.5 degrees Centigrade, and that furthermore, the use of liquid HCN for fumigation of citrus trees and other plants as well as buildings, stored products, etc., has been suggested some time ago before the matter came up in California. We are enabled to reprint below an article by, the South African entomologist, Chas. William Mally, in the South African Journal of Science of October, 1915, entitled "Anhydrous Liquid Hydrocyanic Acid for Fumigation Purposes," which shows that this question was studied in South Africa over a year ago.

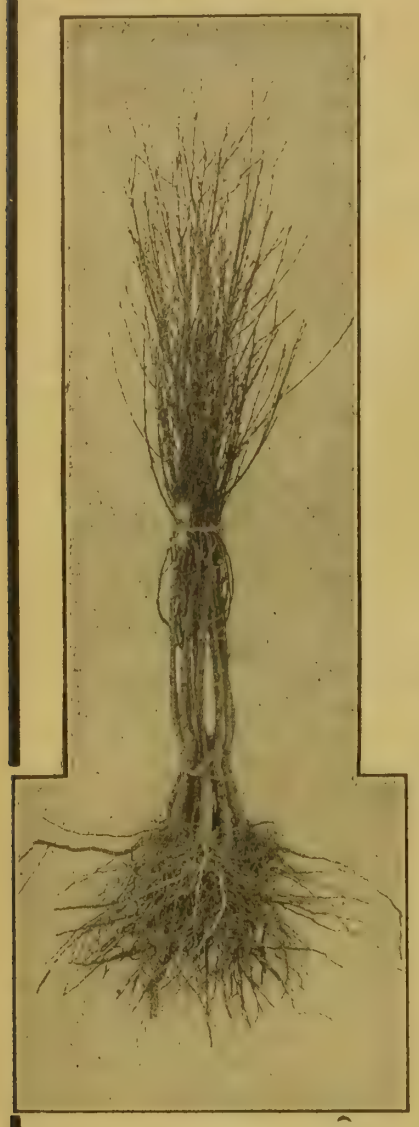
While it may seem that the use of HCN in liquid form has certain advantages over the present fumigation methods, it must be remembered that before its practical value for growers and fumigators can be established, a thorough investigation must be undertaken by those who are familiar with the subject, and we believe that such an investigation has been started by the proper authorities and that in due time the results of the necessary experiments will be given to the public.

"For the destruction of insect pests on fruit trees by means of hydrocyanic acid gas the usual practice is to generate the gas by the action of dilute sulphuric acid on potassium or sodium cyanide, either dry or in solution. Either method leaves much to be desired, for it not only takes time and care in preparing the chemicals, but there is also the danger of burning the tents by acid coming in direct contact with them through handling them; or the absorption of fumes or vapors driven off during the generation of the gas may result in the familiar "rotting" of the canvas. The above factors are of special importance in connection with vineyard fumigation for the destruction of the mealy bug, Pseudococcus Capensis Brain, because the vines, whether trellised or "bush" must be covered with long, narrow sheets of gas-proof canvas, almost the whole of which is in close proximity to the freshly-generated gas by whatever means it is produced. The space enclosed is very small, and hence only a small amount of gas is required. On account of the shape of the tent, the gas should be liberated at several points to secure a quick and uniform distribution. This means a number of small generators or points of introduction from an external generator. In military work the trouble with acid and cyanide and generators increases the amount of strict supervision necessary and the time required to do this work. On going into the matter of possible ways of improving on present methods, I decided to try to make use of the fact that the gas readily condenses on being subjected to a low temperature, and produces the anhydrous liquid hydrocyanic acid. The matter was discussed with the government analyst, Dr. C. F. Juritz, and later on, with the assistance of Mr. W. W. Brighton-Manning, in arranging the details of a small experimental apparatus, a small quantity of the liquid acid was produced at the entomological experiment station, Rosebank, Cape Province.

"The liquid acid proved to be much easier to work with than was antici-

TREES

Established 1888



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We grow annually more than two million plants of these varieties.

Your order solicited.

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Buy the best trees obtainable and thereby guarantee your investment.

160 ACRE FARMS IN WESTERN CANADA FREE

Canadian Farmers Profit From Wheat

The war's devastation of European crops has caused an unusual demand for grain from the American Continent. The people of the world must be fed and wheat near $2 a bushel offers great profits to the farmer. Canada's invitation is therefore especially attractive. She wants settlers to make money and happy, prosperous homes for themselves by helping her raise immense wheat crops.

You can get a Homestead of 160 acres FREE and other lands at remarkably low prices. During many years Canadian wheat fields have averaged 20 bushels to the acre—many yields as high as 45 bushels to acre. Wonderful crops also of **Oats, Barley and Flax.**

Mixed farming as profitable an industry as grain raising. The excellent grasses full of nutrition are the only food required for beef or dairy purposes. Good schools, churches, markets convenient, climate excellent.

Military service is not compulsory in Canada, but there is an extra demand for farm labor to replace the many young men who have volunteered for the war. The Government is urging farmers to put extra acreage into grain. Write for literature and particulars as to reduced railway rates to Supt. of Immigration, Ottawa, Canada, or

Gilbert Roche Canadian Government Exhibit,
San Diego, Cal. Canadian Gov't Agt.

pated. On testing it with different insects, I came to the conclusion that the gas arising from the liquid diffuses more quickly and is more violent in its action than that from an ordinary generator. This is probably due to the absence of moisture or other impurities which may, in the case of generator gas, have a retarding effect. If this holds in practical work it is an important item for it involves a smaller amount of gas or else a shorter exposure.

"Portions of ordinary silk ribbon, muslin, and boat-sail drilling saturated with acid showed no ill effects after a fortnight. This also is of considerable practical importance for it indicates that the "rotting" of fumigation tents under present methods is due to impurities from the ordinary generator. Whether there is a corresponding reduction in the injury to plants has not been determined.

"The dangerous nature of the acid must not be overlooked, although on the whole, with equal care in giving instructions as to its use, I consider that it is no more dangerous than bisulphide of carbon.

"Under normal conditions, it may be possible for manufacturing chemists to produce the anhydrous liquid acid economically, possibly from low-grade materials that are not suitable for fumigation under present methods, and ship it as a commercial article in place of the cyanide and acid. In such case it will simplify practical work because the acid which vaporizes very quickly on exposure to the air, can be injected through suitable openings in the tent or other enclosed space and thus do away with disagreeable and cumbersome generators and the accompanying by-products. The practical results should be more reliable than by present methods.

"A larger apparatus is being arranged with a view to producing a sufficient quantity for field tests."

Requirements and Methods of Growing Oranges

Written for California Cultivator By E. L. Koethen

IN your October 21 issue you reprint an article compiled by Prof. R. L. Adams, titled as above, in which some statements are made which I do not think ought to go unchallenged.

"Olimatic requirements. Freedom from Frost." Does the author know of any of the best producing orchards that are really free from danger of frost? It is an accepted fact that our California oranges owe their peculiar sprightliness to the fact that they are exposed to low temperatures at times, yet not low enough to injure the cells. This makes for the difference between our fruit and that grown in tropical countries where the citrus fruit is dead sweet and lacking in aroma and acidity.

"Soil Requirements. Subsoil open, no hardpan." "Six feet deep." We would not contend that hardpan was a desirable condition for citrus culture. But we do say that it is not an insurmountable difficulty. In fact one of the best lemon groves in California is located on soil six to eight inches to hardpan all over the grove, and yet it bears with proper care from ten to 18 loose boxes of fruit per tree per year. The "hog wallow" land up in some of the interior countries in the northern citrus belt all has to be shot before planting, and yet trees 15 years old are still bearing bountiful crops. Such soil does require especial care though, and it is desirable to avoid the hardpan if possible. It must be borne in mind that the majority of the feeding roots of citrus trees are located within 18 inches of the surface, and that the character of the subsoil in regard to porosity is more important than the more retentive hardpan. When asked why he did not blast the lemon grove mentioned above the owner replied he was afraid to do it as below the hardpan is quicksand, and he does not wish to "drop the bottom out of his grove."

Under the head of pruning. "Pruned in fall to open tree and sometimes in spring to remove suckers (June)." This might be good advice in the frostless region mentioned by the author, but in Southern California at least it would be very bad practice. Oranges need all the foliage on the trees during the fall and winter. It is then that we have the high winds and exposure to dangerous frosts. To remove in the fall is like removing the clothes from a man who has kept himself clothed during the warm summer months, just when exposure is greatest. All real pruning is best done during the months just preceding the blooming season. As to the suckers they may be removed at any season. The sooner after they have started to grow the better, if they are so located as to need removal. The point is for the operator to determine what should be treated as sucker and what is needed to form part of the framework of the tree.

Finally in treating fertilizing. "Manure and chemical fertilizers used, the practice varying. Cover crop of rye, vetch, bitter clover or alfalfa planted in August or September, irrigated every two weeks, and plowed under in February or March." We are fortunately learning to avoid chemicals in fertilizing. Organic matter is taking the place of all forms of chemicals. This is being emphasized by the experiments made at the Riverside experiment station. Growers are fast learning that this is the right practice. As to using alfalfa as a cover crop planted in August or September for spring plowing, it is not possible. The growth made by newly sown alfalfa at this season is too small to count. Some experiments have been made to allow the alfalfa to grow in the orchard a year or more, but so far it has not given results that lead to any general adoption of the method.

* * *

We think perhaps there is one state-

Founded in 1889 by R. M. Teague

The R. M. TEAGUE CITRUS NURSERIES

Successors to

The San Dimas Citrus Nurseries

Teague Trees are Quality Productive Trees

Because properly grown and budded from selected trees producing abundantly only quality fruit. In addition we give quality service in the way of digging, packing and delivery that insure success to the planter. Correspondence and inspection invited; our treatise on "Citrus Culture" and annual Price List sent on application.

R. M. TEAGUE, Manager

San Dimas, California

ment made by Mr. Koethen which also should not pass unchallenged. He says: "We are fortunately learning to avoid chemicals in fertilizing. Organic material is taking the place of all forms of chemicals."

Perhaps Mr. Koethen does not mean to be as exclusive in his treatment of chemicals as his language sounds. We believe that some of the best fertilizing which can be done on some soils in some localities is secured by the use of chemicals to aid in growing green manures to fertilize the land. There are conditions where soils are exceedingly poor and where organic fertilizers are impossible to secure where highly concentrated chemical fertilizers afford a foundation. Plainly we must have organic matter added to the soil, but if chemicals will aid in the securing of organic fertilizers, let us encourage their greater use.—Edit.

Gum Disease on Lemon Trees

Written for California Cultivator By C. S. Wilkins

Lemon trees are more susceptible to gum disease than are orange trees. Florida sour stock is almost immune. Lemon and orange trees when budded on Florida sour stock show gum disease more when the bud is planted below the surface than when planted two or more inches above the ground.

Select trees for new orchards which have the buds eight or more inches above the roots and plant so that when the tree settles the bud will still be above the ground. It is important to have the buds high enough, making allowance for filling in of soil which will be carried from hillsides by storm or irrigation water. Trees to be planted on such ground should be budded on two or three-year-old sour stock, making it possible to have the buds high enough for this filling in of the soil around the trees.

As I go from orchard to orchard I notice that about 20 per cent of the lemon trees are affected with gum disease when the buds are two or more inches above the ground and about 80 per cent of the trees are affected when the buds are below the surface.

Planting Trees

FROM a bulletin issued by F. K. Howard, horticultural commissioner of Kings County, we quote the following directions for successful planting:

Planting Suggestions

"The roots of every tree should be examined before planting. All large root ends should have a fresh clean cut with a sharp knife or shears. Make a slanting cut with the cut surface on the underside of the root. Where a root is mangled or bruised, it should in most cases be cut back to a sound place. The wound made by the cutting away of the seedling stock should be on the north or northeast, in order that this weak point may be shaded as much as possible from the afternoon sun.

"If the roots of young trees grow more to one side than the other place the strongest roots toward the prevailing wind. The use of water to settle the earth around the roots is sometimes desirable in sections where rainfall is light or uncertain Pour in four or five gallons from the water wagon after the hand work in spreading roots and pressing the soil around them has been done and the hole partly filled. When the water has soaked away fill the hole with fine earth without tramping. In irrigated districts leading the water along the line of trees in a furrow to settle the ground at planting is a good practice.

Use of Manure

"Never put manure in the hole with the tree. Sometimes the injunction is, "Never put anything but well rotted manure in the hole." It is better to put in none of any kind. Manure should be spread upon the ground after planting. The rains then leach it out and it may be turned under in the spring plowing.

Depth of Planting

"The depth to which trees should be set has always been a matter of discord among planters. The safest rule under ordinary circumstances is to get the tree as nearly as possible the same depth as it stood in the nursery row. That is so as to have it stand that way after the ground has settled, or the surface returned by cultivation to its normal level. In planting in loose soil in the drier parts of the state, it is often desirable to plant rather low, because several inches depth of surface soil become dry and the roots should be well in the moist layer.

Guarding Against Sunburn

"Newly set trees should be protected against sunburn. This can easily be done by winding strips of burlap from old grain sacks spirally around the stems, beginning just below the ground surface to the points where the young shoots will appear. When these start these can be loosened and rewound so as to protect the bark between the shoots. The top can be fastened with a stitch or two with a twine needle. Manufactured tree protectors of paper or rushes which are readily adjusted around the tree, are now largely sold. Whitewash is a good protection from sunburn. For young trees however it should be made with airslaked lime which has lost some of its causticity. Another whitewash which has been largely used for young trees, consists of four ounces of whale oil soap dissolved in each gallon of water, Spanish whiting being stirred in to give the solution a paint like consistency. Millions of trees have perished in this state and as many more been condemned to sickly lives, because of sunburn and borers which seek the injured bark for entrance."

Work has begun on the big packing house of the Placentia Orange Association at Fullerton.

Budded Avocado Trees

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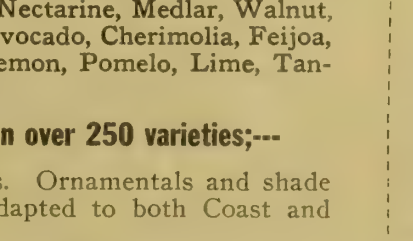

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1917

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LONG RED MANGEL—
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Pear Scab

Pear Scab

It will soon be time to spray for prevention of scabby pears. We quote from "Practical Suggestions" by Ralph E. Smith, which has been issued by the agricultural experiment station in Circular No. 157. Prof. Smith says:

"Plow under dead leaves as thoroughly as possible.

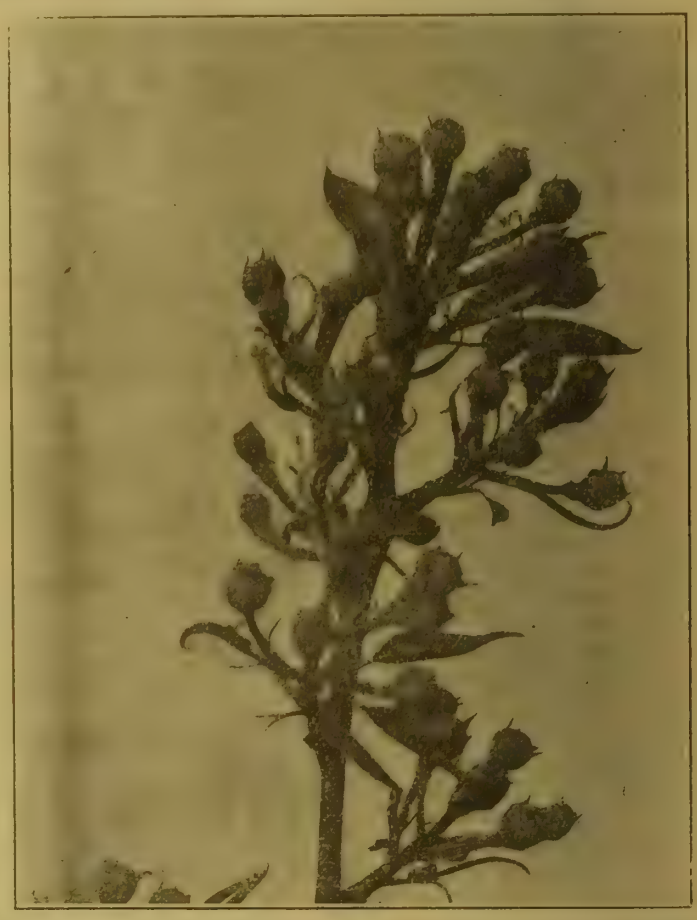


Fig 4. Blossom Buds Well Out. Second Spraying Should Be Finished

Fig. 3. Blossom Buds Appearing

"Spray with Bordeaux mixture twice while the buds are unfolding, first when the leaf buds are just opening, second, a week or ten days later, just before the individual blossoms open.

"The first spraying is the more important, but both should be given.

"In large orchards begin spraying when the buds are only slightly open, so that if delays occur the trees will get at least one good spraying before it is too late. Spraying before the first stage or after the last will do little or no good in scab control, especially with Bartletts.

"As an extra precaution make a third scab spraying by mixing the first lead arsenate codling moth spray with Bordeaux mixture instead of plain water.

"Spray with good equipment and high pressure and cover the trees thoroughly, especially the twigs and buds.

Directions for Making Bordeaux Mixture

"Bluestone, 20 pounds; quicklime, 25 pounds; water, 200 gallons. Dissolve the bluestone and slake the lime in separate vessels. Strain the bluestone into the spray tank and fill it half full or more with water. Strain in the lime mixed with the rest of the water. Always have the materials well diluted before mixing them together.

"If a third spraying of lead arsenate combined with Bordeaux mixture be made the amounts of bluestone and lime may be reduced to 15 and 20 pounds respectively."

NURSERYMEN'S CLEARANCE HOUSE

ONE of the perplexities of the nurseryman at the close of the planting season is the disposal of surplus stock—usually the disposal is by way of the brush fire—also the lack of sorts in filling his orders. At the last California Nurserymen's Convention President Armstrong touched upon this point as follows:

"It goes without saying that more or less stock reaches the brush pile because the trade is often not aware of its existence. It has often occurred to me that the association might issue a list of all available stock, together with name and address where to be secured. In this way all of us would know of available supplies when in need of some particular line. As it is, I may send to the fire a lot of good stuff that Richard Roe may be sadly in need of.

"In a cursory review these are but a few of the salient features that should command the careful deliberation of the convention. Many others will suggest themselves to all of us with more or less force. But the main thing is to better commercial conditions by a broader fellowship and a cooperative spirit that will do away with sectional feeling and jealousy; for if one prospers the other fellow is also doing better. Standardize values as much as possible; deal liberally with each other; establish stable credits; become leaders and not followers in horticultural development; lend the helping hand to the intending planter as well as to your competitor; briefly, render the service that serves, and my word for it, the nurseryman's outlook will be brighter instead of darker, and optimistic opinion for the future will put pessimism on the run."

Owing to serious illness of Mr. C. A. Tonneson, secretary of the Pacific Coast Association of Nurserymen, the report of the 14th annual meeting held in June has not been brought from the press until recently. This meeting was held at Medford and the many interesting addresses made at the convention are included within the report. It is sent to all members of the association.

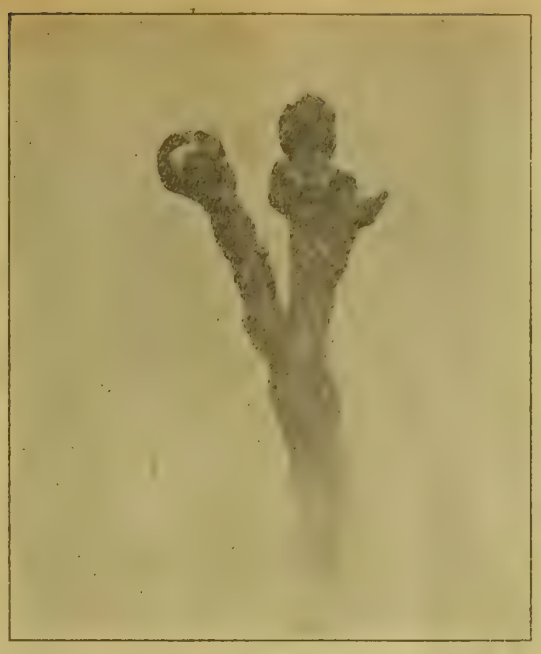


Fig. 1. Too Early to Spray. Buds Just Opening

Fig. 2. Further Development of Buds

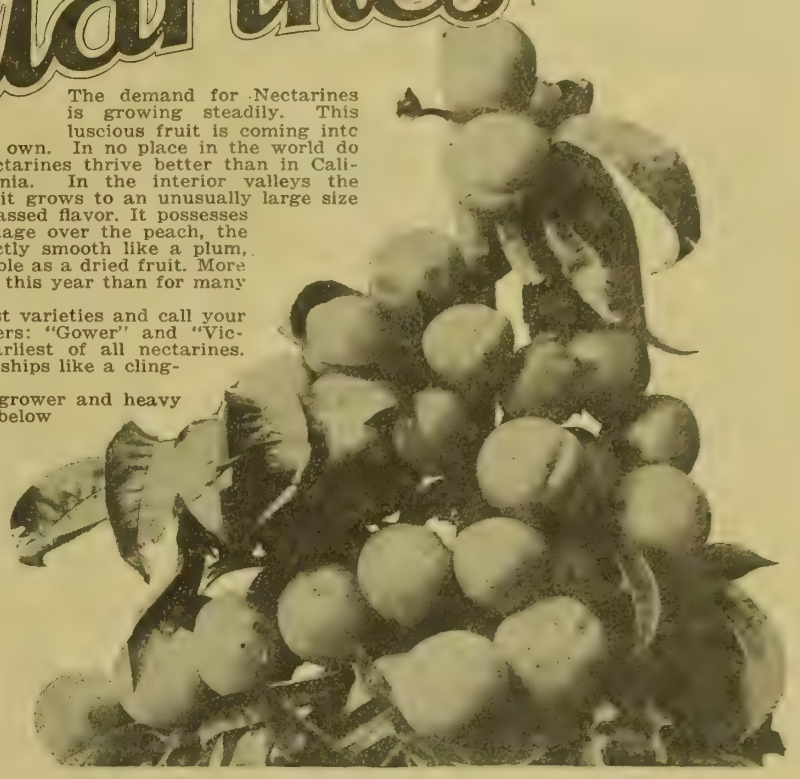
Plant Nectarines

The demand for Nectarines is growing steadily. This luscious fruit is coming into its own. In no place in the world do nectarines thrive better than in California. In the interior valleys the fruit grows to an unusually large size and is of unsurpassed flavor. It possesses a marked advantage over the peach, the skin being perfectly smooth like a plum, thus making it particularly valuable as a dried fruit. More nectarine trees are being planted this year than for many seasons.

We have a large stock of the best varieties and call your particular attention to two leaders: "Gower" and "Victoria". The "Gower" is the earliest of all nectarines. The fruit is very firm, freestone, ships like a clingstone peach, delicious flavor.

The "Victoria" is also a strong grower and heavy bearer, ripens in August. Read below what Frank Vietor says of it:

"I have on my ranch near Fowler 300 "Victoria" Nectarine Trees, which are now 12 years old. These trees have borne good crops and the fruit has sold easily for several years. This year my crop from these trees sold for $2250.00. Part of the fruit was dried and part was sold green, all of which was shipped to the East and sold quickly.



THE GOWER—the new early money making Nectarine

We also call attention to our splendid stock of

WALNUTS

All grafts used by us are cut from trees of the very best type which Mr. Roeding has carefully observed and recorded for a period of years. In no other manner can standardization of established varieties be maintained.

There are thousands of acres throughout the great valleys in the Coast Counties which are being planted now and will continue to be devoted to Walnuts.

To those who have old walnut trees which they desire to work over it will give us great pleasure to mail our "Bulletin on Grafting".

PECANS

Of the eight or nine species of hickories the one which produces the most remarkable fruit and in the most profitable quantities is the Pecan. It is largely due to the impetus the Pecan industry has received in recent years that has encouraged the planting of trees on a commercial scale of the improved paper shell types. The trees thrive in a great variety of soils. Pecans will prove a valuable acquisition to our list of nut fruits in the warm interior valleys of California, Oregon and Washington.

PERSIMMONS

This splendid fruit, being a little out of the ordinary, is often looked upon as of no great commercial importance. However, it is, and those who avail themselves of the opportunity of planting an acreage this season, will undoubtedly profit by it. No garden is complete without them, and every orchard should contain its quota of Persimmons. Nearly everyone has eaten the ripe persimmon, but few have tasted the fruit when dried. It is delicious, and by many thought even to surpass the Commercial Date.

We shall be glad to furnish prospective planters with a list of the best varieties of Walnuts, Pecans, and Persimmons. Our illustrated catalogue lists and prices 2000 varieties of Fruit and Ornamental Trees, Vines, Plants and Roses—Sent Free.

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Strong germination and vitality

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These tools do the work of 3 to 6 men

One man can cultivate 3 to 6 times the usual acreage with Planet Jr implements. They are so ingeniously designed and scientifically constructed that with greatest ease they do thorough, rapid cultivation. Fully guaranteed.

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No. 25 Planet Jr Combined Hill and Drill Seeder, Double and Single Wheel Hoe, Cultivator and Plow will work two acres of ground a day. It is a great tool for the family garden, onion grower, or large-scale gardener. Is a perfect seeder and combined double and single wheel hoe. Unbreakable steel frame.

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Write for Price List NORTH SACRAMENTO NURSERIES R. F. D. No. 3—Box 44

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The Active Garden Season

Written for California Cultivator By E. Braunton

NEVER has there been a time in any year that promised more favorable conditions or more encouragement for all gardening activities than February, 1917. It seems as though nature has been holding us back and making ready to spring all things favorable at one and the same time. We may sow, plant, transplant, divide or do anything we please with any sort of plant with a prospect of having everything in our favor. The garden season of preparatory and fundamental work will be short. The growing season is upon us. Then garden much and garden quickly.

Broadcast Annuals

Now is the finest time of all the year to sow annuals broadcast, either natives or exotics. Sown now they will soon be as large and strong as those sown at any time during the past three months, for little growth has been made during this time. In my own garden stocks and other plants put out in November have scarcely grown at all, and annuals then sown have been a quarter-inch above the soil without growth for 60 or more days. It is not therefore too late, but sow at once, especially native wild flower seeds.

Hardy Plants

Now is the golden season to look about and observe what so-called tropical fruit trees and plants passed unharmed through the recent cold weather. It has been a severe test not so much by reason of low temperatures as the unbroken continuance of cold nights over an unusually lengthened period. Avocados and all that type of fruit trees may now be judged if you find several varieties in your neighborhood. Then plant those only that came through the ordeal unscathed.

Divide Perennials Now

In many gardens there are old clumps of goldenrod, golden glow, phlox, Shasta daisies and other perennials of this nature that have remained undivided for years. They would thrive much better and yield tenfold or an hundredfold with superior flowers if broken up into small pieces and at once replanted in new, rich soil which has been turned over to a good depth. Some of these old clumps get so big that a large bed or a long border may be filled with the yield if only sufficiently divided.

A Valuable New Plant

Our readers are urged to look into the merits of a comparatively new plant now in bloom. It is Primula Malacoides, one of the small-flowering primroses. It grows vigorously and blooms most abundantly in shade or sun and in the cold and inhospitable nooks where other plants seldom thrive. In my own garden it has brought forth blooms when every night for a week the temperature dropped below the freezing point. Both plant and flowers remained unharmed. It is best not to allow the plant to go to seed, so that when the flower spikes are in full blow it is well to cut them for house use. And nothing could be daintier or more suitable for a small vase.

Famous Flower of the Alps

Last week I received through a Swiss consul several flowers from Switzerland, known to travelers under the German name of edelweiss, which is pronounced a-del-vice, and means in English, literally, noble white. The botanical name is from the Greek and in English is lions foot. The last or specific name of the plant means: of the Alps. The whole is Leontopodium Alpinum; leo, lion and podos, foot. It belongs to the composite or sunflower-dandelion family

It has been sought to surround this flower with an air of mystery and glamour. Tourists returning from Switzerland bring fine mounted specimens purchased as souvenirs of visits to that country and state such flowers are obtained only at great altitudes and at imminent risk of the collector's life, none of which statements are necessarily true. The flower flourishes in many upland meadows and valleys, not only in Switzerland but in surrounding countries as well. All that has been stated herein was for the purpose of "building a house of cards" so that I could knock it over by saying: "We grow 'em right in Los Angeles."

The edelweiss has been successfully flowered by several persons in California and is really becoming somewhat common in Atlantic coast states. It has even re-seeded itself there. It needs only sandy soil and splendid drainage, yet has been grown in a border of mixed plants under ordinary garden culture. The flowers are more curious than beautiful, though decidedly attractive. No one could tell by gross appearance that the flowers are alive, for they seem to have been made from a fine-textured creamy-gray flannel.

A Fine Floral Display

Rural visitors to Los Angeles should avail themselves of the chance to see a fine plant display in the city greenhouses in Eastlake Park. They are open and free at all times, and the grand plant and flower collection will well repay an hour or two spent in looking it over. Visitors from outside of the city, when having an hour to spare should keep this in mind. They will never regret such visits, which should be made once each month in order to see the various flower displays at their best.

Christmas Trees Scarce

Another industry that must soon spring up in the south end of the state is the growing of Christmas trees. Doubtless they will increase in price each successive year. They were higher last Christmas than ever before, and the prices already are enough to stimulate their growth on an extensive scale. I know of some nurserymen who sold such trees cut off at the soil surface for more than they would bring as balled plants for the garden, while the cost of handling transportation, etc., is considerably less. Christmas trees, Christmas holly and florists' greens will prove fine crops to grow in the near future.

Shortage of Holly

Every year there is a shortage of holly in the Los Angeles market and indeed a large part of our florists' "greens", also our moss, comes from Oregon. As San Francisco also draws on the same source, as well as many other cities, the time will soon come when advancing cost will make this material profitable to grow on hills of little use for other purposes. As all these plants are very ornamental it would prove a good investment to plant seeds or small plants on waste places for the only reason local florists do not use local material is because it cannot be delivered in sufficient quantities by responsible parties. Any red-berried plants will find ready purchasers, but the foliage is best smooth and shining.

The Chayote

Written for California Cultivator By D. F. Reichard

SINCE being introduced several years ago as a mere novelty the chayote (pronounced chah-yo-tay) has each year become more in demand until now it is a commercial article. It is offered for sale at most fruit stands and grocery stores during its season, which is from October to February.

A few cultural directions for the chayote are apropos at this time as this is the season for planting. Being a tropical vine it grows only in warm weather. The fruit, which envelops only one seed, is planted whole with the large end down, leaving the small end out of the ground. The young plant sprouts from the large end. Plant where they are to grow in well drained soil. Keep them only damp enough to allow good growth until warm weather comes on, when they will require lots of water. If the early sprouts are frozen back do not be alarmed as new growth will soon appear. The first year runners 20 to 30 feet will be made and probably some fruit. The winter frost will freeze these runners back to the root, but in the spring new shoots will come out and will grow to from 30 to 60 feet, which, if well trellised, will produce hundreds of fruits. During September the white, insignificant blooms begin to appear; in four or five weeks the small fruit are old enough for use. They are cooked and used the same as summer squash and eggplant.

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Canker

Will you please publish a cure for canker in chickens and turkeys, also something to prevent its spreading through the entire flock. We have a large flock of both chickens and turkeys and have just found that one of our fine gobblers is very bad with canker and three others are taking it. —Subscriber, Fairmead.

What is the cause of this disease which you call canker? Is it accompanied by symptoms of roup, running of the eyes and nostrils, a sickening odor about the head, etc.? Try dipping the heads a few seconds in warmish water which has been colored pink by a few crystals of potassium permanganate, and swab out the mouth well with either a strong solution of boracic acid or hydrogen peroxide, full strength. Have your birds been fighting? Male birds often pick one another in the mouth, causing wounds in which pus germs grow, making whitish patches which are also known as canker. Hydrogen peroxide, full strength or somewhat diluted with water, ought to cure this. How about mold in feed or litter? This is one of the most frequent causes of canker patches in the mouth. Use the peroxide and clean up. After swabbing out as much of the canker as possible with peroxide on a bit of cotton, wet the patches lightly with tincture of iodine. This peroxide and iodine treatment is to be applied only to the mouth. Do not try to reach into the windpipe even if you see canker patches there, which is not very probable. In cases where the yellowish deposit in the mouth is merely one of the symptoms of roup, the potassium permanganate treatment, with one washing out of the mouth, will usually be sufficient.—J. A. K.

Electric Motor For Pump

I have a 20-inch well with a two stage Byron Jackson No. 7 pump coupled up with a 40-H.P. gas engine giving about 125 inches lift about 45 or 50 feet. Water stands within 30 feet of surface before pump starts but draws down about 50 feet in summer. Would like to know if a direct connected motor would be the best or a motor with a belt as we are to change from gas to electric. What would be the best size motor to use and what make? Also I am to put up a 4000 gallon tank for domestic purposes along side of pumping plant and would like to know if pump will throw water high enough to go in tank, say 24 feet, high and if 5-inch pipe coupled on to the 10-inch discharge pipe of pump would be the right size? I am figuring on putting in a gate to close discharge whenever I want tank filled, and would like to know what is the best way to do so.—Subscriber, Puente.

If your pump and engine are working at good efficiency you should be using 30 horsepower to do your pumping and a 30 horsepower motor will be sufficiently large. It will not be economical to pump water into a tank set 24 feet higher than the present discharge since the pump will have to be run at a greater speed and this will consume power continually even when the pump is discharging at the lower level. The better plan will be to fill the tank by a small pump which is run by a small independent motor, or by a counter shaft driven from the large motor or pump shaft, and have the small pump receive its supply of water from the cement pipe at the head of your distributing system. Belt connection from motor to pump is more satisfactory than direct connection since the driving pulley can be changed for another size if more speed of pump is required because of lowering of the water level during dry years. The loss of power by belt connection should not be more than two per cent and this will be more than compensated for by having the motor away from the danger of water getting into it with the close connection. The tank can be filled as you propose and a five-inch pipe will be large enough, in fact any size of pipe can be used since the pump will not take up water which it cannot push out at the top.—J. B. N.

Unsigned Communication

We have an unsigned request for information regarding the tanning of rabbit skins, Had the subscriber signed his name we would have been glad to send copy of the Cultivator of March 16, 1916, containing an article upon this subject.

Third Term

Is there any law in the United States which will prevent a man from running three or more times for president?—Subscriber, San Martin.

We believe there is no provision of the constitution or any enactment touching upon this question. In declining a third term the country's first president has made an unwritten law which, like some other unwritten laws, have greater force, than those which are passed with much labor by our legislators. In his farewell message George Washington said:

"The period for a new election of a citizen to administer the executive government of the United States being not far distant, and the time actually arrived when your thoughts must be employed in designating the person who is to be clothed with that important trust, it appears to me proper, especially as it may conduce to a more distinct expression of the public voice, that I should now apprise you of the resolution I have formed to decline being considered among the number of those out of whom a choice is to be made.

"I beg you at the same time to do me the justice to be assured that this

Confidence

THE unseen merit in a tire determines its mileage value to you. This is why you must have the confidence that goes with the Firestone name. Confidence in the in-built quality—the hidden values which make Firestone Tires deliver Most Miles per Dollar.

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This color combination (the trade-mark of Firestone Tires) is another reason for your confidence. It shows that all the extra refinements, fine looks as well as service, are yours with Firestone Tires.

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Firestone Tire & Rubber Co., Akron, O.—Branches and Dealers Everywhere

Grow More Fruit!

There is a constantly growing demand for fruit all over the country which almost exceeds the supply. There is money to be made from planting fruit trees and we are in a position to supply you with the best kinds and qualities.

We have the standard varieties in—

—ALMONDS on both Peach and Almond Root
—PRUNES and Plums on Peach, Almond and Myrobolan Roots
—PEARS on both French and Japanese Pear Root
—PEACHES, both Cling and Freestone varieties
—NECTARINES, GRAPE VINES, ORANGES, LEMONS, POMELOS, etc.

You will be interested in the Ornamental Trees and Vines that we carry, and we invite your correspondence.

Address Department "A" for free price list and illustrated catalogue.

There is big money in

APRICOTS!

The market can be depended upon to consume the entire output at profitable prices in both green and dried conditions.

The three leading varieties are ROYAL, BLENHEIM and TILTON, and we have them on hand ready for immediate delivery.

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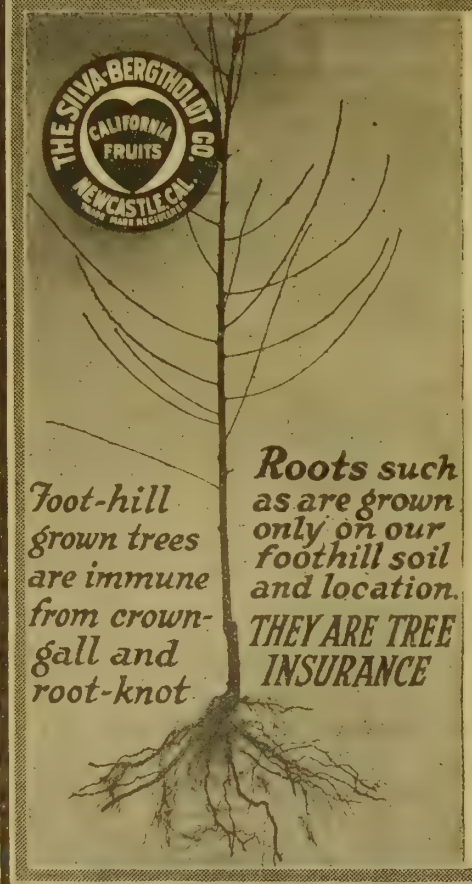
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Square pulling, easily started, four wheels. 12 full h. p. on draw bar, with surplus of 4 h.p. by actual dynamometer test, 20 horse power on belt. Four cylinder, water cooled, long stroke, modern motor. Transmission a unit with motor. By actual test requires only 15.3 per cent of motor's power to propel itself, delivers at the draw bar 86.7 per cent of the motor's efficiency.

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Will do any portable engine job, sawing, silo filling, corn shelling, shredding; easily handle 28-in. grain separator; pulls easily three 14-in. bottoms 8 to 9 in. deep in clover or timothy sod. Unexcelled for road building. My new 1917 catalog is ready. Ask for it today.

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resolution has not been taken without a strict regard to all the considerations appertaining to the relation which binds a dutiful citizen to his country; and that in withdrawing the tender of service, which silence in my situation might imply, I am influenced by no diminution of zeal for your future interest, no deficiency of grateful respect for your past kindness, but am supported by a full conviction that the step is compatible with both. . . . Satisfied that if any circumstances have given peculiar value to my services they were temporary, I have the consolation to believe that, while choice and prudence invite me to quit the political scene, patriotism does not forbid it."

Best Walnut Stock

Please advise best stock upon which to bud walnuts. What is considered the best variety of budded nut for interior valleys? Would like instructions regarding budding walnuts and transplanting in nursery rows.—Subscriber, Long Beach.

The stock usually preferred is the native California black. We think nurserymen are using this quite generally now though we believe some are using hybrids of California and Eastern black.

Incubator Eggs

Why do incubator eggs seldom rot like hen-set eggs?—Subscriber.

Any egg that contains a dead germ will rot whether it be under a hen or in the incubator. The only reason why hen-incubated eggs do rot more frequently is that they are not tested out so carefully. Every incubator instruction books says: "Test out infertiles and dead germs on the seventh day and test again about the fourteenth day for germs that have died since the first testing." If instructions are followed there can be no rots in the incubator, but how many people are as particular about testing the eggs they set under hens? Very few, I imagine. They think it not worth while to bother with such a small number, and so, before hatching time comes, the dead germs have rotted.—J. A. K.

Roosting in Trees

Why do hens insist upon roosting in trees through rain and cold if permitted?—Subscriber.

The tree is the hen's natural roosting place. Instinct takes her there, her oily feathers protect her fairly well, and if, as too often happens, she has to choose betwen rain and wind outside and foul air inside, it is not strange that she should prefer the tree. However, if a hen with a taste for tree roosting is compelled to roost inside a few nights, she soon forgets all about the tree.—J. A. K.

Crippled Chicks

Why do incubators produce crippled chicks and setting hens never?—Subscriber.

"Never" is a dangerous word. I have seen a cripple come from under a hen, but not often, and probably the cause was entirely different from that which produces cripples in the incubator. It is too high a temperature at hatching time that makes cripples of incubator chicks, but the hen's temperature never goes too high.—J. A. K.

Soil Binder

I have been referred to you for advice regarding soil binder. The property in question lies in the bottom of an arroyo and is planted to walnut trees. The soil is sandy and washes easily. When there are heavy rains quite a flood of water comes down the arroyo, leaving some of the walnut roots bare and others buried too deeply. Otherwise the trees do very well in this location.—Inquirer, Riverside.

There is no one plant which is good

to keep soil from washing under all conditions, and none will hold the soil under heavy flow in the winter and at the same time allow cultivation of the orchard in the summer. When there is but little water to handle the common green manure crops of vetch and melilotus will prevent washing. If the water should be deep but the movement slow there is nothing better than Bermuda grass, but if there is considerable slope to the ground something with a better root system is required. Pampas grass will withstand very heavy floods in most cases but will gather much sand and other debris if there should be slow moving water at any place. If the common black willow of the low grounds will grow on the land in question and is planted in alternate rows, four to six feet apart, with the pampas grass there is but little danger of the soil washing if all become well established before the first flood. Cultivation cannot be practiced if the latter method is adopted, and sufficient irrigation water must be provided to take care of the trees as well as the undergrowth. The trees cannot be expected to do their best under these conditions.—J. B. N.

Using Persimmons

Please advise if there are methods of preparing persimmons for the table other than using them in the raw state. I understand the Japanese dry them. How would they be used in the dried state?—Subscriber.

We are unable to find recipes for the use of persimmons, but certainly if we had a sufficient quantity of the fruit would experiment with the cooked product, perhaps combining with other fruits such as pineapple, and preserving in the form of jam or butter, adding if necessary a little lemon juice. The dried product could undoubtedly be used the same as other dried fruit, stewed, or for making pies or puddings.

Beans in Colusa County

Please give information as to best variety of beans for Colusa County, and general cultural directions. Also, what is the average yield where good care is given.—Subscriber, Colusa.

Best variety would depend largely on the purpose for which the crop was required. If purely for home consumption we would advise any of the following varieties: Dwarf types (green pod), Canadian Wonder, Selected Stringless and Extra Early Refugee (wax podded), Golden Wax, Imp. Rust Proof Golden Wax, and Davis White Wax, which latter is also valuable for a shelled bean in winter, and for shipping purposes. If a pole bean is required Kentucky Wonder is about the best. Beans require a fairly retentive soil, and the richer the soil the heavier the crop is likely to be. However, a very essential factor is careful and constant cultivation between the rows after the beans are up and in active growth. They should be planted about April and, if as a small garden crop, the dwarf types may be sown in succession every month or three weeks until July or August. The seed should be planted in rows 20 inches apart and when thinning out leave plants four inches apart in the row. The quantity of seed required is: Dwarf type, one pound to a 100 foot row or 50 pounds to the acre; pole type eight ounces to a 100 foot row or 25 pounds to the acre. The crop matures in about 40 to 50 days for Dwarf beans and 70 to 80 days for pole varieties. The yield depends largely on the season, which varies and soil conditions. However the average yield would be from 25 to 35 bushels per acre. It is essential that the soil should have been deeply cultivated before sowing. If it is proposed to grow beans for commercial purposes on a large scale the Tepary, a small bean which yields 1200 pounds to the acre and thrives in dry districts and other places, is well worth growing, and as the quality becomes more widely known it will fetch big prices. The Pink bean and Navy bean are also very popular and always command good prices. For more detailed information watch the monthly notes. —A. R. G.

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Describes and illustrates Plows for Tractors; Walking and Riding Plows; Disc Plows; Cultivators; Spring Tooth and Spike Tooth Harrows; Disc Harrows; Alfalfa and Beet Tools; Farm and Mountain Wagons; Manure Spreaders; Inside Cup and Portable Grain Elevators; Corn Shellers; Hay Loaders; Stackers; Rakes; Mowers and Side Delivery Rakes; Hay Presses; Kaffir Headers; Grain Drills; Seeders; Grain and Corn Binders.

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John Deere Plows for Light Tractors

So far as quality of John Deere Plows for Light Tractors is concerned, they are built for the farmer who realizes that it is business judgment to buy a high grade tractor plow. Don't forget that a tractor plow is not an everyday purchase.

John Deere Plows for Light Tractors are noted for their high grade work in the field—the real test of tractor plow value.

Before you make your purchase, be sure to see John Deere Plows for Light Tractors. A careful purchase means a permanent saving.

The John Deere Light Tractor Disc Plow works with any standard tractor—the hitch is adjustable.

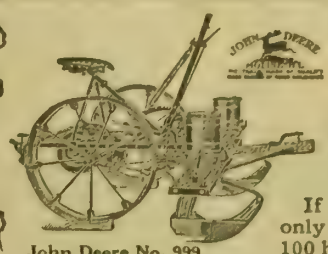
Three or four discs.

Discs have a double setting. Taking care of all conditions where a disc plow can be expected to operate.

Adjustable scrapers keep discs clean and lighten the draft.

No choking in trashy ground—frame is high, beams are dropped, which gives good clearance under the frame, and there is plenty of room between the discs for trash to pass through.

John Deere Corn Planters



Accuracy in a corn planter means uniform drop—number of kernels the same in each and every hill.

If the planter misses only six kernels in every 100 hills, the loss in yield is nearly two bushels per acre.

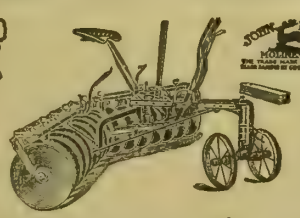
Accuracy in planting has been the main object in designing John Deere planters. One of the many advantages of using a John Deere planter is that with proper handling it will plant practically 2, 3 or 4 kernels in every hill, as desired.

John Deere No. 999 is accurate. It has the John Deere *Natural Cell Fill, Edge Delivery Seed Plate.* Surface of hopper bottom and openings to seed cells are oblique, or sloping. Kernels move toward and enter the cells in their natural position. They do not have to be tipped on edge.

Merely move foot lever to change number of kernels per hill.

Drilling distances varied, and change hilling to drilling or back to hilling made easily.

John Deere Model "B" Disc Harrow



Using a disc harrow before plowing pulverizes surface lumps, works trash into the seed bed and prevents the escape of moisture. Then when the furrow slice is turned, the trash decays rapidly and no large air spaces are left between bottom of furrow and the turned furrow slice. Water in the subsoil can make its way into the seed bed and plant roots can penetrate to deeper soils.

Discing after plowing removes the weeds, and makes the seed bed compact, but not hard. The discs break up lumps of soil.

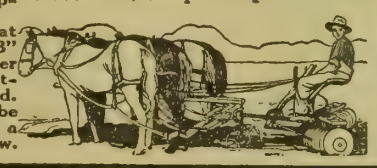
The Model "B" pulverizes at even depth its entire width.

Patented spring pressure third lever—inner ends of gangs can be given light or heavy pressure to disc over ridges or cut out dead furrows without burying the harrow.

Independent gangs. All tendency of gangs to crowd to one side is easily overcome by giving them the proper relative angle.

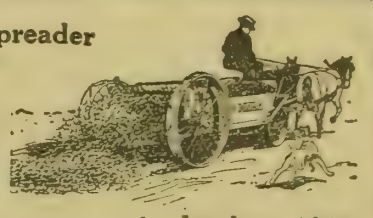
Flexible—only that part of the Model "B" harrow passing over an obstruction is lifted out of the ground.

Rear section can be furnished to make a double action harrow.



John Deere Spreader

The Spreader with the Beater on the Axle



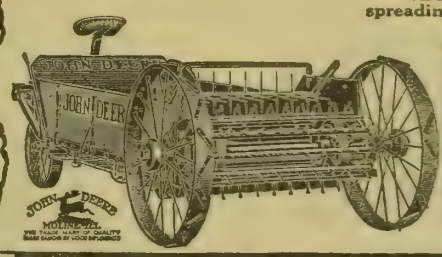
Mounting the beater on the axle simplified the construction, eliminated troublesome parts and made possible a successful low-down spreader with big drive wheels. There are no shafts to get out of line, no chains to cause trouble, and no clutches to adjust. The only spreader with beater and beater drive mounted on axle.

Low down, with big drive wheels out of the way. Easy to load.

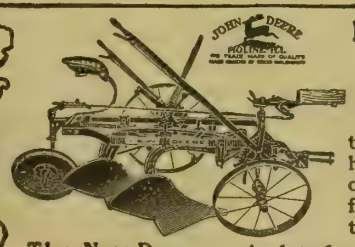
Revolving rake, driven by manure moving toward the beater—no bunching of manure. Ball bearing eccentric apron-drive—a new and exclusive driving device.

Makes uniform spreading certain.

Wide spread attachment for spreading seven feet wide can be furnished for the John Deere Spreader. No chains nor gears. Quickly removed.



New Deere Light Draft Gang Plow



For twenty years the New Deere Gang has had the good opinion of enough farmers to make it the one best seller—

And, today, it is the same plow it was twenty years ago, with the usual minor refinements added.

Correct in design, always representing the highest development of the plow-maker's art, the New Deere Gang is a leader, and has been every single year for twenty years.

Go to your John Deere dealer's and look this plow over—you will readily see why it is such a popular plow.

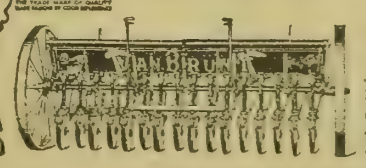
The New Deere Gang is the most widely used plow of its type.

It is light draft, durable and is equipped with John Deere bottoms, known all over the world for superior work, easy scouring and light pulling qualities. It cuts and turns full width of furrow.

A simple, practical foot lift and auxiliary hand lift lever—easy to raise bottoms out of the ground.

John Deere Quick Detachable Shares—great labor and time savers. Share can be taken off easily, only one nut to remove.

Van Brunt Grain Drills



Van Brunt Drills are particularly noted for their adjustable gate force feed. Each feed cup plants exactly the same amount. The seed is compelled to leave the seed box in even, continuous streams without bunching or choking up. All the ground is seeded.

The Van Brunt Single Disc is the first successful single disc grain drill with closed delivery. The seed is protected by metal seed tubes, disc openers and the disc boots until it reaches the bottom of the furrow.

Van Brunt Drills plant any small seed.

Amount sown per acre easily regulated.

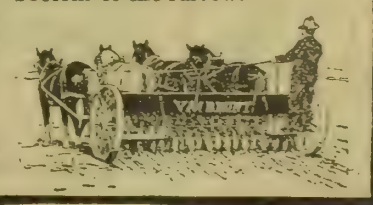
Direct, double, gear drive from the continuous axle.

High-grade discs with bearings guaranteed to last lifetime of drill. Scrapers keep discs clean.

Pressure springs individually adjustable to make uniform depth furrows.

Either single or double discs.

Grass seeder attachment which will drill or sow broadcast can be furnished.



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Make the NEW and Clean the OLD with the MARTIN Ditcher, Dyker and Grader. Makes or cleans irrigation or drain ditches up to 4 feet deep—any width. Makes two to three foot dyke or levee; grades roads. Works in sand, rocks, gumbo or clay—wet or dry—on side hills or level ground.

Reversible, Adjustable, No Wheels, Cogs or levers. No breakable parts. All steel. 2, 4 and 6 horse sizes. Guaranteed to do more work than 50 men with shovels. Cost low, upkeep nothing. Over 10,000 satisfied customers everywhere. Write TODAY for catalog, full particulars and introductory offer on new 1917 models.

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"I made six miles of 3-foot ditch in five days with my MARTIN --about one-fifth of the cost by any other method. It is also fine for ditch-cleaning and levee work." H. C. STORMER, Colusa, California.

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OWENSBORO DITCHER & GRADER CO., Inc.
561 Evans Block DENVER, COLORADO

Fly Control Work for the Winter

Written for California Cultivator By E. Ralph de Ong

THE fly problem has received much attention in the summer months, but is generally neglected in the winter, which means hordes of flies living all winter and ready to deposit eggs as soon as warm weather comes.

Everybody knows that flies are to be fought through the summer, but when they stop annoying us in the fall, the fly campaign stops. Hosts of them live through the winter, waiting for the warm days before they deposit their eggs; don't stop work because the fly is hiding, one killed now is worth a thousand next June.

Very commendable work has been done in many communities by means of summer campaigns against the fly. True, much of the effort was directed toward the offender after he has been in the milk and on the table and visited the manure pile to deposit some eggs—, but something has been accomplished. It is natural for us to strike first at the thing we see or that is bothering us, but later we associate our tormentor with the maggots in the manure pile. With the coming of fall our homes and stables are fairly well supplied with flies until the frost "kills" them, but if you will put those "dead flies" in the sun for a few minutes most of them will be found crawling about; the cold has stupefied but not killed them. Many of them die through the winter, it is true, but there are always plenty of them that live over.

Place a saucer of formalin solution (one teaspoon of formalin or formaldehyde to a saucer of water) where the flies are congregating, and if no other liquid or fruit is available they will take it freely, dying in a few minutes. This chemical is not as dangerous as arsenic, it being comparable to wood alcohol. If the solution is to be used in the kitchen, all water should be removed and the sink covered, so that they are forced to feed on the formalin. A little milk or sugar added increases its efficiency.

Stables and hog pens can be cleared of the over-wintering fly most readily by spraying with light distillate oil or kerosene, used at 12 per cent or 15 per cent strength: Distillate oil, 12 gallons, soap, 7 pounds, water, 88 gallons.

If the water is hard one or two pounds of lye should be added to the above amount before pouring in the soap solution. The latter is added in order that the oil will mix with the water. In a well made emulsion free oil will not separate out of the emulsion for several minutes.

The spraying should be done early on a cold morning while the flies are somewhat stupefied. Spray the walls thoroughly and in a few minutes the flies will be dead on the floor.

The Farm School

Written for California Cultivator By J. M. Davison

SOME months ago there was started a movement looking toward the establishment of a school somewhere in Southern California, similar to the one at Davis. The thought in the minds of those who launched the movement was that there was no work that could be done by our great University of California that was more important than the work of insuring a larger measure of success to the tillers of the soil. This movement has been commended by many organizations, and at the coming session of the state legislature a bill will be introduced asking for the appropriation of a sum of money sufficient to make a substantial start toward such a school.

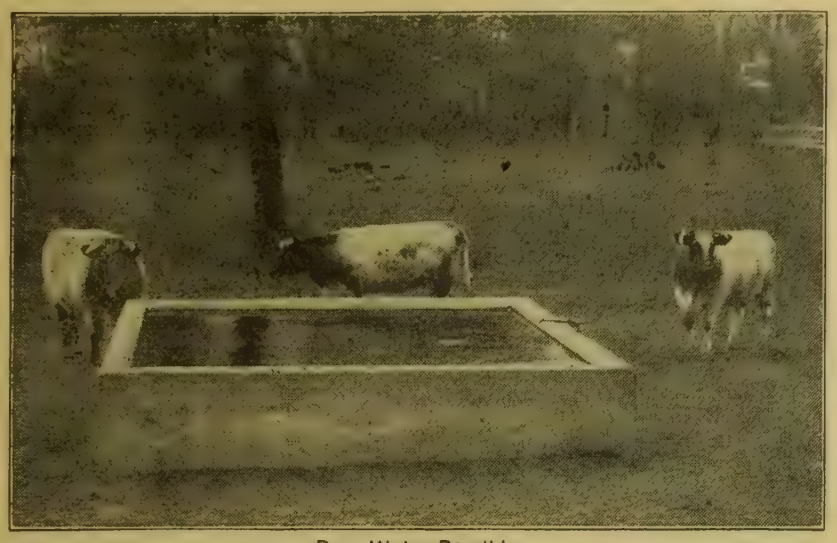
It is not my purpose to give a history of the movement or what organizations are supporting it or what steps will be taken to secure favorable legislation, but I want to plead for simple justice to hundreds and hundreds of our Southern California ranchers. My contention that justice is not being given to many of our ranchers is best borne out in a statement of my own experience.

The early part of my life was spent on a farm in the Middle West, and then for 20 years I was in the mercantile business, but the desire to till the soil was ever present and six years ago I sold my mercantile business and bought a ranch in Southern California. I brought to my ranch the experience gained raising hogs and cattle, corn and oats, in the great corn belt, and not many months had passed on my California ranch until I realized that my life on an Illinois farm fell far short of making me an efficient rancher in Southern California. I learned by sad experience the lesson that so many others have learned, that the willingness and ability to put in long weary hours of labor did not guarantee a reasonable measure of success, unless that labor was intelligently applied, under conditions vastly different from all my previous experience. Accordingly there was but one thing for me to do and that was to secure from somewhere such information as would enable me to realize the most from my labors.

In the states with which I was most familiar, Illinois, Missouri and Kansas, I knew that the state universities were giving more and more attention to the work of helping solve just such problems as now confronted me and I wrote to the University of California to learn what provision was made for the almost countless numbers who were trying to procure agricultural success in Southern California. It was then that I learned of the Davis school, both the regular course of study and the Farmers Short Courses and as it was entirely out of the question for me to take the former, I made my plans to get all the good I could out of the latter, and the day that the Farmers Short Courses began in the year following my moving to the state I was enrolled as a student.

It is not the purpose of this article to tell of the usefulness and efficiency of the school at Davis. We all know that the teaching of agriculture is still in comparative infancy, and with the cumulative knowledge that will come from years of experiments and experience, better and better teaching will be done. But I do want to say that in my judgment every rancher in the state who would take the Short Course would be a better rancher, both financially and intellectually, and that in many many, cases the result would spell the difference between success and failure.

My own approval of the school is evidenced by the fact that although the round trip means approximately 1000 miles of travel, yet after my own experience my wife also enrolled and enjoyed the advantages of the school and later my two sons put aside their college work for a year that they might take the Short Course. Accordingly I feel competent to speak for the work done at the school and for the results achieved, and my plea is for a broadening of that work so that its helpful influence can be felt by more of our Southern California ranchers.



Pure Water Possible

In the beginning I spoke of injustice being done to many of our ranchers and I will now explain what I mean. From the best information I can secure, I learn that there are approximately 50,000 householders moving to Southern California every year. A great many of them of course go to swell the population of our cities and towns, but a great many like myself, have purchased a ranch and expect to make their livelihood by farming. Many of these are doomed to certain disappointment and failure, are totally unfit to cope with the new and changed agricultural conditions they find here, and will wear out their lives and break their hearts as they see the savings of years take wings and fly away, in spite of all they can possibly do. It is for these that I plead for, except in very rare cases, the barrier of distance is an impassible one for our Southern California ranchers.

If I had not enjoyed the privileges of the farm school and did not know the stimulating helpfulness that comes from it, I would not be so insistent, but I crave for all my co-laborers in this part of our great state the same advantages I received, knowing it will mean a higher plane of agricultural life; and I cannot see any other possible solution of the problem than the planting of some such school where it will be of easy access to the thousands who need it here in our great Southland.

Peruvian Alfalfa

Inasmuch as considerable interest is being manifested in the hairy type of Peruvian alfalfa, the results obtained by C. C. Bowles of Calipatria, Imperial Valley, should prove interesting to the readers of this magazine. In a letter to one of the large seed houses, Bowles says:

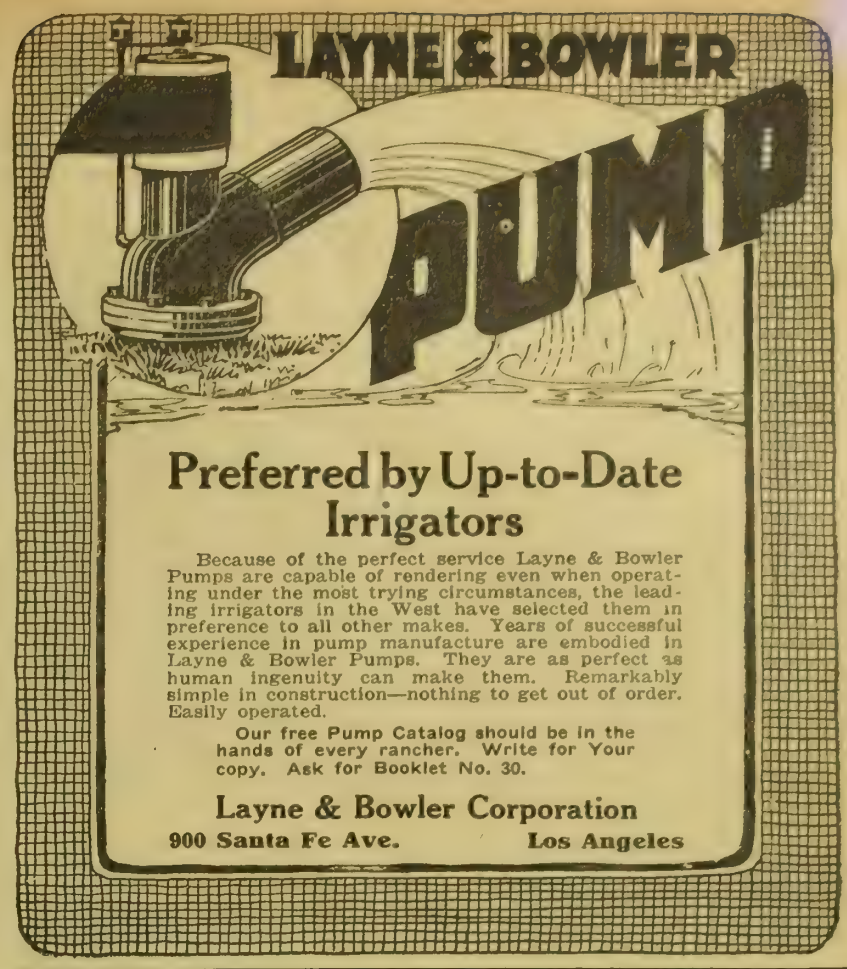
"I now have 200 acres in hairy Peruvian alfalfa. The foliage of the plants is more dense than other varieties, the leaves coming out in clusters all along the main stem. The common alfalfa has a leaf short and round like the clover. The hairy Peruvian has a long slender leaf shaped like a rabbit's ear and is covered with a fine coating of hair.

"I have a field of smooth Peruvian which I re-sowed with hairy Peruvian. In passing through the field after our recent cold weather I found the smooth Peruvian wilted and yellow as if touched by fire. It had been frozen to the ground while the hairy Peruvian standing beside it was as green and thrifty as in mid-summer. I call that a fine demonstration, I have about 80 acres of smooth Peruvian mixed with the common alfalfa which I will probably plow next fall and sow in hairy Peruvian, as the hairy variety seems to withstand the rigors of this climate best both winter and summer. Others will soon make the change when they see the superiority of the hairy Peruvian demonstrated."

J. F. Nicholson, agronomist of the college of agriculture of the University of Arizona, in commenting on this new type of alfalfa, said, "The quantity of hairy Peruvian alfalfa seed is very limited and the demand is growing rapidly in our section, which would tend to advance the price considerably over that of common alfalfa seed. Some of the seed houses may sell alfalfa seed which is probably a cross between hairy Peruvian and the common variety at comparatively low prices. As a matter of fact all Peruvian is hairy, but in order to obtain the real article it is necessary to distinctly specify Hairy Peruvian."

The following statements are from reports made by the University of Arizona on hairy Peruvian alfalfa: "We find that the hairy Peruvian is a more hardy winter grower, more upright and more prolific. We particularly get better cuttings early and late than we do on the common or any of the other varieties of alfalfa that we have tried. We find that the hairy Peruvian maintains a good stand for a long period of time without re-seeding. In the Yuma and Salt River valleys it gives at least two cuttings more than are obtained from other varieties. It thrives at a much lower temperature than ordinary varieties, which gives a late fall or winter pasture. It also revives much quicker, which permits early spring cuttings. In cutting for hay it outyields the ordinary varieties from 15 to 20 per cent."

Nothing along the line of farm records gives so much in return for the time spent as a farm inventory, for it shows not only the profits for the year, but enables the farmer to make a thorough study of his business.



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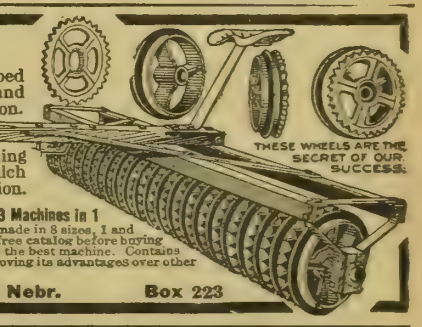

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The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday Jan. 27, 1917

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THIS WEEK'S COVER

When one speaks of dates he thinks of Northern Africa or Southwestern Asia or, if he happens to be a Californian, of the Coachella and Imperial Valleys, which sections are now proving their worth as producers of some of the finest dates in the world. The industry will grow and we believe ultimately prove a great factor in exporting fruit from California. But to give an idea of the great range of this industry we use this week on the cover a photograph showing date tree growing in Tulare County. Our guess is that Tulare County will not be a producer of dates in a large commercial way but their production in that section is possible.

PREPAREDNESS

The department of commerce is issuing a statement or rather makes an appeal to American manufacturers and merchants to prepare for peace. Attention is called to the fact that European countries, while straining every sinew for war are extending their commercial operation in almost every direction. Even now Great Britain is contemplating establishing trading banks in various South American countries and that centralization of ecenomic resources will enable the government to encourage its merchants, as soon as peace enables them, to seek the markets of the world. The circular then adds: "Cooperation in this country for purposes of foreign trade is a necessity. If our merchants are appealing to cooperation to develop trade, the necessity of cooperation for the producer is even greater. We can only imagine the conditions which will obtain after the war is over and reconstruction begins, but no matter what the conditions are cooperative effort will result in success far quicker than if we permit ourselves to compete with ourselves in our fruits, dairy and meat products—everything.

LIVE STOCK SHOW

Los Angeles is exceedingly in earnest in its effort to secure a live stock show next November or December. Last week's Cultivator called attention to the fact that there is some live stock in that live section. Breeders in all parts of the state have signified their willingness to compete with these breeders and show all their stock if arrangements can be made for such an exposition. Plans are in the making and as soon as the committees now at work can make definite announcement the Cultivator will be glad to give it, but California, both at San Francisco and at Los Angeles must have live stock shows. Portland has pulled off a most successful one for many years; there is no reason why California should not have the same advantage.

AGRICULTURAL SCHOOL

The agricultural teachers of Los Angeles County are appealing for support for the Evans bill which provides for the establishment of an agricultural school along lines similar to those of the university farm at Davis. In their campaign they call attention to the fact that Los Angeles is the banner county of the Union in products of the field and orchard. A county of such agricultural importance should not be 500 miles from its great agricultural educational institution. In addition attention is called to the difference in climate and the fact that many while still too young to make their homes away from their parents' desire to take up agricultural work; also to the fact that the Davis institution, according to Dean Hunt's report, is already filled to its capacity, and other facts which justify the passage of this bill.

The state school at Davis has proved of great benefit to California; a similar institution in the South will prove equally as profitable as a state investment. Not only is Los Angeles County pushing for this school, but many other counties are urging the passage of this bill. Most convincing points are given in the article by Mr. Davison on another page of this issue. Mr. Davison knows whereof he speaks.

COWS AND COWS

The report of the University of California as to December work of cows entered in the state dairy cow competition shows a range in the individual cows from a production of butter fat of 115.676 pounds in the month to 30.149 pounds. Ninety other cows ranged all the way between these two extremes.

Perhaps at first the owner of the 30-pound cow may be a bit discouraged; rather he should be encouraged to make the 30-pound cow over into a 100-pound cow. This will be something like David Starr Jordan's breeding a lap elephant—he could do it if given time—and the time required in that case would be some 6000 or 7000 years. Fortunately, however, it does not take that long to make a good dairy cow. It does, however, take intelligence and greatest attention to detail, and the best advice we can give in this matter is to "go to it.". The sire is half the herd or as Mr. Lamson better expressed it at the recent swine breeders meeting, "The herd boar is one-half the herd the first generation, three-fourths the herd the second generation, and seven-eighths the third generation, etc., ad infinitum."

Is the head of the dairy the son of a cow which produced large in quantity and high in quality? If not, send him to the block and start again.

FIRE LOSSES LESS

Orchardists and everyone depending upon irrigation water which comes from California watersheds have made such a strenuous fight for preservation of the watersheds that fire losses have greatly decreased during the last score of years. The losses are still severe enough to be a menace to many fruit sections for the average loss because of timber burned was last year for each timber owner $559. The preceding year it was $660, before than, $750, and in the year 1913, $1215. But this loss of timber producers is infinitely small compared to that of the irrigators, so that there is much encouragement in this record. Rangers employed by the department of agriculture are responsible for much of this saving. We believe more credit is due to the campaign of education which has been carried on with all those who have occasion to visit our forest reserves and other mountain sections during the dry summer months. It may be earlier than necessary to begin to be careful for the next dry season, but the gospel of greater care should be passed on every season of the year.

POULTRYMEN COOPERATING

Every year the poultrymen of California have felt the necessity of uniting and securing more just returns for their labor. During the past two years a partially successful organization has been in existence. Perhaps we should say, "entirely successful", for it is now instrumental in organizing the association which will, we believe, prove of greatest value to the producers of poultry products. The increase in the production in California has been very great. There has likewise been great increase in cost of all poultry feeds. The production at this period of the year has become so great that home consumption is not sufficient to keep down the surplus. Where will this surplus be marketed? Answer will be given by this association we believe in a way which means help for the discouraged industry. The work of the two years was practically completed on last Thursday when 279 members of the new association gathered in Los Angeles and elected directors for the first year. The new association has th entire confidence of many producers, and while it has not unlimited capital it will have sufficient to give a thorough test of the marketing plan. State Commissioner Weinstock is uniting in helping the poultrymen, and this association, like the similar, though much larger one in the northern part of the state, will be given every help possible. The most embarrassing feature at this moment is the fact that many poultry producers refrain from joining and leave their products to be thrown into the market in competition. This is neither fair to themselves nor to those who would save the industry, but the trouble with cooperative effort is that it cannot succeed where people are not educated to it. If every poultryman in California, not a member of one of these great associations, should proceed to inform himself of this cooperative plan, we believe it would result in greatly increased membership.

Agricultural Notes

Alberta's spring and winter wheat crop amounts to over 41,000,000 bushels.

The present population of the United States is given as 101,882,479 in the annual letter of the secretary of agriculture.

Australian dried fruit growers have an organization with membership among apricot, peach and raisin growers. The 1916 pack amounted to 17,266 tons.

Argentine is becoming a grower of rice. A competitive exhibition of rice was recently held in Buenos Aires. Last season's drouth caused loss of about one-third of the crop.

By a recent enactment the Spanish government is empowered to seize any food materials, fix their price, transportation, etc.—this as an emergency measure during the war.

To make a study of the native potato and alfalfa that grow at high altitudes in Peru the University of Colorado and the Denver Chamber of Commerce are sending Dr. M. M. Ellis.

Prices for New Zealand wool of the grade "Superior Merino Combings" is reported as 37-45 cents. This is being paid by the English government which has purchased New Zealand's entire clip.

The University of Missouri is organizing for this year boys' and girls' clubs in corn growing, pig feeding, calf feeding, poultry management, potato growing, tomato growing, canning, baking and sewing.

An effort is being made to increase use of American butter and cheese in China as there is an opening through withdrawal of supply formerly coming from Russia and Siberia. No export of dairy products is now allowed from that country.

UNIVERSITY OF CALIFORNIA STATE DAIRY COW COMPETITION

Ninety-two cows have already been entered in the state dairy cow competition. The average production of 66 of these cows for the month of December was 1223.7 pounds of milk and 57.27 pounds of fat. The highest producer was cow No. 1 of the contest, Aaggie Acme, a Holstein cow, the property of A. W. Morris & Sons. Her production was 2794.1 pounds of milk and 115.676 pounds of fat. The lowest producer of the 92 cows produced 30.149 pounds of fat. Aaggie Acme is a six-year-old cow but she is far from the oldest in the contest. One, a Jersey, property of Mr. Bomberger, is 15 years and two months old. Her production for the month was 55.760 pounds of fat. Other cows range in age down to two and a half years. Producers running over 90 pounds for the month are Aaggie Acme, Morris & Sons, 115.676; Hartog Cremelle, Morris & Sons, 92.186 pounds; Auralia De Kol, Morris & Sons, 93.580; Athalva 2nd, Holstein, Palo Alto Stock Farm, 92.971; Boweda, Holstein, Vina Ranch, 99.667.

Cows producing between 80 and 90 pounds are Abbie De Kol of Eastbank, H. E. Cornwell, 87.578; Butternut Queen, Guernsey, Elliott-Brant Ranch, 85.439; Champion Figgis, Holstein, J. A. Goodall, 82.553 pounds fat; Willowmar Vesta 4th, E. B. McFarlane, 81.354 pounds; Korndyke Duchess K., McAlister & Sons, 87.559.

The University of California farm has one large producer in Korndyke Senorita, a Hereford, which has been on test 18 days, in which time she has produced 51.270 pounds of fat.

Members of cow testing associations should bear in mind that the period for entry for the California Cultivator $300 prizes ends on March 1. Write at once to Prof. Woll for revised rules in this feature of the contest.

Agricultural News Notes of the Pacific Coast

Northern California

Napa County has organized a farm loan association.

A state highway is proposed from Truckee to the Nevada line.

Placerville, Eldorado County, is considering a $5000 bond issue for the purchase of a civic center.

A $500,000 bond issue will probably be voted on in the near future to complete work on the Anderson-Cottonwood irrigation district.

Supervisors of Sacramento County have been petitioned to call an election for the formation of a Wright irrigation district at Fairoaks.

The highest herd average for over 20 cows is reported by O. P. Gillian of Dixon, Solano County. The average is 1.1 pounds fat per day per cow.

The Clear Lake national farm loan association has been formed in Lake County, taking in the territory of the fourth and fifth supervisoral districts.

Hop growers of Sonoma County have taken preliminary steps toward the formation of a marketing association along the lines of the raisin association.

Corning, Tehama County, has report from a high-toned Eastern cafe that three of its large Sevillano olives sell for 40 cents when served in that institution.

Grammar and high school boys of Woodland, Yolo County, have started agricultural and gardening contests. Vacant lots in the city will be used for the boys' work.

Plans are being made for Fresno's celebration of Raisin Day April 30. Miss Oneida Madison, daughter of Manager Madison of the association, will be queen of the festival.

In discussion of plans by the farm bureau for Yolo County's next county fair it was decided to bar the university farm from competition for prizes, but to invite it to make exhibits.

An association of local land owners about Palo Cedro in Shasta County has formed an irrigation company under the name of the Big Cow Creek Ditch Company. It will put about 1400 acres under irrigation.

Shipments of pears from Eldorado County this year amounted to 70,055 boxes. One hundred and seventy-three carloads of fresh fruit were shipped East from Placerville, not including several cars of wine grapes.

President Stephens of the Pacific Rice Growers' Association advises Sacramento Valley growers to hold their crops. He says that within 60 days it is fairly reasonable to suppose that they can get two and a half cents.

The Cloverdale Citrus Fair Association is making plans for its 24th annual. Officers elected are G. Hagmayer, president; J. W. Schmitz, vice president; W. W. Furber, secretary. The Bank of Cloverdale is treasurer.

Supervisors of Sonoma County have passed a resolution favoring the loop highway connecting Sonoma, Lake and Mendocino Counties. The proposed road would run from Cloverdale to Lakeport, thence to Ukiah. The road from Ukiah to Cloverdale is already built.

The University of California has announced farmers' course at the Davis school May 29-30, June 1. There will be several courses in live stock, fruit raising, culture of field crops, etc. The main idea to be followed out in this farmers' course is method of reducing cost of farm production.

Central California

Stanislaus County has advertised for bids for county fair grounds.

Stanislaus County is considering buying permanent fair and exposition grounds at Modesto.

The Peach Growers' Association will soon begin construction of packing plants at Reedley and Selma.

Delta farmers are planting a heavy acreage to onions. Eight thousand acres at least will be planted.

The Fresno County committee of the Central Stockmen's Association has launched a membership campaign.

J. H. Peters of Bakersfield is president of the Kern County farm bureau which now has a membership of 449.

There is a renewed effort in Merced County to organize a farm bureau and secure the appointment of a farm adviser.

San Joaquin Valley growers are planning heavy plantings of potatoes. Planters are paying fancy prices for their seed.

Live stock men of the San Joaquin Valley are uniting with the packers in financing the Universal Packing Company at Fresno.

An all-day vine pruning demonstration was given Friday, January 12, at the Kerman Union high school farm by Prof. F. T. Bioletti.

In 1916 there were 33,390 visitors to Yosemite, a gain of 1748 over 1915. Private automobiles entering the park numbered more than 4000.

Shipments of raisins during the month of December were nearly four times the shipments for December, 1915, amounting to 19,721 tons.

The 1916 raisin crop is 2000 tons over last year's. The largest increase was in Thompson's Seedless, which gained 100 per cent over last year's tonnage.

At the recent annual meeting of the Coalinga Poultry Association all old officers were re-elected. Plans are being made to bring the next state poultry show to Coalinga.

The statement is made by grain dealers that nearly 200,000 bags of barley and wheat were this season handled in the warehouses at Ducor, Terra Bella, Orris and Lois.

The United States department of agriculture has established a station of the bureau of entomology at Fresno to study grape insects. The station will be in charge of R. L. Nougaret.

The Melvin Grape Growers' Association held its first annual meeting and banquet at Clovis, January 12. Manager Nagle of the California Fruit Exchange was one of the speakers.

At a meeting of grape growers at Dinuba, January 10, a resolution was passed endorsing the present grape standard of 16 per cent of sugar for Emperors and Cornichons and 17 for Malagas.

At the recent fig growers' convention at Fresno a resolution was passed favoring an organization of fig men. Prof. W. H. Clarke of the state university was empowered to appoint an organization committee.

The Tagus Ranch of Tulare County recently sold 900 head of Angus beef cattle to a Los Angeles packing house. The cattle are to be fattened on cottonseed meal at the ranch until delivery, which will be extended over the time between now and May.

Southern California

This year Imperial Valley will gin between 125,000 and 150,000 bales of cotton.

The new packing house at Sunshine has been completed and is ready for handling oranges.

California's apricot crop for this year totalled 10,900 tons of dried and 289 tons of fresh fruit.

The Pomona Progress recommends as one use for cull oranges feeding to porkers and producing orange bacon.

The Riverside Press estimates that the orange and lemon crop for California the coming year will total 51,150 cars.

The new plant of the California Associated Olive Growers at Fallbrook, San Diego County, has begun canning olives.

Several hundred acres have been planted to onions in the Coachella Valley, as well as a considerable acreage to garlic.

San Diego County's farm adviser is collecting samples of honey to aid in standardizing the product throughout the county.

Experiments were made at Imperial cotton gins with small green bolls which were frosted. The cotton was found satisfactory.

Farm loan associations in San Diego County have been organized at El Cajon, Escondido, Encinitas, Fallbrook, Ramona, Julian, Chula Vista and La Mesa.

The Imperial Date Growers' Corporation has imported several thousand date palms from the Persian gulf to set on lands in Imperial and Coachella Valleys.

Three thousand boxes of oranges have just been shipped from Rialto to Australia. The fruit is packed in the regulation export Imperial bushel box weighing 54 pounds.

Lima bean growers in the vicinity of Encinitas and Del Mar, San Diego County, are considering organizing a branch association of the California Lima Bean Growers.

Apple growers of the Yucaipa district are busy now pruning their trees. It is estimated that at least 100,000 boxes will be shipped out of the valley next season.

The next meeting of the Coachella Valley Date Growers' Association will be held at Coachella March 12. W. L. Paul has been elected president and F. W. Zabler secretary.

Upland, San Bernardino County, is beginning its heaviest packing of oranges. The fruit has been a little slow in sweetening and packing was delayed until it was at its best.

The 1916 walnut yield of Southern California is estimated at 12,150 tons. This, although nearly 3000 tons less than the 1915 output, because of high prices received brought in as much money as last year's crop.

It is announced that there will be a Northern California and a Southern California Fair Association this year, the Southern Association to include Riverside, Kern, Los Angeles, Ventura, Imperial and probably Kings Counties.

A cow testing association organized by the Imperial County farm bureau is said to be the largest in the United States. That at Ferndale is second. The Imperial Association has 4000 cows on test, the Ferndale association 2500.

The Coast

Many stockmen of Arizona are digging wells on the ranges and putting in windmills.

The Idaho State Horticultural Association will hold its annual meeting at Boise, January 30.

The annual meeting of the Arizona State Poultry Association was held at Phoenix, January 13.

The Idaho State Honey Producers' Association held its annual convention at Twin Falls January 8-9.

The girls' canning clubs of Arizona last season canned a total of 5363 quarts of vegetables and fruits.

Eastern Washington was caught by the early December freeze and many potatoes and even apples are yet unharvested.

Dairymen of Skagit County, Washington, have formed an association to market their products. There are now 150 members.

A poultry show will be held at Moscow, Idaho, January 22, under the auspices of the University of Idaho and the Moscow Poultry Association.

The government has just completed the feed canal to supply water to the reservoir for the Hermiston irrigation project, the cost being approximately $40,000.

Twenty herds are being tested in the Truckee-Carson cow testing association. Average production of butterfat per cow during November was 23.77 pounds.

Because of the large demand for condensed milk, due largely to the European war, two big new condensaries are in course of construction near Bellingham, Washington.

According to the Southwestern Stockman-Farmer three times as much cotton will be grown in the Salt River Valley in 1917 as was grown the past season, thus bringing up a big labor problem.

Cooperation was the main subject of discussion at the recent 24th annual convention of the Washington State Dairymen's Association at Auburn. It is probable that an association will be formed in the near future.

Cotton growers of the Salt River Valley are projecting a plan of organization which will divide the growers into eight districts, each to have one representative in the central council, with one vote to each 1000 acres represented.

Grain farmers of Apache and Navajo Counties of Arizona through their organization have reached 75 cents per hundred above market price for their oats. The association has adopted Swedish select oats as the standard for the valley.

The Washington state public service commission has allowed the Northern Pacific to establish a rate of 30 cents per hundred pounds on apples shipped to Olympia from Kennewick and intermediate points. The fruit will be used by the fruit canneries and fruit juice plants.

The Yakima Valley, Washington, Fruit Growers' Association announces receipt of advices from General Freight Agent Lounsbury of the Oregon-Washington Railway & Navigation Company that the company has arranged to grant the reduction in the freight rates on apples into New Mexico and adjacent territory, for which Yakima shippers have long been contending.

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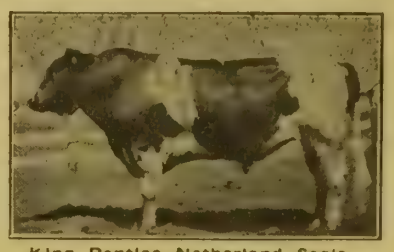
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James Mills Orchard Corporation
Hamilton City, California

CALIFORNIA STATE SWINE GROWERS CONVENTION

Continued from Page 91

fectionately called by all intimate friends, is probably the widest known and best loved breeder in America. For 43 years Mr. Lovejoy has been breeding swine, and his record of achievement both in show and sale ring have made history. Mr. Thompson said in his introductory remarks that the convention felt highly honored to have the distinguished gentleman from Illinois present and asked the breeders to work Mr. Lovejoy to the limit with questions during the session. Mr. Lovejoy was president of the Chicago International Show and the Illinois state fair for years, and has judged hogs at hundreds of shows.

Professor Thompson announced that Mr. Washburn, vice president Western Meat Company, San Francisco, being called East, could not deliver his address in person, Mr. Thompson read Mr. Washburn's paper, and it is of so much importance that we publish it word for word elsewhere in this issue.

After Mr. Thompson had read the Washburn paper H. I. Marsh of Modesto told how their shippers' organization up there had recently sent six carloads of grain finished hogs to San Francisco which dressed out over 81 per cent. These hogs brought 10.27 per hundredweight. The packer who bought them paid a premium of ten cents per hundredweight for each one per cent the animals dressed in excess of 77 per cent.

Mr. Frank Hausr of the Hauser Packing Company, Los Angeles, was next on the program. As Mr. Hauser was considered the spokesman for the Los Angeles packing companies, he had more than his share of questions to answer. His subject was, "Why Strictly Grain Fed, Milk Fed, Acorn Fed, etc., Hogs All Bring About the Same Price In California." The morning session had been comparatively quiet, and everybody was on hand again after lunch expecting to hear some warm arguments, and they certainly had their expectations gratified. Up to the time of Mr. Hauser's address questions from all parts of the hall flew thick and fast. So fast did they come that the packers and breeders alike could not answer them rapidly enough. Essentially these questions were all the same. The big drawing card of this convention was the marketing question which confronts the California stock raiser. Sometimes he gets a premium and sometimes he does not get it. One grower says he does not get any more for a grain finished animal than his neighbor gets for one finished on alfalfa. The packer says he don't want the poor hog at any price. So it can be imagined how peaceable and quiet this meeting was for awhile. Finally Mr. Hauser walked up on the platform and after a few preliminary remarks he repeated the subject of his address and answered it himself by saying, "It is not so." Every phase of the market hog business in California from the time pigs were born until they reached the packer he reviewed. He told about the poor quality of pork that comes into this market, that the packers were forced to buy a large part of their pork products from the East because the Western farmers sent such undesirable stuff to market, that the packers kept strict account of each shipper and the quality of his animals, that large numbers had to be condemned for disease, etc. In fact Mr. Hauser aired every grievance of the coast packers in a clear, concise manner, and then concluded his remarks by saying that the packers wanted to get together with the producer and apply a remedy for existing evils which would be satisfactory to both parties. It was at this juncture that J. L. Thatcher of Riverside arose and said: "As breeders and producers of hogs in California, we who feed well and produce a first class market hog have our bellies full. It has come to a point where we must be paid higher price for our top grade hogs or go out of business, as present prices of feedstuffs are too high to feed at a profit under present conditions. We want the packer to discriminate and punish the shipper of poor hogs in the same ratio as he rewards the shipper of good hogs." Then followed the appointment of the committees. Mr. Cunningham appointed R. B. Peters, Devore; J. L. Thatcher, Riverside; and William Bernstein, Hanford, on the swine breeders committee, while the Hauser, Wilson and Cudahy packing companies selected a committee of three among themselves. Both parties met after the convention was concluded.

Prize Calf Herd of F. D. Ross

The one big question being on the way to a final and satisfactory solution the convention now turned its attention to one which has a mighty influence on the successful application of the other—"How to Market Hogs in California." Harris Weinstock, state market inspector, answered this all important matter in a brilliant, able manner. "From a lifetime of experience in marketing various farm products I have found that the only way in which the producer can ever accomplish any tangible results is by organization. When 70 per cent of the stockgrowers of California band themselves together in a wide awake, efficient organization their power will be so great that the marketing of their product will be easily solved. At present your organization represents but 15 per cent of the state swine growers." Mr. Weinstock cited the citrus and raisin industries as an example of what cooperative organization can do. He told about the private capital being subscribed in the Sacramento valley to build a stockyards where growers could ship

their stock. "Right here," said Mr. Weinstock, "we have the ultimate success of all our discussions and thrashing out of questions which are puzzling the trade. With central markets established we will then get the little local markets where the small shipper of less than carlots can send his stuff, have it graded, and then sent to market." He concluded his remarks by offering his time and effort in the cause and was deluged with a volume of applause which shook the building.

D. O. Lively was the final speaker on the program. His subject was: "What Has Been Done and Should Be Done For the Good of the Swine Industry in California." He told about his experience in the campaigns for growing more and better hogs in various parts of the United States, how the same problems of the California growers were overcome in other communities, and advocated a public stockyards as soon as possible at the large and small centers, showing by comparison and figures what a stockyards had meant to other sections. Mr. Lively's remarks on stock shows were terse and interesting in view of the agitation for shows at San Francisco and Los Angeles this year. He pointed out the many advantages of well conducted and well patronized shows, their educational value, and finally their value to the state. He advocated large premium lists to induce Eastern breeders to bring their herds out to the coast to compete with our own herds, citing the fact that during the past five years Pacific coast bred livestock of all varieties had beaten Eastern animals in the show ring every time they had been entered. He showed the advantages to the California breeder of coming in competition with his Eastern brother, and that one such victory as the California stock won at the 1916 International show at Chicago was worth millions of dollars to the state.

The meeting was adjourned for the day after Mr. Lively's address, and after dinner the delegates were entertained at the theater.

Friday was devoted to visits to the Los Angeles packing plants where the visitors were royally entertained. They were shown the difference between a good and badly finished hog, and saw California hogs compared with the Eastern product. It was noteworthy that the best home-grown product was fully as good as the Eastern brand. All present expressed appreciation of the hospitality and fine treatment the Los Angeles people accorded the swinegrowers while in the city. Three cheers and a unanimous vote of thanks were tendered the packers after the appetizing lunch served at Hauser's plant.

There were over 300 people in attendance at the Thursday session and fully as many in the party which visited the packing plants on Friday. They came from all over the state and many from outside the state. One and all, they expressed themselves as having enjoyed and profited by the convention. Mr. Lovejoy remarked that in 40 years' experience he had never seen such an enthusiastic meeting of swine growers nor had he ever seen so much accomplished in such a short time.

Why Swine are Lower in California Than in Oregon or the Middle States

From Address By F. L. Washburn Before Swine Growers at Los Angeles

QUST who the originator was of the lengthy caption, which I am supposed to cover, I really do not know, but whoever it may have been, was assuming a condition which does not exist, and has not in the past; it further assumes that there is something radically wrong with the conditions under which our hogs are marketed, that the packer may have much for which to apologize, and possibly a profit out of proportion to the rewards received by the raiser of the hogs.

By referring to the year book of Swift & Company recently issued, you will note that their actual payments per cwt. at all plants for hogs during the year 1916 was $8.49, while the average paying price of our company for the same period was $8.43, a difference of only six cents per cwt., or between 10 cents and 12 cents per hog.

It is further a remarkable coincidence that the average price paid at all the Swift plants during the year 1915 for live hogs, was $7.09, which happens to be the identical cost of our entire purchases for the same year.

I wish to further draw your attention to the recent bulletin of the department of agriculture, which announces that the average market price of hogs throughout the United States during the year 1916 was $7.40 per cwt., while in 1915 the average price was $6.10, indicating that our average paying price for the year has been more than a cent higher than the average market price throughout the United States, notwithstanding that our figures include the cost of all light weights, inferior hogs and other undesirable stock.

The records of our company's receipts of hogs are available for the last ten years, and I can say definitely that only in the years 1915 and 1916 has California made any progress in hog raising, our average weekly receipts for the years 1915 and 1916 being slightly more than double the average weekly receipts of the previous eight years, but regardless of this increase none of the Pacific Coast packers are doing a business large enough to rank with many of the smaller plants in the Middle West.

The average weight of our hog receipts for the year 1915 was 179 pounds and in 1916, 177 pounds, which is an average fully 20 pounds under the most desirable weights. Hogs marketed in 1916 have shown a yield of only 75.1 per cent as compared with the yield of 76 per cent for the year 1915. Too many light unfinished hogs are being marketed.

The people of our state are good consumers of pork products as long as the particular products happen to be ham and bacon; beyond that their interest seems to wane, and coast packers have a very poor outlet for pork loins, trimmings, tongues, spare ribs, neck and back bones, kidneys, tails, leaf lard, Boston, boneless ham butts and shoulders.

On account of the poor demand for pork loins, trimmings and other products, our company has been obliged to ship considerable quantities of frozen pork east, with a freight and icing charge amounting to $2.35 per cwt. on the net weight shipped.

As before mentioned, it is an easy matter to sell 25 per cent of the live weight of the hog in hams and bacon, but the remaining 75 per cent needs the

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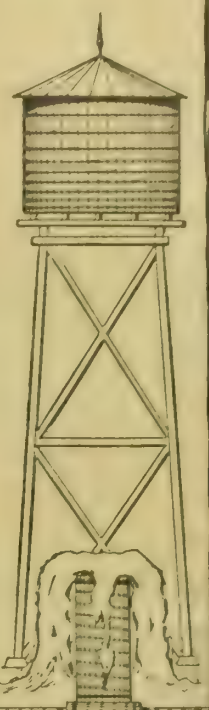

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assistance of education in the merits of fresh pork, and I dare say that the city of Pittsburg will consume more fresh pork and sausage in one day than the entire bay district of San Francisco in a week.

Permit me also to mention the comparatively large business done by retail butchers in whole hogs. The desirable so-called block hog weighs from 90 pounds to 125 pounds dressed weight, and this weight is considered too small to make a satisfactory packer hog. Now, this is the type of hog which sells to very poor advantage, usually at from one cent to one and one-half cents per pound live weight under the price of heavier hogs; the comparatively large number of light hogs turned off being a further handicap to the packer, as the retailer, who might otherwise be using fresh pork cuts, is able to buy these cheap dressed hogs and work off the small cuts fresh to his trade. In the past, such a large percentage of the fresh pork consumed, has come from these block hogs, that the producer has had no trouble in selling his light hogs which reach, for example, the weight of 130 to 140 pounds per head, with comparatively small expense. If, instead of rushing off these lightweights, the producers would finish them to a packer size, say 175 pounds to 250 pounds, the large number of lights would be eliminated with gain both to the producer and distributer.

By way of explanation, the packer cannot afford to handle extremely light hogs, for the cuts when cured and smoked are not merchantable as No. 1 stock, on account of their undesirable shrivelled appearance; furthermore, the dressing percentage decreases correspondingly with the weight of the animal.

Now as regards market quotations and the matter of shipping direct to a packer, as compared to public stock yards, this is a matter on which I do not care to take sides. Our company has been purchasing hogs for direct shipment for many years, and it is my belief that in all this time, with very few exceptions, every producer that has come in direct touch with us has been satisfied; he has known exactly what he would secure if he had good stock, and his shipments have been subject to no fluctuations of the market, except in his favor. Will further add that a number of important plants in the Middle West purchase hogs in this manner as well.

For a record I attach the market reports on January 15. 1917, showing market reports from Chicago, Kansas City and Omaha. There are more hogs marketed at Missouri River points than in Chicago, and the Missouri River markets as a rule range from 15 cents to 25 cents lower than Chicago.

The range of prices at Omaha on January 15th is as follows:

Heavy, 10.30 to 10.70. Light, 10.00 to 10.50. Pigs, 8.50 to 9.75. Bulk of sales 10.30 to 10.60; the Omaha top being 10.70.

The tendency in going over market quotations is to figure that one's own stock will always bring the top, but this is a long way from what often happens, and a shipper is just as likely to market his hogs near the lower limit of the spread as he is at the high limit.

I must touch on the matter of condemnations in hogs before closing. Tuberculosis is the principal cause of these losses, and apparently there is very slight, if any, improvement, except with those who are deeply interested in the success of the hog business.

The cause of tuberculosis in hogs is well known to you all, and this has come to be such a serious menace that for the past year our company has been charging one-half of the condemnation loss to the shipper, and we have assumed the other half after allowing full credits for salvage.

From a compilation made by the government inspection service at our establishment 72, I find that in 1916 a total of 25,751 head were retained as suspects, on account of showing signs of disease. The total percentage of condemned amounted to 3.2 per cent, of which 2.2 per cent were condemned for grease, and one per cent were condemned for sterilization. I might add that we have not been able to make any use of the privilege of disposing of pork products passed for sterilization to pay out any better than by making lard out of such cuts.

Losses from cholera have not been important, save in isolated cases; it would appear that cholera is under good control.

As advantageous distributing centers, our coast cities can hardly be compared with Chicago, Omaha, Kansas City, etc., which have two-thirds of the country's population to draw on, and I dare say that outside of a comparatively small section of Nevada and Arizona, our packers do no business in pork products, outside of our own state (except in shipping surplus products East that should be selling here), the matter of freight rates being an all-important regulator.

Add to this condition the wonderful demand for pork products from the war zone, especially Belgium, which has existed for the past two years, and which has given us no direct benefits; as none of our pork products have ever found their way across the water, the eastern packers having this broad market to sell on, with the remarkable demand from manufacturing sections in particular and the whole country in general.

There are some good hogs being raised and finished in California, and when we consider that real hog raising is not much over two years old, I believe that the business has made good progress. One year ago the hog market was on a very low basis, both in the north, east and here, and in 1916 you have been handicapped by high grain prices. In the Middle West the farmers have always raised and fattened hogs continuously in good and bad years, and in some sections have considered themselves fortunate if their herds were not wiped out with cholera oftener than once in five years, and I have heard many eastern farmers say that without their hogs they could never conduct their farms on a profitable basis.

The California hog is still laboring under the old stigma that was attached to him when tule roots, acorns, etc., were his chief diet, and it sometimes happens even now, that a shipper will make the mistake of sending the packer something on this order.

The majority of our consumers have been so trained by years of listening to the propaganda that eastern smoked meats were superior to those produced here, that many eastern brands of meat and lard command a preference to which they are not entitled. The California housewife should ask for smoked ham, bacon, lard, etc., that are produced in California. She will not regret her choice.

In order to promote the work of

marketing choice finished hogs we have been paying premiums of 10 cents per cwt. on each full unit in the dressing percentage over 77 per cent, and this plan has worked out quite satisfactorily. The average yield of hogs handled at coast plants is, I would say, at least three per cent less than the general average at packing plants in the Middle West.

In speaking of our own business, our pork department has never been uniformly profitable, and I believe the same situation exists with other coast packers. I have always considered this business is one which needed constructive up-building, and we are just beginning to realize the first of the results that can be obtained only through close cooperation of producer and packer, and we believe the more direct the contact the more cordial will be the situation, we are willing to work along any legitimate lines that can be suggested for the ultimate benefit of the industry.

As regards the future of the market, it appears that we can look for high prices as long as the present export demand continues, as well as the heavy consumption in the manufacturing centers of our country. Right now the prices of live hogs, cured meats and grain are all abnormally high and I dare say that conditions governing hog raising will show further improvement with the advent of normal prices for feed, even though the hog market may be relatively lower.

Stocks of cured pork products and lard are quite heavy, and receipts at Eastern points are most generous, some enthusiastic boosters even predicting 12 cent hogs, but these high spots in the long run may be almost as detrimental as periods of depression.

In conclusion, I will summarize the principal handicap under which the coast packers are working, in spite of which we are paying on the average as good prices as they are in the East:

Excessive condemnation.

Lower yields.

Poor demand fresh pork cuts and sausages.

Prejudice against california cured meats and lard.

Excessive percentage of light unfinished hogs marketed.

Local packers get no benefits of high export markets on packing house products.

When these conditions are overcome and a well balanced demand created for all the products of the hog there is no reason why hog raising in California should not prove one of the most profitable industries on the Pacific Coast.

California Wool Growers Association

The California Wool Growers Association held its annual meeting at the University of California Farm at Davis on January 5 and 6, 1917, President C. A. Kimble presiding. There were about 35 sheepmen in attendance. It was considered the most successful meeting in the history of the organization. The 640-acre homestead law, increased grazing rates in the forest reserves, and the value of rice stubble for sheep were discussed.

A number of demonstrations were held, Professor R. F. Miller in charge. A carcass demonstration was given comparing the weight and value of the market cuts of a choice mutton lamb and an old Merino ewe. Two stud rams in full fleece were sheared, a Rambouillet and a Romney Marsh, the former shearing 27.2 pounds, while the latter sheared 19.8 pounds. Three methods of docking lambs were demonstrated, namely, the knife, the docking pinchers, and the Ellenwood docking iron. The docking pinchers and docking iron are used hot and prevent loss of blood, the latter having special advantages over the old way of cutting the tails off with a knife.

A very instructive feature of the afternoon was the result of the feeding-test with 424 old ewes, which had just been completed. After a discussion of the results of this test the feeding lots were visited where the differences would be more readily appreciated upon seeing the two lots of sheep. The various breeds of sheep at the farm were also on display.

At seven o'clock in the evening a mutton banquet was served at the University Farm dining hall, 37 being seated at the table. F. A. Ellenwood acted as toastmaster and the following speakers were called upon: George Pierce, Professor Gordon H. True, L. L. McCoy, D. O. Lively, Dr. H. J. Hammond, President C. A. Kimble, and Dean Thomas Forsyth Hunt.

Officers elected: President, L. L. McCoy, Red Bluff; Vice-President, C. A. Kimble, Hanford; Secretary, F. A. Ellenwood, Red Bluff; Treasurer, F. N. Bullard, Woodland.

At the 19th annual meeting of the O. I. C. Swine Breeders' Association, held in Chicago, officers elected were: President, A. M. Foster of Illinois, secretary and treasurer, O. C. Vernon of Goshen, Indiana. The association passed resolutions withdrawing support from the White Breeders' Companion, which had been the official organ of the association.

EASTERN JERSEYS ARRIVE AT RIVERSIDE

After thoroughly combing the Middle West for the right kind of foundation dairy stock J. M. Roberts, field agent in California for the American Jersey Cattle Club, has arrived in Riverside with a shipment of pure bred Jersey cattle for the Riverside Jersey Breeders' Association. Twenty-one head were in the shipment, including five cows, 12 heifers, and four young bulls, two grandsons of Golden's Fern's Noble, one of Oxford You'll Do, and one of Oxford's Majesty, while the females were of the Golden Love's Son breeding. Golden Love's Son blood is very popular in the Middle West and can be found in most of the high producing herds in that section. Every animal came through in splendid shape and they are now conveniently housed in spacious quarters awaiting their dispersal which will be done in the very near future.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Loss of Flesh

I have a cow that freshened in June with her third calf but has not come in heat since. She seems in good health but is thin in flesh and I am unable to put her in good condition. I am feeding stock beets, carrots, bran, alfalfa and oat hay. Am feeding what hay she will eat up without any waste. She was on rye pasture before coming fresh. I wish to breed her again if possible. What do you advise?—Subscriber, Beaumont.

Have her examined by a veterinarian as there may be something wrong with the genital organs from her last calving. Or possibly she may have tuberculosis. The case is one that is hard to diagnose without examination.

Scours

I have a heifer that was recently returned to alfalfa hay from salt grass pasture where she has been for a year. Upon calving she has contracted a severe case of scours that seems to be growing chronic. I feed her dry hay and have given her scalded bran and water for drink but have made no great headway in checking the disease. What would you advise doing for her? —Subscriber, Hemet.

Overfeeding of the alfalfa and the sudden change of feed may have started the scours. Feed her sparingly for a short time and give oat hay or corn fodder part of the time in place of the alfalfa. Also give her these powders: Powdered gentian three ounces, powdered zinziber three ounces, bicarbonate of soda three ounces, powdered nux vomica two ounces and tannic acid one ounce. Mix and divide into 20 powders. Give one powder twice a day for four or five days, then one a day while they last.

Shoulder Slip or Sweeny

I have a five year old riding and driving horse that suddenly became lame after being ridden in hilly country. Haxe examined leg and shoulder thoroughly but can find nothing unusual. There are no signs of splint, ringbone or similar troubles nor inflamation anywhere. Horse is just as lame whether used or not and on soft ground as well as on hard. I think the trouble is in the shoulder but have examined it in every way and can not make him flinch. Can you give me any idea what the trouble is and what to do for it? It has continued for over two weeks.—Subscriber, Ducor.

Probably the trouble is shoulder slip or sweeney. Somewhere in your travels in the hilly country the horse probably stepped on a rolling stone or a slippery place and the leg and shoulder were suddenly thrown forward. Such lameness might not show much until the next day when the muscles would be swollen but not noticeably. In time this swelling would subside and the muscles shrink below normal and still the change not be very noticeable. If it is shoulder lameness you can probably make him flinch by lifting the foot and pulling the limb straight forward or straight back. Or the lameness might be in the ligaments around the shoulder joint from the same cause. This would show by pressure on the joint with your knuckles. You may be able to cure him with this liniment: Equal parts of turpentine, spirits of camphor, tincture of capsicum, aqua ammonia, alcohol and olive oil. Shake well and apply once a day. If the muscles shrink away in spite of the liniment then it may be necessary to inject the muscles with equal parts of turpentine and alcohol. Inject the solution into the muscles in several places with hypodermic syringe. This treatment may need to be repeated in two weeks but one treatment is usually enough. You should have a veterinarian do it for you.

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A Great Holstein Herd Under the Wing of Mount Shasta

Written for California Cultivator by C. E. Hughes

ABOUT two years ago the writer visited the registered Holstein herd owned by The McCloud River Lumber Company, located within some 14 miles of impressive snow-capped Mt. Shasta. Among other impressions of the herd I find this paragraph which I published in Livestock and Dairy Journal:

"The McCloud River Lumber Company was unfortunate enough to lose its herd sire, Sir Korndyke Hengerveld De Kol 31st. This bull was a son of Sir Korndyke Hengerveld De Kol and out of Grace Ormsby De Kol Hengerveld, an A. R. O. cow with a seven-day record of 29.60 pounds butter. A number of his calves are now in the herd, and they are a fine, straight, vigorous lot. The writer noted especially three heifer calves that should land right close to the top of our best calf classes at the fairs."

Recently the writer again visited The McCloud River Lumber Company, and my, oh my, how quickly those heifers do grow up into regular dairy cows! Of the three good heifer calves noted in the preceding paragraph I found two on official test. And before speaking of individual production I want to say that the records now being made in this herd are remarkable in that all of these heifers just ran in pasture until within a few days of freshening time, so there was absolutely no preparation for test, and they all freshened in thin flesh. Beyond this, as this is the first lot tested in the herd, they have not had the benefit of experienced feeding. In fact, their ration under test is exceedingly simple.

It does not always happen that the best individual heifer makes the best record, but is so in this story. McCloud De Kol Parthenea, a junior two-year-old that would look mighty well in any man's herd, started on test with more than one handicap. Besides lack of preparation she was so lame in one foot that she could not bear it on the ground. In spite of these things she went ahead and made over 17.5 pounds butter in seven days early in test. She recovered from her lameness and immediately began to increase in production. At this writing she has been in milk over 30 days and is still increasing in production, now milking around 72 pounds per day. Her best seven-day records to date are 505.1 pounds milk and 20.62 pounds butter, and her best 30 days 1919.8 pounds milk and 78.64 pounds butter. She thus becomes the California champion junior two-year-old for seven and thirty-day milk production under official test.

The other of the two heifers that caught my fancy two years ago is McCloud Hengerveld Geertje. Freshening as a senior two-year-old she has just completed official records of 436.1 pounds milk and 18.37 pounds butter in seven days, 1845.1 pounds milk and 76.83 pounds butter in 30 days. She also is a splendid individual carrying a good udder with rare veining.

Of the five other two-year-olds to be tested so far, McCloud Minita De Kol made 366.3 pounds milk and 17.03 pounds butter. McCloud Imogen De Kol made 322.5 pounds milk and 15.11 pounds butter. McCloud Quidee De Kol made 328.2 pounds milk and 14.63 pounds butter. McCloud Beauty Virgo made 296.8 pounds milk and 14.40 pounds butter, and McCloud Bonheur De Kol made 359.1 pounds milk and 13.63 pounds butter. All of these seven heifers are daughters of Sir Korndyke Hengerveld De Kol 31st, and are all of his heifers that have freshened so far. The seven average 16.25 pounds butter in seven days, which is an exceedingly good showing for heifers put on test right out of pasture and handled under test by men inexperienced in test work.

Several of the older cows have also been tested, and their records are not only creditable in themselves, but they will be of great value later on as their daughters go under test. Of these older cows Geertje Canary De Kol made 452.3 pounds milk and 19.86 pounds butter in seven days. The 10-year-old cow Geertje Marie De Kol made 437.8 pounds milk and 17.93 pounds butter, while her 14-year-old dam, Geertje De Kol, who is also the dam of McCloud Hengerveld Geertje, made 376.6 pounds milk and 17.05 pounds butter in seven days.

These are the records to date, but they are enough to show very conclusively that the right blood is in the herd, and that it will require only proper feed and handling to bring out some great records in this herd.

The herd now contains about 130 head of registered animals, and the writer sees a wealth of good material in it, particularly among the young heifers coming on.

Among the heifers in the herd are especially to be noted 15 daughters of Sir Korndyke Hengerveld De Kol 31st, seven of which have freshened and gone under test as previously mentioned. This is a particularly good group.

Then there are 24 daughters of McCloud Prince Ormsby. The writer picked out of the heifer calf herd what he believed to be the most promising youngsters on the place, not knowing their breeding at the time, and later on found that every one selected was a daughter of McCloud Prince Ormsby. This young sire is bred in the lines that are making dairy history today. He is sired by Sir Ormsby Hengerveld De Kol, 66 A. R. O. daughters, and is therefore half brother to Pietertje Maid Ormsby, 35.56 pounds butter in seven days, and to Gracie De Kol Ormsby, 33.32 pounds butter in seven days, and to Aaggie Texal Wayne 2nd, 30.59 pounds butter in seven days and 1077.72 pounds butter in one year. He is also

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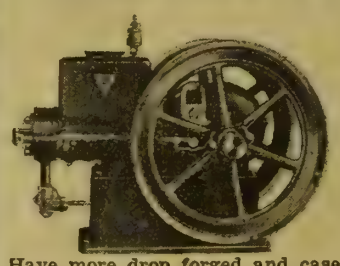
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half brother to Sir Ormsby Skylark, the sire of Duchess Skylark Ormsby, the world's record butter producer, who made 2761.7 pounds milk and 1506.36 pounds butter in one year, her best seven days being 34.35 pounds butter. McCloud Prince Ormsby is out of Minita Inka, a 20.04-pound daughter of the 24.02-pound cow, Minita's Milk Maid.

Then there are in the herd eight daughters of Wisconsin Bess Chief Jr., whose sire is Wisconsin Bess Chief, sire of Spring Brook Bess Burke, 34.80 pounds butter in seven days, and she is the dam of four A. R. O. daughters, two of them above 21 pounds butter in seven days as junior two-year-olds. Of the other two, one is Bess Pietertje Ormsby Mercedes, 21,245 pounds milk and 889.9 pounds butter in one year as a junior three-year-old, and 787.3 pounds milk and 33.22 pounds butter in seven days as a five-year-old. The other is Spring Brook Bess Burke 2nd, with an official record of 792.3 pounds milk and 38.22 pounds butter in seven days. This is transmitting blood of the first rank. On the dam's side Wisconsin Bess Chief Jr. is no less notably bred. His dam is Jennie Ormsby De Kol, 22.94 pounds butter in seven days, record made at nine years of age. She is sired by Duchess Ormsby Piebe Burke, 33 A. R. O., daughters including Sadie Vale Concordia 4th, 41.06 pounds butter in seven days, and she is the dam of King Korndyke Sadie Vale, the only bull in the world to have three two-year-old daughters with seven-day butter records above 26 pounds, one of which made 31 pounds butter in seven days as a three-year-old.

In the herd are three daughters of Fobes Tritomia Homestead, whose sire is Homestead Jr. De Kol, 70 A. R. O., daughters including Grace Fayne 2nd's Homestead, 35.55 pounds butter in seven days. He is thus half brother to Bessie Piebe Homestead, dam of Jessie Fobes Bessie Homestead, 34.95 pounds butter in seven days, and the only cow to have three consecutive records above 33 pounds. She topped the great Detroit sale last summer when she sold at public auction for $3600.

There are also three daughters of Fobes Tritomia Homestead 2nd, whose sire is Fobes Tritomia Homestead and whose dam is Wonder Piebe Homestead, a daughter of Homestead Jr. De Kol.

These young females make a foundation upon which any breeder of black and whites might find delight in building, and while their dams are not all A. R. O. cows yet, it is likely that they will all be tested out as they freshen.

Heading these females is Sir Pietertje Ormsby Canary, a young sire of pleasing type and carrying an extraordinary middle. He is sired by Sir Pietertje Ormsby Mercedes, the great sire whose get have been for several years the sensation of the big shows in the East, and who have made production records fully as notable as their show ring winnings. One of them, Queen Piebe Mercedes, recently became the world's record junior four-year-old yearly producer when she finished a year's test with 30,230.2 pounds milk and 1389.45 pounds butter. Queen Ormsby Pietertje, another of his daughters, recently finished a year's test as a senior three-year-old with records of 21,302.1 pounds milk and 993.2 pounds butter. Several more of his daughters are making great yearly records at the present time, and these will add new laurels to his list of over 50 A. R. O. daughters, many of which already have excellent yearly records. This sire shows transmitting ability of a rare order, his dam being Pietertje Maid Ormsby, 35.56 pounds butter in seven days.

The dam of Sir Pietertje Ormsby Canary is Buffalo Lizzie, 19.32 pounds butter in seven days, and 17,610.4 pounds milk and 862.88 pounds butter in one year as a three-year-old. Her dam, Spotted Lizzie 3rd, is also a producer of note. She has records of 25.19 pounds butter in seven days, and 24,347.9 pounds milk and 1009.87 pounds butter in one year. She also has a sister, Pauline Queen Johanna, with records of 25,660.1 pounds milk and 1024.65 pounds butter in one year.

To develop the splendid blood now in the herd, conditions are gradually being adjusted. The McCloud River Lumber Company is one of the very largest lumber producers in the West, and the presence of a herd of 130 head of registered Holsteins does not make much of an impression when lined up alongside the main operations of the company. But there is a town of something like 2500 population that looks to the company for a supply of good milk, butter and ice cream, and the registered Holsteins are performing nobly to meet the demand. The rich, logged-off lands along Squaw Creek raise abundant crops of alfalfa, and experiments are being carried on each season to determine the best crops that can be grown to supplement alfalfa. Within a comparatively short time many of the feeding problems will have been solved, and then look out for more big records up Shasta way.

While McCloud is somewhat isolated from the principal dairy centers of the state the company has enjoyed a splendid demand for bulls. They have gone to points all over California, from the Oregon line to Imperial County. In fact the writer went in to McCloud on the train with an Imperial Valley dairyman who had purchased several bulls from the company, and who made a good, round offer for the two-year-old heifer, McCloud De Kol Parthenea, but could not seem to interest the company in the idea of parting with her.

WONDERFUL BUTTER MAKER

Regarding the wonderful performance of Winnie Korndyke Cornucopia De Kol Mr. Gibson gives more information as to her monthly record:

Winnie was bred July 6, 1916 to Prince Alcartra Korndyke and at the completion of her year had been carrying a calf over five and one half months, thus making the record all the more remarkable and equaled by no other cow.

Her records are as follows: December, 7 days, 498.7 pounds milk, 14.811 pounds fat; January, 31 days, 3113.5 pounds milk, 92.471 pounds fat; February, 29 days, 3152.4 pounds milk, 91.420 pounds fat; March, 31 days, 3128.2 pounds milk, 95.097 pounds fat; April, 30 days, 2898.4 pounds milk, 87.822 pounds fat; May, 31 days, 2972.6 pounds milk, 81.449 pounds fat; June, 30 days, 2497.5 pounds milk, 71.928 pounds fat; July, 31 days, 2573.3 pounds milk, 81.831 pounds fat; August, 31 days, 2488.9 pounds milk, 77.405 pounds fat; September, 30 days, 2314.8 pounds milk, 74.764 pounds fat; October, 31 days, 2338.2 pounds milk, 75.524 pounds fat; November, 30 days, 1939.1 pounds milk, 72.910 pounds fat; December, 23 days, 1118.6 pounds milk, 43.353 pounds fat. Total 365 days. 31,034.2 pounds milk, 960.789 pounds fat or 1200.99 of 80 per cent butter.

Seven days (40 days after calving). 789.0 pounds milk, 28.73 of 80 per cent butter; 30 days (40 days after calving), 3215.4 pounds milk, 117.2 pounds of 80 per cent butter; seven days (274 days after calving), 558.4 pounds milk 22.58 of 80 per cent butter; 305 days—ten months' record, 27,443.3 pounds milk, 1034.1 pounds of 80 per cent butter.

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A Shetland pony is the nicest pet and playmate any child can have. They are fine to ride and drive to school, for they are perfectly gentle for a child to ride and drive, and what fun you can have! Many boys and girls who have to walk to school have sent to me for a Shetland pony. These ponies we give away are children's ponies and are gentle and kind and well broken and safe for any boy or girl to handle who is old enough to go to school.

In the past three years the Pony Man has given away 142 Shetland ponies and he had never heard of any of the boys and girls who got them until they sent him their names and addresses so he could write and tell them what to do. Three more fine Shetland ponies and outfits will be given away Saturday, March 24, 1917, to boys and girls who do some work for us that will be easy to do. The sooner you send your name the sooner you can get started.

A PRIZE FOR EVERY BOY AND GIRL

And here is another important point. If you send us your name and address at once you will be entitled to take part in the Extra Prize Awards and you can sure earn a fine camera and gold watch or other valuable prize. You cannot lose, everyone taking part will receive a prize or cash for the work done.

"Sparkle," a beautiful young Shetland and pretty outfit consisting of a fine four-wheeled pony runabout and nickel mounted leather pony harness is the first prize, and that is the one you want and you might just as well have "Sparkle" as anybody. Send us your name and address right away so you can get started at once and get a pony for yourself. Besides "Sparkle" we are going to give away two other fine Shetlands, "Ranger" and "Lightfoot", and a pretty saddle outfit with each one. As soon as we hear from you we will send you pictures of other boys and girls and the ponies they got and tell you how to go ahead. If you already have a pony and know some other boy and girl who would like to have one, please tell them about these ponies we are going to give away.

DELIGHTED WITH THEIR PONIES

I have already given away 142 Shetland ponies and pony rigs to boys and girls and if you haven't a pony now is your time to get one. You will be just as well pleased as the others. I have not the space here to print all the nice letters the boys and girls have written me, but I will send many more when I hear from you. Some have been offered $200 for their ponies and outfits, and would not accept it, so you see these are valuable prizes we give away.

Every Pony Is Safe for Children to Ride

MUCH PLEASED WITH HIS PONY

Hemet, Cal., Dec. 6, 1916.

Dear Friend:

I am writing to tell you that I am very much pleased with my pony. He is the best pet I have ever had. He is gentle and friendly with every one. I named him "Teddy" because I thought the man at the livery stable was joking. I named his middle name "Woodrow".

I am sending you a picture of me on the pony. I like my camera fine.

Your friend,
Raymond Moyer.

Hanford, Cal., Dec. 30, 1916.

Dear Pony Man:

I received "Mary" the day before Christmas, and brother Arnold and I went with Grandpa to get her. I was so pleased to get her and the outfit. Many thanks, and I would advise all little boys and girls that want a pony to enter as I did. I want to thank the many friends that helped me to get my pony. I wouldn't take a good deal for my outfit.

Brother and I had our picture taken and will send it to you. Brother Arnold is five years old, and I am seven. I must thank you again.

Charles Edwin Teague.

Downey, Cal., Dec. 29, 1916.

Dear Pony Man:

Words fail me when I try to thank you for the beautiful little bay and white Shetland pony which you sent me with saddle, blanket, and bridle. He is as clever as he is beautiful, and I know there was no boy more happy than I was when my pony came to me.

You have been only too good to me for the amount of subscribers I sent in. Thanking you again for my pony and your kindness to me, also wishing you a very happy and most prosperous New Year, I am

Sincerely,
Leslie B. Riggins.

Ventura, Cal., Oct. 27, 1916.

Dear Pony Man:

I want to thank you very much for the fine pony "Trixy" which you sent to me. We all think a great deal of her. She is as gentle as can be, and she lets me on her back without either saddle or bridle. We were very much surprised to see such a fine buggy and harness—surely it was far above our expectations. It is certainly fine and dandy and of course with little "Trixy" it is surely a pretty little outfit. We are well pleased with it.

Thanking you again for my dear pony, I am ever

A friend,
Beulah De Witt,
Ventura, Cal.

WINNERS OF PONIES GIVEN AWAY DECEMBER 21, 1916

Charles Teague, Kings County.
Jack Henderson, Sacramento County.
Leslie B. Riggins, Los Angeles County.

WINNERS OF OTHER PONIES RECENTLY GIVEN AWAY

Beulah DeWitt, Ventura County.
Raymond Moyer, Riverside County.
Margaret Rae, San Bernardino County.

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Extracting Clean

Written for California Cultivator By M. H. Mendleson

DOES it pay to extract close at the end of honey flow? Many believe in extracting supers clean, expecting the brood chamber to contain sufficient stores to winter the bees, others extract also part of the brood chamber, thinking 15 to 20 pounds of honey will last until the new honey flow commences.

I have tried various methods on various locations, near and far from the coast, from an elevation of 50 feet to over 2000, and the amount of honey consumed throughout the winter varied considerably. Forty-five years of experimenting have proven to me that colonies left rich in stores, from at least 35 to 75 pounds or more of honey, will go through the winter in good condition and ready for a honey flow, while those with limited stores will come out weak and poor, and many have to be fed and stimulated, and others too weak to feed. The rich colonies have a surplus of honey in spring, combined with increase of the working force, which much more than pays in the increased amount of surplus gathered, aside from the stores carried over.

The loss of colonies through the winter from queenlessness would run from two per cent to three per cent but when an apiary is entirely and carefully requeened, the loss is exceedingly small.

Should there be a cool late spring (as we have had in former years) the surplus honey carried over increases the working force much more, while the poor weak colony is almost at a standstill. Another advantage of a rich colony over a poor one is that the full combs of honey leave that much less cool air space for the bees to keep warm. It has been proven time and again that a poor colony has to exert itself much more to generate sufficient heat than a rich, strong colony, the latter having a quiet hum, the former having a disquieting hum, excepting too weak and chilled to make any.

There is another point in favor of rich colonies and that is in seasons of dearth the surplus stores will carry colonies over with less expense of feeding. One season in particular, when we had a dry winter I removed in the spring all supers, stored them away and fumigated them and in June I returned them to these colonies and carried them through the winter without having to feed. With capped combs of honey there is much less honey consumed than when feeding in liquid form as feeding in the liquid stimulates them to consume much more by starting brood rearing and also in the exertion of storing and capping.

Contracting entrances to one, two and three inches will add to better wintering by economy of heat as but little draft is necessary for fresh air. Entrances should be mouse proof to prevent destruction of combs and honey. A 1-16 inch entrance will prevent a mouse from entering.

I carry over several hundred three L framed nuclei with young queens in three compartment hives, near the coast, and it costs nearly as much in stores to winter them as it does full colonies. The center compartment being stronger, caused by the heat from the side colonies, a cushioned cover filled with chaff would winter them with less stores and in better condition, as the chaff would absorb the moisture that collects and cools the top, and at the same time the chaff would confine the heat and consequently the colonies would come out much stronger in spring. This I have tested. It has an effect similar to packing colonies in the Eastern cold climates. Moisture on top of colonies or combs causes unhealthy conditions. It molds combs, causes a cool, damp atmosphere within. When this dampness is taken up by an absorbent, the colony comes out in a much more satisfactory condition.

Bees will cluster close up to a packing of this kind with comfort. Spring dwindling is not bad with a comfortably packed colony. Even if we are in a mild climate I hope to try it extensively another fall.

Fumigated section honey is not as natural or as good as that not fumigated. The odor is more or less affected by sulphur fumes.

TIME TO LOOK HIM OVER

"The suggestion comes to us that farmers contemplating buying a tractor for next season's plowing and other work should get the iron critter early enough to have an opportunity to get acquainted with his likes and dislikes, eccentrics and eccentricities, before the heavy pull ahead of the plows comes. Buying a tractor and putting it immediately to plowing without previous experience is courting failure, the record shows. The advice sounds sensible. A farm tractor is a piece of machinery that will keep on running right if handled right, but that won't run smoothly if handled foolishly. No farmer new to automobiles would think of buying one and starting in it the same day to visit his wife's relatives in New England. He would run it around the square and to town a few times first. Same with the tractor. Plowing a 40 or a 60-acre field is a long ride, best made on a tractor previously handled to some extent by its driver."

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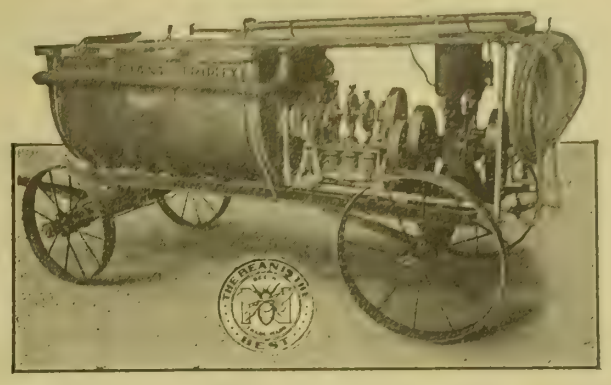

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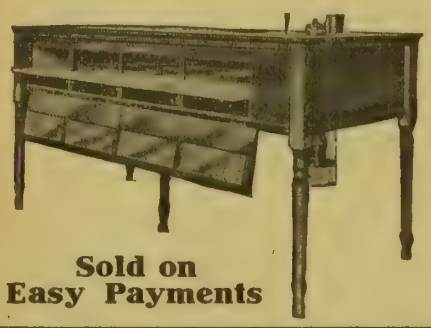

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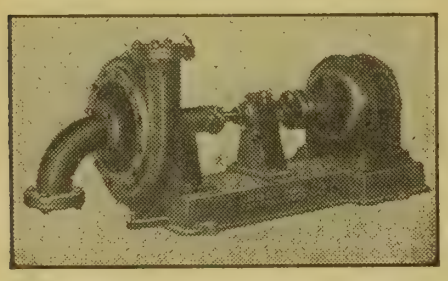

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Letters to a Beginner

Written for California Cultivator By Jean A. Koethen

THE INCUBATOR

DEAR GEORGE: Incubator hatching depends on three factors, the eggs, the machine and the operator, and the three are interdependent. Your eggs must be fresh. Every day they are kept after the animal heat has cooled weakens the germ and diminishes its chances of hatching into a strong chick. Two weeks is the limit.

In selecting an incubator you will have to be guided by the poultrymen in your own neighborhood, for a machine may do excellent work in one locality and be a failure in another. I remember talking with a woman who was running two large hot water machines in her home in an interior valley not far from Los Angeles and having the best of success with them. She said that while living in a beach town she had used a hot-air machine, but when she moved away from the coast she had to give it up. The moisture problem is the most perplexing of all incubator problems. Whatever machine you use, in dry weather or a dry climate, you will probably have to add moisture in some form, whether the machine provides for it or not, but the experience of those who have studied a given climate is your best guide. The machine they use and their practice in using additional moisture will be safest for you.

The best motto for a novice who is beginning to handle incubators is. "Let him that thinketh he standeth take heed lest he fall." The incubator is a wonderful invention and largely responsible, no doubt, for the rapid rise of the poultry industry the last 20 years, but no make is perfect. Neither is the hen when it comes to that. An incubator has even less intelligence than a hen and it lacks her maternal instinct. You have to supply both, and more. Running an incubator isn't a matter merely of intelligence but of absolute fidelity in attention to a large number of apparently unimportant details; such a trivial matter as testing your thermometer before the hatch begins, for instance. You say, "Oh, well, it's about right; I won't bother", but that won't do. You have to bother. If your thermometer registers half a degree higher than it ought, and the center of the bulb is a quarter of an inch above the top of the eggs, what should it register when the directions in your book say "Run at 103 degrees when the center of the thermometer bulb is on a level with the top of the eggs". It's a case of mathematical exactness or a spoiled hatch. Then that little matter of levelling the machine. Every direction book says: "Be sure that your incubator stands perfectly level." If you are careless about this you will find, if you investigate, that the air at the upper end of the egg chamber is warmer than it should be, and that at the lower end cooler. As for turning and cooling the eggs there is a chance for infinite care. In this you are imitating the mother hen who keeps moving her eggs from one side of the nest to the other and wiggling them around with her toes. She doesn't know that she is wiggling them to keep the germ from sticking to the shell nor that they must be shifted from the center to the edge of the nest and back again so that each has its chance at the warmest place, which is right under her breast. When she leaves them for half an hour while she rolls in the dust and chases a bug or so, she doesn't know she is giving each growing germ a little cooling. It doesn't matter whether she knows it or not. We know it and we must follow her lead as nearly as maybe.

Your lamp must be cleaned and filled every day and at the same hour. That is a good deal of trouble. I wonder how many incubator operators there are who have never neglected this direction and then suffered the humiliation of finding the light out and the eggs chilled. We learn through bitter experience always, and it is strangely hard to profit by that of others, even when it is before us in black and white.

I have not time to give you full directions for running your incubator. You will receive a direction book with your machine, and your first duty is to follow it explicitly. The manufacturer knows his machine better than you do. When you have learned to follow his directions understandingly you will probably find that you can improve upon them, for every incubator has some fault, but follow directions and learn your machine before you experiment. Circular 99 of the college of agriculture of the University of California will be a great help to you in studying artificial incubation. You have only to send a postal card and you will receive it free of charge. The following brief rules may be a help to you in formulating the information you gather from various sources:

Run the incubator in a cellar, if possible, to secure uniform temperature, which should be about 60 degrees.

Provide abundant ventilation, but avoid drafts. This may be done by removing windows and inserting in their place frames covered with muslin.

Before each hatch, wash and disinfect the incubator.

Start the machine two days before you wish to put in the eggs and keep it running steadily at 102 degrees for 24 hours.

After the eggs are in, keep it running at 102 degrees the first week, then raise temperature gradually to 103 degrees.

Do not open the door of the egg chamber for 48 hours after the eggs are put in. After this turn morning and night until the 19th day. Do not disturb after they begin to pip.

Begin cooling the seventh day and cool every evening when the eggs are turned, gradually lengthening the cooling period to 40 minutes or more. Cool till the small ends of the eggs feel warm when placed against your eye.

Test out infertile eggs and dead germs on the seventh and 14th days.

Begin each new hatch with a new lamp wick and perfectly clean lamp. Fill lamp and clean wick after the eggs are turned each night.

Provide moisture, when it is needed, by keeping the floor wet.

Be sure the machine is level and the thermometer correct.

Here's hoping you will be as successful in learning to use the incubator as you were with your hen hatching.

Affectionately,

Aunt Jenny

Mammoth Bronze Turkeys

Written for California Cultivator By Geo. A. Smith

MAMMOTH Bronze turkeys are by far the most popular in the world today. They have beautiful brilliant plumage, grow large, are strong and vigorous, good foragers and well adapted to our climatic conditions. They mature in time for the holiday season, are easily fattened, have a yellow skin, and their large frames carry a considerable amount of fine grain meat, which makes them for market purposes without an equal When purebred Mammoth Bronze turkeys are crossed with the grade or common stock usually found on the farm they increase the size and hardiness of the young turks, making them easier to raise and when matured you have a bird that has the size and quality of meat that commands a higher price in the market than ordinary common stock.

It costs almost nothing to raise turkeys, for if allowed their freedom during the day, as is most consistent with their nature, they gain most of their livelihood themselves and will destroy multitudes of injurious insects. Skim milk, which is to be had on almost every farm, is an excellent food for both young and old turkeys, either made into a curd or given to them fresh. Such easy feeding requirements makes turkeys one of the best friends of the farmer, doing him the greatest kindness and bringing him the greatest net profit for the amount invested.

The cry that "turkeys are hard to raise" keeps quite a few people from starting in the turkey business. You should give them curd for the first six weeks, being careful not to feed the young turks too much at one time, for the natural habit of the turkey is to hunt for its food, and they do it slowly and deliberately all day long, thus the process of eating and digestion are simultaneous. When they are fed with a lavish hand they gorge themselves and soon fall victims to their greed. Do not allow them to get chilled when young and see that they are free from mites. A few precautions for the first few weeks will give you good results and help to increase your net profits at the end of the season.

You will, I am sure, find that there is no animal on the farm which will return such profits as the turkey when sold at the ordinary prices, and we may look now for prices quite beyond the ordinary, as the prices for this year broke all records.

Good turkeys always find a ready market at remunerative prices, but poor breeding stock will never produce good birds. By always breeding from the most perfect birds and purest strains you can increase the size of the common stock fully 25 per cent. Don't buy inferior birds for your breeding stock, for if you do you will regret it and will lose several times the cost of good stock. Secure well bred toms, as you will find it pays much better to breed only from the best as "like produces like," and the tom is half the flock.

On account of the extra high prices of market turkeys this season there has been the greatest demand for breeding stock I have ever known.

STORRS EGG LAYING CONTEST

The continued cold weather for the past two weeks is having its effect on the hens in the laying contest at Storrs. Some of the birds are holding up finely under the unfavorable weather conditions, but all of the pens taken together were more than 200 eggs under last week's production and about 50 eggs under the production for the corresponding week a year ago, the exact yield for the week being 1720 eggs.

The three best pens in each of the principal varieties are as follows:

Barred Rocks

Jules F. Francais, 213; Fairfields Poultry Farms, 192; Rodman Schaff, 121.

White Wyandottes

Merrythought Farm, 232; Brayman Farm, 195; A. L. Mulloy, 180.

Rhode Island Reds

Pequot Poultry Farm, 204; Jacob E, Jensen, 202; Hillview Poultry Farm, 171.

White Leghorns

Hilltop Poultry Yards. 291; Clifford I. Stoddard, 267; A. P. Robinson, 261.

Miscellaneous

Cloyes & Sullivan (Buff Wyandottes), 223; Koshaw Farms (Buff Rocks), 210; Obed G. Knight (White Orpingtons), 188.

Report for ninth week ending January 2, 1917, Storrs, Connecticut.

The total output in the ninth week of the laying contest at Storrs amounted to 1731 eggs. This is less than the corresponding week a year ago but a little bit better than last week's production. It now seems probable that a steadily increasing yield may be expected each week from this time on until the height of the season.

The three best pens in each of the principal varieties are as follows:

Barred Plymouth Rocks

Jules F. Francais, 251; Fairfields Poultry Farms, 218; Rodman Schaff, 136.

White Wyandottes

Merrythought Farm, 262; Brayman Farm, 213; A. L. Mulloy, 205.

Rhode Island Reds

Jacob E. Jansen, 227; Pequot Poultry Farm, 218; Hillview Poultry Farm, 208.

White Leghorns

Hilltop Poultry Yards, 316; A. P. Robinson, 306; Clifford I. Stoddard, 303.

Miscellaneous

Cloyes & Sullivan (Buff Wyandottes), 257; Koshaw Farms (Buff Rocks), 241; Obed G. Knight (White Orpingtons), 209.

EGG LAYING CONTEST AT MOUNTAIN GROVE

By C. T. Patterson, Director

The 290 hens in the sixth egg laying contest at Mountain Grove, Missouri, produced 2872 eggs during December, which is almost ten eggs each. The highest producing pen for November and December has produced 210 eggs, which would average 252 eggs each if they continue at the same rate throughout the year.

The highest producing individual for the two months produced 54 eggs, which means 324 eggs during the year at the same rate. It is not safe to make this prophecy but it goes to show that if pullets are properly developed it is possible to get a good egg yield during the winter months.

The five highest pens for the month are as follows: R. C. R. I. Whites, New Jersey, 113 eggs; White Wyandottes, New York, 102 eggs; White Wyandottes, Missouri, 102 eggs; White Orpingtons, Missouri, 94 eggs; S. C. Reds, Iowa, 93 eggs; R. C. Reds, Missouri, 92 eggs.

AMERICAN EGG LAYING CONTEST AT LEAVENWORTH, KANSAS

By T. E. Quisenberry

The egg yield for December was much better than the previous month, but 14 pens have not laid an egg. Most of the pens are in good condition, and we look for them to do extra well from now on. White Wyandottes led for December. The Wyandottes, Reds, Rocks and Orpingtons were affected less by the zero weather than the Leghorns and smaller varieties. The highest individual record was 28 eggs by White Wyandotte pullet from West Virginia and one of the same variety from Indiana laid 25, Buff Orpington from Missouri, 25.

The ten highest pens of five pullets for December:

White Wyandottes, Illinois, 94 eggs; Buff Wyandottes, Missouri, 80 eggs; R. C. R. I. Reds, Missouri, 75 eggs; S. C. R. I. Whites, Michigan, 69 eggs; S. C. R. I. Reds, Mississippi, 68 eggs; S. C. Buff Orpingtons, Kansas, 67 eggs; S. C. W. Leghorns, Pennsylvania, 65 eggs; Barred Plymouth Rocks, Missouri, 62 eggs; Barred Plymouth Rocks, Illinois, 62 eggs; S. C. Buff Orpingtons, 57 eggs; S. C R. I. Reds, Missouri, 57 eggs.

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5000 Mission Olives, 4 to 5, clean, well rooted and stocky, 20c each, $15 per 100. Fine stock of walnuts, apricots, peach, plum, everything. A. R. Marshall's Nurseries, 5th and Broadway, Santa Ana.

Citrus Trees—All leading varieties. Large line, Lisbon & Villa Franca Lemon and Washington Navel trees. All first class and clean. Special prices to dealers or in carload lots to growers. Randall Bros.' Nurseries Co., Whittier, Cal.

Apricots, Peaches, Pears, Plums, Apples, etc, 5c up. Olives; Mission, Ascolano, Manzanilla. From select bearing trees 20c up. Guaranteed to grow and true. Send for quotations on all your wants. Julius Mayr, Hemet, Cal.

Prunes, Pears, thousands, trees all kinds, buy direct from the man who grows. Save 50 per cent. Write for planters' catalog and price list. 26 years in business. Carlton Nursery Co., Carlton, Oregon.

For Sale Citrus Trees—Valencias, Navels, Grapefruit, Seedless Lemon, Villa Franca and Eureka; also Manzanillo olive and walnut trees. W. W. Burns, 631 Security Bldg., Los Angeles. F-3110.

Grafted Walnut Trees—Placentia, Perfection and Eurekas. Finest selected scions on California black roots. C. W. Story, Rivera, Cal. Whittier Exchange 4721.

Broad Leafed Mission and an extra early strain of Manzanillos. If you want the early ripening and early bearing kinds, we have them. Every tree guaranteed. Olives exclusively. H. Detmers & Son, Exeter, Cal.

Walnuts—Placentia and Eureka, grafted on black root. Royal Apricots on plum. Will do well on wet land. A general line of high grade nursery stock. Get my prices. A. R. Marshall's Nurseries, Cor. 5th and Broadway, Santa Ana, Cal.

Orange, Lemon and Grapefruit trees for sale. Splendid stock, absolutely clean. Grown from selected buds. Also fine lot of Citrus Seedbed Stock. Write James Mills Orchard Corporation, Hamilton, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

Apricots and Olives—Royal Blenheim and Tilton apricots. First class trees. Large stock of Mission, Manzanillo and Ascolano olives. Balled or open root. No scale, no defoliation. C. E. Moyer, Hemet, Cal.

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Mission Olive Trees—Raised from my own bearing trees. This is only sure way to get what one wants. W. A. Hayne, Box 461, Marysville, Cal.

Apricots Apricots Apricots
5c up, 5c up, 5c up, 5c up, 5c up
The largest in the state to select from. Carsten Truelsen, Nurserymen, Hemet, Cal.

Citrus Trees—Selected stock, 1, 2 and 3 years old. My prices are right. Write for information. P. E. Zug, Glendora, Cal.

Avocados—Seeds, seedlings and budded trees (Chappelows only). Prices on application. Chappelows Nursery, Route 1 Box 104, Monrovia, Cal.

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Olive Trees—Mission, Manzanillo, Ascolano. Propogated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, Cal.

Olives—Manzanillo and Mission, Apricots, Pears, Apples, Peaches, etc. Thrifty trees. Prices on request. Kavan Nursery Co., San Bernardino, Cal.

Walnut Trees grafted on northern black root. Placentia Perfection, El Monte, Eureka. Scions personally selected. Eureka Walnut Nursery, Montebello, Cal.

For Sale—Improved Seedless Grapefruit, Valencias and Lemons. All buds carefully selected. Low prices. Sherwood Nurseries, Fullerton, Cal.

For Sale — 1600 one-year-old Valencia orange trees on two-year sour stock. A. O. Hayes, San Dimas.

Place Your Order for Eureka and Placentia Walnut Scions now. E. Holve, Fullerton.

Royal Apricots, Placentia Perfection and Eureka Walnuts. K. B. Utigaard, Hemet, Cal.

TREES

Placentia Perfection Walnut Trees on black root. Still have a limited supply of first class stock. Scions used in grafting taken from trees showing a high record for crop and quality after seven years of careful selection. Hugh T. Thomson, Orange, Cal. Phone 502R1.

Walnut Trees—Franquette, Mayette and Mammoth on Black Root; also grafting wood and Black Seedling trees. Lowest prices. Mammoth Walnut Nurseries, Watsonville, Cal.

Budded Avocados—All leading varieties. Address Mather's Avocado Nursery, 137 N. Fair Oaks Ave., Pasadena, Cal.

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Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

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Smith's Poland-Chinas—Sows and gilts bred to Joker, first prize boar at Wisconsin State Fair 1915. These sows and gilts were sired by Iowa Wonder, who is a son of the great A Wonder, the most celebrated Poland-China boar living or dead. Litters from this mating are the best I have ever seen anywhere. Prices low, quality considered. Will sell one or a carload. As a special inducement each purchaser will be given a year's subscription to the American Swineherd, the best swine paper published, and a copy of the Handbook on the Sow, also a copy of the Pig Feeders' Manual. Geo. A. Smith, Corcoran, Cal.

Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

Make Big Money with our Big Type Poland-Chinas. Smooth, easy feeders that make greatest weight in shortest time at lowest cost, topping the market at 225 lbs. in 6 months 300 head, both sexes, all ages, reasonable prices. Best Eastern blood lines. Satisfaction guaranteed. Ranch in Tulare County, but address owner, R. H. Whitten, 610 B. Security Building, Los Angeles.

Billiken Herd of Chester Whites—The big prize winners at the 1916 California state fair. The breed that makes money for the rancher and dairyman. Have 4 nice young service boars left and 20 young open gilts that will be bred as desired by buyer. Write for the Chester White booklet that tells all about them. C. B. Cunningham, Mills, Cal.

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Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P.P.I.E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

Superba World's Grand Champion Poland-China boar and one of the greatest sires of the breed. Spring boars ready for service, also few sows bred to this noted sire, reasonably cheap. Rough's Greenfields, Arlington Sta., Riverside, Cal.

50 Bred Sows and Gilts, 50—Of true Berkshire type and quality; bred to grand champion boars are included in our private sale list now ready for mailing. Write for it today. Silver Birch Farms, Box C. C., Newport, Wash.

For Exchange or Sale—Registered Berkshire boar, not quite two years old. Fine type and splendid breeder. Will exchange for Berkshire boar of equal merits. Want new blood. W. M. Chambers, Miraflores Ranch, Anaheim.

Registered Poland-Chinas, prolific, fabulous, profitable, porkers. Choice young boars now ready for service, $25 each, weanlings $15 each. Dr. J. A. Crawshaw, Hanford, Cal.

Thirty Medium Big Type Poland-China boars for sale. Shipped on approval. We will send a good one for $30 and a crackajack one for $50. Bernstein Ranch, L. C. Trewhitt, manager, Hanford, Cal.

Rancho Rubius Durocs all sold except a few extra good July and September gilts. Write for prices. Elmer Lamb, Ceres, Cal.

Choice Boar Pigs for sale. Sired by Superba 220620 champion Poland boar at San Francisco. Prices right. C. R Hanna, Riverside, Cal

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Durocs—Choice Sows, gilts and boars of best breeding. Ed. E. Johnson, Turlock, Cal.

HOGS

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Live Stock Insurance: Registered live stock and farm work horses should be insured. The Hartford Company, strongest in the world, writing live stock. No trouble to answer questions. D. O. Lively, Special Representative, 215 Hobart Bldg., San Francisco.

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Have a Nice Registered Holstein bull calf from dam with 18.025 lbs. record. Is 3 years old. J. W. Benoit, Route C. Modesto, Cal.

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Baby Chicks from my carefully selected, thoroughbred flock of 1400 S. C. White Leghorns, $10 per 100, $95 per 1000. A first class chicken at a reasonable price. Write for information. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

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Baby Chicks from mothers with 180 to 240 eggs each per year. S. C. White Leghorns, the best ever, $10.00 per 100, $90 per 1000; also Mammoth kale plants for sale 35c a hundred—$2.50 a thousand. Delivered free. A. P. Ward & Son, Box 100, Calistoga, Cal.

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Oregon & California Railroad Co. grant lands. Title to same revested in United States by act of congress dated June 9, 1916. Two million three hundred thousand acres to be opened for settlement and sale. Power site, timber and agricultural lands. Containing some of best lands left in United States. Large sectional maps showing lands and description. Price $1.00. GRANT LANDS LOCATING CO., P. O. Box 610, Portland, Oregon.

For Sale—320 acres fine sandy loam soil 5 miles northeast of Modesto, 1½ miles directly south of Riverbank in Modesto Irrigation District, average yearly water cost less than $1 per acre. Land suitable for alfalfa, grapes, deciduous fruits or farm trucking. Will sell as a whole or in 20-acre tracts. Average price $150 per acre. Will make suitable terms to parties buying for improvement. B. F. Kleruliff, 757 S. Los Angeles St., Los Angeles.

California Land $1.00 Per Acre Cash, balance 90c per month per acre. Immediate possession given. No taxes, no interest. Level San Joaquin Valley. Only four hours from San Francisco. Five acres up. Clear; ready to plow. Open ditch irrigation $1 acre per annum. Particulars, maps, photos, free. Stevinson Colony, Desk E, 785 Market St., San Francisco.

For Sale or Rent—80-acre ranch 7½ miles west from Bakersfield, one-half mile from paved highway and Rosedale store. All under cultivation; good pumping plant, 140 inches water at 8-foot level; plenty buildings, telephone, good sandy loam soil. Price $150 per acre. W. F. Marks, owner, 226 South Main St., Los Angeles, Cal.

For Sale—Highly improved dairy ranch, 66 acres. New buildings, modernly equipped; best of soil; 1 mile to Merced and creamery, ¼ mile state highway. Reasons for selling. If you are in the market for something good, see this ranch. If you mean business correspond with owner for fuller description, price, terms, etc. Box 644, Merced, Cal.

What Do You Pay for potatoes, butter, eggs, bacon, ham, beans, grains, fruit and many other food products? Let me show you good California land with water at $150 per acre. Near town, school, railroad, state highway, etc. Be a producer. J. H. Dickey, 627 Citizens National Bank Building, Los Angeles, Cal.

For Sale or Exchange, 68 acres in Tokay vineyard and grain land. House and outbuildings. Will exchange for Modoc County. Write owner, C. Williams, Box 264, Acampo, Cal.

For Sale — 335-acre relinquishment in Coachella Valley. Well, pumping plant, etc. Must sell. Will take half what it cost me or trade for clear property. A. R. Marshall, 1212 Ross St., Santa Ana, Cal.

For Sale—80 acres well improved ranch, suitable for hog or dairy ranch. Will exchange for Southern California property. For particulars write owner, Box 113, Acampo, Cal.

For Sale—Forty acres deeded cotton land, partly level; small house; south of Holtville. All under No. 2 main canal. Frank J. Ironmonger, Hollywood, Cal.

For Sale—Excellent lands, San Luis Obispo Co., $10 to $25 per acre. Inquire about them. Carl Dewlaney, Santa Margarita.

Free New Blue Booklet—State, government and Indian lands. Bargains overlooked. Joseph Clark, Sacramento.

Money to Loan on Farms, city and suburban property. C. G. Paul, 407 Chamber of Commerce Bldg., Los Angeles.

Write for List of ranches and homesteads. Low Priced Lands Company, Carmel, Cal.

LUMBER

AAA—Lumber, New and Second-Hand; rough, $10 M; finished, $15; "A" R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St., San Francisco, Cal.

PATENT ATTORNEYS

Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS".

MISCELLANEOUS

SPECIAL SALE
ROOFING PAPER ROOFING PAPER
Every square guaranteed.
Samples mailed on request.
1 ply Savage Brand, $0.80 per sq. of 108 ft.
2 ply Savage Brand $1.10 per sq. of 108 ft.
3 ply Savage Brand $1.30 per sq. of 108 ft.
Star Brand (special grade), 65c per square.
All complete with nails and cement.

Corrugated Iron Corrugated Iron
Brand new $4.10 per square.
New galvanized barb wire at $3.10 per reel.

Second hand tarpaulins $7 each.
Flour at $6.50 per barrel.
Fencing, all kinds.

PLUMBING SUPPLIES
Send in your list and get our prices. We can save you money. Now is your chance. We also handle general line of other goods.
SIMON BROS.,
1049-53 Howard St.,
San Francisco, Cal.

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit". It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

Double heavy Wells Fargo harness, made from heavy selected leather in A No.1 order at half original cost.
CHAPAREGOS.
Also one pair chaparegos or cowboy leather fringed pants, cost new $22.50, now $12.50, best of condition. S. Taylor, 2110 Allston Way, Berkeley. Open Sunday.

Second Hand Pipe For Sale—All sizes standard water pipe and screw casing, half inch to ten inches. Also valve and fittings. Guaranteed good as new. Cheap for cash. Write for our prices. Weissbaum Pipe Works, 169 Eleventh Street, San Francisco.

Buy Salmon at Wholesale—Fish world's famous Puget Sound Salmon 100 lbs., net salmon in brine $6.50; 20 lbs. smoked salmon $2.50; 20 lbs. net salmon bellies in brine $2.50. T. A. Beard, 4322 Winslow Place, Seattle, Wash.

Study Telegraphy, Stenography, Bookkeeping, Law, English. Board, room and tuition may be earned. Catalogue free. Mackay Business College, 911 Main St., Los Angeles.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

MACHINERY

USED RANCH TOOLS, WINDMILLS, TANKS, PUMPS, ENGINES
16-ft. steel windmill, fine for irrigating, cost $250, for $125; 8-ft., $21.50; 10-ft. Aermotor, $35.00; 12-ft., $55. Complete windmill outfits or any part. TANKS, TANKS. New 1000-gal. galv., $26.50; 2000, $36.50; all sizes, new, used wood tanks. 1200-gal., new wood stock tank, $17.50; new 8-hp. boiler, 80-h. boiler, $195; 75-h. steam engine, like new $350; 12x12 compressor, $250; 14-in. riding plows, $15 and $22.50; 14-in. tricycle mouldboard, $27.50; fine 2-gang riding plow, $47.50; fine 2-gang 14, 16-in., cost $110, for $48; 3-gang disc plow, $60; 2-gang disc plow, $45; Fresno, $10; walking plows, all sizes; spike harrows, alfalfa renovator, $28; new manure spreader; another BULL TRACTOR, $295; Boenker 4-cyl. gas tractor, 20-40 hp., cost $2200, for $600; steel cable, 5c; cement mixer, $35; mounted sprayer, $19.50; mowers, rakes, seeders, corn cultivator, corn planter, 250 ft. 6-in. irrigating pipe, 18c; bone cutter. PUMPS SPECIAL: No. 3 AMES double acting, with 150-ft. 7-in. pipe rods, 6-in. double acting cylinder, $300, all complete (head alone cost $660), fine Stearns single acting jack, $60; horizontal and vertical single and two-runner centrifugal pumps, all sizes. Fine Means deep well, double acting pump, good for 50 inches, $300; plunger pumps, all sizes, brass cylinders, pipe, rods to suit; 1½-hp. International engine, $25; 2-h. Fairbanks, like new, $55; 4-h. Oriental, $45; 14-h. St. Mary's oil burning engine, new, $350; many other sizes gas engines, power blower, horse powers, winches, sundries. Material as represented. We buy tools if in good shape. Trade us what you don't want for what you do, with little cash. DEMMITT CO., UPSTAIRS 120 N. Main. YARDS, 816 Yale, Los Angeles.

For Sale—25 h. p. Commercial engine; excellent condition. Replaced by electricity. Harry Crowe, Tulare, Cal.

COMMERCIAL HELPS AND HINTS

If you buy harness of the Hercules brand you will be satisfied. It is made right and will give excellent service.

Mr. Z. A. Macabee of Los Gatos makes a particularly good gopher trap. You can get it of your dealers or from him direct.

Have you seen the De Laval line of dairy equipment? Their catalogue shows it. Everything from milk bottles to Alpha Engines.

Get your sprayer now. Write to the Bean Spray Pump Company, San Jose, or to Theodore Poindexter, 338 Brannon Street, San Francisco. Catalogues free on request.

If you have crop troubles it would be a good plan to write to the Pacific Guano and Fertilizer Company, San Francisco, for special information and free booklets concerning your particular case.

Don't forget to oil your harness. Eureka Harness Oil will prolong the life of your harness and make it more pliable and easier handled.

Have you ever tried Ghirardelli's Ground Chocolate? It is a delightfully refreshing hot drink and leaves no bad after effects.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Unsigned communications receive no attention.

Trees on Line

How near to the property line may I plant trees?—Subscriber, Los Angeles.

You are entitled to plant trees up to the line of your land. Due regard should be had, however, that the trunk of the tree is at least wholly upon your own land as in case it is upon the boundary line the tree becomes the common property of both.

Joint Deed

Does the surviving party to a deed written "either or survivor" continue possession of the property without any court procedure?—Subscriber.

The surviving party may continue in possession of the property without court procedure, but in order to vest salable title it is necessary to file a petition setting forth the death, whereupon the court makes its judgment, which judgment, on being recorded in the office of the county recorder completes the chain of title and enables the survivor to execute a good and sufficient deed. In such instance there need not be any general administration of the estate of the deceased as the property is not in any sense a part of said estate, nor would it be liable for the debts of the decedent.

Look for the waste places on the farm. Some of these may be on fields that wash; some on the overflowed fields; some the poorly drained places. The barnyard manure may be wasting, the implements being left out in the weather to deteriorate. The waste may be in trying to do with the hands what should be done with implements and machines. Look for wasted energy and wasted opportunity.

VALUABLE TRACTOR ATTACHMENT

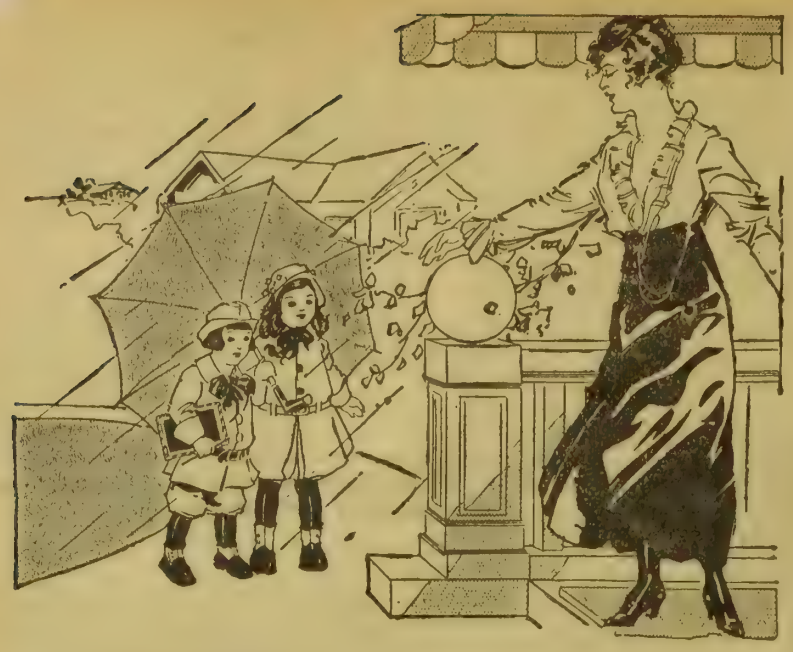
Of all the "universal tools" the Ford is probably proving the greatest winner. It will take the family to town, grind the grain, churn the butter, and furnish almost every other conceivable form of power. It has also been used to do the cultivating of the orchard but until now has not proved entirely satisfactory. Now comes an attachment for Ford cars which is so successful that first purchasers are coming back with the "I-want-another" look on their faces. Furthermore, some have already purchased their second attachment. Fortunately, this attachment is of California construction. The manufacturer says that for hauling heavy loads to market there is an attachment for slipping over the rear wheels, giving a wide smooth tread, permitting use on improved roadways. It takes about 20 minutes to make the attachment. One grower says that with this attachment he can do the work of six horses on his ranch. This is merely to call attention to the value of this improvement. More particulars may be seen in the advertisement of the Los Angeles Auto Tractor Company, Los Angeles, appearing in this issue.

Overhead expense, which few farmers consider, perhaps, but which should be taken into account by all, will dictate that as small investment as possible consistent with sufficient equipment should be the rule. To invest in a tractor is beyond possibilities of many small farmers. Here is where the new attachment will prove a winner. Look up the Ford Tractor Attachment.

New blood has recently been introduced into the company manufacturing this appliance, and it has resulted in preparations for manufacturing on a large scale. Only this week arrangements were made for the sending of 500 of these tractor attachments to Messrs. Sims and Darr of Portland. This one order involves $75,000. The inventors of this appliance are Messrs. James R. Fouch and Harry R. Fouch. The officers of the company, as recently organized, are Harlan W. Brush, president; G. R. Fouch, vice president; Walter S. Brush, treasurer; Charles Rhodes, manager, and Harry Fouch, superintendent.

PRIZE TREE

The Silva-Bergtholdt Company of Newcastle are mailing their new catalog of "Prize Trees of California Fruits". Mission olives on Picholine root, prunes on Myrobolan, cherries on Mazzard and Tuscan cling on natural peach seedlings are leaders with this firm. Much could be said regarding the worth of this catalog but those interested in deciduous fruits can learn more regarding it by writing at once to the nursery for a copy.



"Hurry, children—I've got a real treat for you."

Ghirardelli's Ground Chocolate

is a fortifying food beverage for all—from childhood to old age.

It comes **PROTECTED**—as all chocolate should—in ½-lb., 1-lb., and 3-lb. hermetically sealed cans.

Since 1852 D. GHIRARDELLI CO. San Francisco

Brr—r!

Chilly, changeable weather? A good oil heater will keep you warm and cosy.

Perfection Oil Heater

A gallon of *Pearl Oil* gives 9 hours of smokeless, odorless cheerful heat.

Prices
$3.75 to $7.75

Dealers Everywhere
STANDARD OIL COMPANY
(California)

Prr-r!

MOCOCO

SUPERPHOSPHATE
(17 to 18 Phosphoric Acid)
Oranges-Lemons-Walnuts-Alfalfa
Globe Grain and Milling Co., Agents.
923 E. 3rd St. - Fertilizer Dept. - Los Angeles

Household Department

LIFE

Two men toiled side by side from sun to sun,
And both were poor;
Both sat with children, when the day was done,
About the door.

One saw the beautiful crimson cloud
And shining moon;
The other, with his head in sadness bowed,
Made night of noon.

One loved each tree and flower and singing bird
On mount or plain;
No music in the soul of one was stirred
By leaf or rain.

One saw the good in every fellowman
And hoped the best;
The other marveled at His Master's plan
And doubt confessed.

One, having heaven above and heaven below,
Was satisfied.
The other, discontented, lived in woe,
And hopeless died.

—Selected.

THE VENDETTA

By Arthur Wilkes Colton in the Youth's Companion.

IT was in October that Moses Durfey's dog, Ulysses, and Willy Flint's terrier, Samuel J. Tilden, came from opposite directions through the tall ferns, and so into the opening on top of the hill that we called Pisgah, just as the red fox came from the cattle ridge, slipping over the ground like the shadow of a cloud on the grass. Ulysses and Tilden made for him with all the tumult posible to them, and he slipped like a shadow into his hole. Then the disappointed dogs fell foul of one another, bit where they could find a bite, and filled the top of Pisgah with excitement. Thus the trouble began, and in election time, too.

The next afternoon men built a platform in front of the town house, with planks across the steps and soap boxes under the planks, so that it was very shaky. The platform was for the speaker, who was expected to tell us exactly what we should do. There were benches on the platform for prominent citizens to sit on, in order to show that they were prominent and upright, and agreed with the speaker.

In due time the citizens sat on the platform in a row, the speaker in the middle. There were Mr. Atherton Bell, the minister, Deacon Crockett, and the rest, including Ulysses, who lay under Mr. Durfey's bench, quite unaware that Tilden was not far away on the same platform. Then Mr. Atherton Bell made a speech to introduce things.

"I count myself happy," he said, after a while, "that I stand today in this fair sunlight, under this blue arch of American freedom, to introduce to the steadfast upholders of that freedom the honorable gentleman and distinguished orator, the Senator from—"

Now the Senator was a short, stout, kindly-looking man. The top of his head was very bumpy. You could tell he was a great man from the way he said: "Fellow citizens." And presently he got into an excited state of oratory.

"Our platform is firm as truth. It may not be moved." He meant the party platform, not the one of the town house steps, which was shaky. Every one applauded. Ulysses got up, and said "Wow!" S. J. Tilden said, "Woof!" and bristled up. "My faith is pledged to this—"

"Hurrah!" "Wow!" "Woof!" S. J. Tilden was making for Ulysses. He had scrambled to the platform. They met in the midle. Snip! Snap! Rrrr!

"These are my principles. No power on earth can move my feet from where they stand—"

Bump! The dogs went against the back of the distinguished legs of the Senator from——, and he came down into an undistinguished bipartizan mix-up with S. J. Tilden and Ulysses, as if he had no principles at all.

The prominent citizens rose in a body. The audience tried to help. One of the right-hand soap boxes fell over and dropped a plank. Mr. Atherton Bell, Deacon Crockett, S. J. Tilden, Ulysses and the distinguished Senator slid down it together without distinction.

After the plank was set up again, and Tilden and Ulysses were carried away by a committee, the Senator mounted the platform gingerly.

"Gentlemen," he said, "if dogs are going into politics, I'm going out."

"Hurrah!"

"There must be a limit to the franchise." And all upholders of freedom agreed with him.

On the day following, "Chub" Leroy said he believed this thing between Ulysses and Tilden to be a vendetta, and Moses Durfey asked what was a vendetta?

"It's a row," said Chub, "that goes on forever, and you rope in all your relations."

"Oh! Angelica will like that." Angelica was one of the owners of Tilden. Probably she would like it. She was a girl of the kind that when there is a row and she does not immediately get into the middle of it, becomes unhappy.

It seemed probable that Angelica, as well as Willy Flint, her brother, the other owner of Tilden, would see how necessary it was, in order to establish the vendetta, that we should act in some violent manner toward each other. But none of the three backers of Ulysses fancied himself in the position of punching Angelica's eye. And it seemed probable that if a single combat were proposed between Willy Flint and one of the three, Angelica would club the heads of the other two as well. You had to walk very carefully with Angelica.

Now a vendetta, acording to rules, can only be called off by the principals; that is, as long as the first couple keep it up, the relatives have to stay in. It was set down in the minister's "Political and Social History of Corsica" that the principals were generally killed off to begin with, and the relations stayed in as long as there were any of them left who had energy.

We thought we would go and see Mr. Atherton Bell. He was a lawyer, and besides, he never took our ideas frivolously, as elderly people were apt to do. We went down the hill from the Cross Roads, leading Ulysses by a string, and found Mr. Bell on the steps of the postoffice, together with Harvey Cummings and Mr. Paulus, the postmaster.

"Oh! Ah! Yes!" said Mr. Bell. "A vendetta, a feud. Dear me! Do you think Ulysses is serious?"

Moses was doubtful about Ulysses. Ulysses was seldom serious. But S. J. Tilden was serious. He was never anything else.

"Ha! But the presence and character of Angelica are embarrassing. She insists on her rights."

"Yes, sir."

The Cultivator Patterns

8043—Children's Dress. Cut in sizes 4, 6, 8 and 10 years. The dress is cut in one-piece from the shoulder to the lower edge.

8044—Ladies' Middy Blouse. Cut in sizes 36, 38 and 40 inches bust measure. The blouse slips on over the head and is made with yokes.

8052—Ladies' Waist. Cut in sizes 36 to 42 inches bust measure. This waist may be made with or without the deep cape.

8029—Ladies' Dress. Cut in sizes 36 to 42 inches bust measure. The dress is cut in one piece and has a yoke at the back.

8015—Maternity Gown. Cut in sizes 34 to 44 inches bust measure. Side of body and sleeve are in one piece and the skirt is cut in one piece.

8047—Ladies' Skirt. Cut in sizes 24 to 30 inches waist measure. The skirt is cut in four gores and is plaited at the sides and joined to yokes.

8032—Girls' Dress. Cut in sizes 6 to 12 years. The dress closes at the front and has a three-gored gathered skirt.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH.

HOW TO ORDER PATTERNS

Write your name and address plainly in full, give correct number and size of each pattern you want, and send ten cents in coin or (1 or 2c) stamps for each number. In order to furnish our readers with the very latest New York City styles, all pattern orders are filled in New York City. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

Pattern Department

California Cultivator

Los Angeles

"Very embarassing. Chivalry, you know. Why, dear me! This is a most interesting, a most extraordinary case!" Mr. Bell took off his hat and walked up and down with increasing excitement.

"What, what! Harvey, you don't mean to say you never heard of such a case before! Never, upon my word! Chivalry, vendettas, political dogs, women's rights, all mixed up! Never, never! Where's the other dog? Bring the other dog! Gracious! Will no one bring the other dog? Paulus, those dogs upset the platform, they did. The Senator has a bump on his head to my certain knowledge. What! Paulus, Paulus, they must refrain. Those dogs must be persuaded. They will involve their families in this—a—deadly struggle. They will. I foresee it."

Mr. Bell's eye was shining ,and he nearly got into a state of oratory, as the Senator had done. We children thought it grand when any one got into a state of oratory. It was better than fits.

At about this time Willy and Angelica Flint came up the hill, leading S. J. Tilden, and turned into the post office. Mr. Bell saw them coming. He got out of his state of oratory slowly, and rubbed his hands.

"There now," he said. "There you are."

"Where?" asked Harvey Cummings, indignantly. "You goin' to set dem dogs a-fightin'? I say, 'taint righd."

"Nonsense," said Mr. Bell. "I'm going to persuade them to—a—refrain, for—a—the sake of their families. How? I—I don't know how."

Ulysses and S. J. Tilden were tugging at their strings and growling angrily. Mr. Paulus turned and went slowly into the store. Mr. Bell looked about him helplessly. Mr. Paulus came out with a bottle in his hand. His left eyelid, which drooped naturally, drooped lower in a heavy wink.

"Let 'em go!" he said.

"What, what! Paulus, what's that? What's that?"

Ulysses and S. J. Tilden flew at each other, gripped, rolled and mixed themselves. Mr. Paulus emptied the bottle over them calmly. "Ammonia," he said. "It's good for dog fights."

Ulysses and S. J. Tilden put on expressions that could not be forgotten. They backed off and looked at each other with intense dislike. Then they each gave a mournful howl and went in opposite directions.

They never met in friendship or enmity again. I think it was the opinion of each that the other had played a low trick and knew all about the smell. If you put ammonia on the nose, it smells considerably. Whenever they saw each other, they remembered it, and backed off and went different ways.

HOW TO MAKE FASTENERS STAY ON

A neat, durable way to sew on hooks and eyes, snaps, and patent fasteners is to buttonhole them into place, letting the purl of the buttonhole stitch come to the outside of the ring.

Fasteners put on in this way will outwear any ordinary garment. Once on they are always on.

CHICKENLESS CHICKEN PIE

The hungry man in the restaurant lifted the lid of his chicken pie, called the waiter and protested the absence of any chicken therein.

"It doesn't require chicken to make chicken pie," the obliging servant explained. "Did you ever see any dog in dog biscuit?"

SCOTTICISM

McTavish and Macpherson are adrift at sea in an open boat.

McTavish (on his knees)—O Lord I ken I've broken maist o' they commandments. And I've been a hard drinker all my days. But, O Lord, if we're spared this time, I promise never—"

Macpherson—I widna commit mysel' over far, Donald. I think I see land."—Life.

A COMPROMISE

"Look here, Hiram," said Si, "When be you goin' to pay me them eight dollars for pasturin' your heifer? I've had her now fer about ten weeks."

"Why, Si, ther critter ain't worth more'n ten dollars."

"Well sposin' I keep her fer what you owe me?"

"Not by a jugful. Tell you what I'll do; keep her two weeks more and you can have her."

TIT FOR TAT

Little Boy (to stout old lady who was hauling herself into the street car with difficulty)—If they'd given yer more yeast, missis, when yer was young you'd been able to rise better.

Stout Old Lady—An' if they'd given you more yeast, my boy, you'd a' been better bred.—London Mail.

The truly good wife is a good housekeeper, but her house is a home where everybody can be comfortable and where one's friends are made welcome. She is thrifty, but not parsimonious; religious, but not fanatical; bright, but never sacrificing her family to her intelligence. She is like a bright fire and a cheery lamp on a dark winter evening; a living expression of love, comfort, and hominess. The family wants to be where she is; her absence leaves the house only four walls, the magic of the home removed. She is the supremest gift a man ever receives on earth, for she brings all other good things with her.

To be interested is to be happy, and to be happy is simply to be in accord with your world. A sense of this truth may come to you anywhere, over the wash tub, out in the garden, in the poultry yard, listening to the sleepy chirp of the little chicken under its mother's wing. If we wish to be happy we should find out early in life what we can best do, and cultivate a philosophical way of thinking.

Reward the boys and girls who were so diligent and faithful last year by giving them animals and crops this year. Give them an opportunity to use their own originality in producing for themselves. This need not interfere with their loyalty and help with the general crops. It is quite likely to encourage them and cause them to take greater interest.

Salad dressings of various kinds are improved by the addition of cream. It may be whipped and added to a boiled dressing and making a most rich and tasty dressing. Simply adding sour cream with sugar and salt to sliced cucumbers or cabbage, with a dash of salt and pepper, you have a most appetizing salad ready to eat.

SIGNS OF SPRING

The violets soon will bloom again,
The skies are getting blue,
The milliner will send her bill,
And we shall get so, too.

All things announce the gentle spring:
The grass is growing greener;
Far down the pleasant street doth sing
The sweet-voiced vacuum cleaner.

20-35 YUBA
BALL TREAD TRACTORS
More Powerful.
The Same Price.
The New Model 20-35.
• • •
At Less Price.
Equally Powerful.
The New Model 12-20.
Write for the Yuba Catalogue. Every farmer should have one. It's free.
THE YUBA CONSTRUCTION CO
DEPARTMENT Key B 217
433 CALIFORNIA ST.
SAN FRANCISCO CALIF.

The Chinese Woolflower
introduced by us three years ago is now acknowledged to be the greatest new garden annual. It is a success everywhere, plants growing 2 to 3 feet, a pyramid of color, its many branches bearing great balls of wool-like substance and most intense crimson scarlet.
Flowers develop in June and none fade before frost, ever brilliant and showy beyond belief. Seed per pkt. 10 cts., 3 for 25 cts.
New Mastodon Pansies. For immense size, wonderful colors and vigor they are marvels. Seed 10 cts. per pkt., 3 for 25 cts.
Everblooming Sweet William, a startling novelty, blooming in 60 days from seed, continuing all the season, and every season being hardy. Flowers large, colors exquisite—pkt. 10 cts.
These 3 great Novelties, with two more (5) for only 20 cts.
See Catalog for colored plates, culture, etc.
Our Big Catalog of Flower and Veg. Seeds, Bulbs, Plants and rare new fruits free. We are the largest growers in the world of Gladiolus, Cannas, Dahlias, Lilies, Iris, etc.
JOHN LEWIS CHILDS, Inc., Floral Park, N. Y.

RHUBARB
NOW
IS THE TIME TO PLANT
WAGNER'S IMPROVED
WINTER RHUBARB
Special prices for immediate planting. You should derive splendid results within 6 months. Also BERRIES, small fruit and Cactus. Write to
J.B.WAGNER
Rhubarb-Berry & Cactus Specialist
PASADENA, CALIFORNIA

PIPE
New and second hand water pipe, screw casing, well casing, riveted and irrigation pipe, wrought iron fence posts.
BIG STOCK
Write, phone or wire for quotations.
Adams Pipe Works
Bay and Mateo Sts., Los Angeles
Phones, F1917, Brdwy. 1264

Owens Transplanter
Only Self-Setting machine. Transplants sweet potatoes, tomatoes, tobacco, strawberries, cabbage, nursery cuttings, etc. Any desired depth. Better than hand. As plant is released, water valve opens, then closer rollers press dry soil around plant! Holds moisture but leaves no wet surface soil to bake.
4 to 7 Acres a day
Circular free
J. L. Owens Co.
1139 Dartmouth St., Minneapolis, Minn.

Driver Agents Wanted
Ride in a Bush Car. Pay for it out of your commissions on sales, my agents are making money. Shipments are prompt. Cars guaranteed or money back.
Five-Pass., 30 H. P. 32x3½ tires
Electric Starting 114-in. Wheelbase
Write at once for my 48-page catalog and all particulars. Address J. H. Bush, Pres. Dept. 1L N
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MIRRORS AND FACES

If you smile into a mirror
Of course therein will be
A clear reflection of your face,
On which a smile you see.

So really are the faces
Of friends and strangers, too,
The mirrors where our smiles are caught
And pictured to our view.

So, too, when we are frowning
Our scowling ever tends
To be reflected back to it
From faces of our friends.

So here's a plan to follow—
A plan that's tried and true;
At other faces smile—and watch
The smiles come back to you!
—Unknown.

If the home is not provided with a certain degree of comfort then there is bound to be unhappiness.

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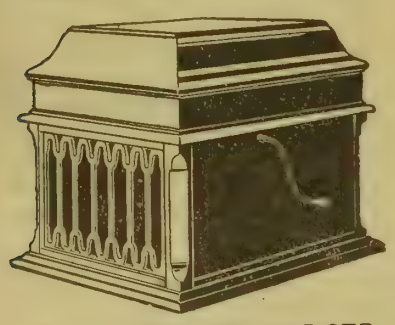

Prices $30, $50 and $75

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SOUTHERN CALIFORNIA MUSIC COMPANY
332-334 SOUTH BROADWAY, LOS ANGELES

Please mention California Cultivator when writing

TREATING A WOUND

Tincture of iodine is now considered by surgeons to be the king of antiseptics. A solution of weak tincture of iodine can be poured right into a fresh cut and no harm will come from it. It will smart a little at first, but not for more than a minute. Next a clean soft cloth is saturated with the iodine solution and the wounded member is wrapped up securely. In about two days the cloth is replaced by a clean one, daubed with a little iodine ointment, which may be secured at any drug store. At the end of a week all bandages may be removed and the wound allowed to heal. No pain, no pus and a very slight scar are the usual things when a wound is treated thus.

All wounds on animals should be treated in the same way. Barb wire cuts, sore shoulders, nail wounds and sliver wounds heal up very quickly if thoroughly saturated with a solution of tincture of iodine.

RABIES GERM WAS A HORNET

As Mrs. Ben Hutton was visiting a neighbor, a cry of "mad dog" was heard. A large brindle cur, frothing at the mouth and with all the earmarks of rabies dashed through the yard and crawled under the house, uttering agonized howls.

Demands were made for a gun, but Mrs. Hutton would not let the dog be shot. Believing that something else besides madness ailed the dog, she went under the house after him to find out.

When she emerged, the anxious watchers were relieved to see the animal follow her, wagging his tail and apparently grateful for help of some kind.

Wasn't the dog mad?" asked one of the onlookers.

"Possibly he was," replied Mrs. Hutton. "You'd be mad, too, if you had a hornet caught in your mouth."—Los Angeles Times.

MISSES DON'T COUNT

Two Irishmen arranged to fight a duel with pistols. One of them was distinctly stout, and when he saw his lean adversary facing him he raised an objection.

"Bedad," he said, "I'm twice as big a target as he is, so I ought to stand twice as far away from him as he is from me."

"Be aisy now," replied his second. "I'll soon put that right."

Taking a piece of chalk from his pocket, he drew two lines down the stout man's coat, leaving a space between them the width of his lean opponent.

"Now," he said, turning to the other man, "fire away; ye spalpeen, and remember that any hits outside those chalk lines don't count."

THIN AND SALTY

A sea captain and his mate went ashore on getting into port and made for the nearest restaurant.

They ordered soup. When it arrived the captain examined the curious-looking fluid and shouted: "Here waiter, what d'ye call this?"

"Soup, sir," said the waiter.

"Soup," said the captain turning to the mate; "blame me, Bill, if you and me ain't been sailin' on soup all our lives and never knowed it."

KEEP UP COURAGE

When things seem twisted and out of joint,
Don't get discouraged and quit the game;
The corkscrew never goes straight to the point
But it gets there just the same.
—William Thomas, Wyoming.

THE BIGGEST JOB

The biggest, finest job in all the world is just being a man or a woman in whatsoever station chance happens to place you. It may be true that it takes courage to do the big things of life, but the real test of bravery comes in doing the little things that lead up to the big things.

NO CONTROL

"Don't you think Miss Howler has wonderful control of her voice?"

"No, I don't. She sings every time anyone asks her to."

A NEAT WORLD

How very neat they used to be—
The heroes of the days of yore!
They "scoured the plain" and "swept the sea"
And with their plumed hats "brushed the floor."

PHILOSOPHY

"Pa, what is philosophy?"

"Philosophy, my boy, is the gentle art of letting your creditors do all the worrying."

SO OFTEN TRUE

"I understood the text, all right," remarked Aunt Ann Peebles, after the sermon was over; "but the preacher's explanation of it puzzled me a good deal."

IS SOON APPEALED

When a man attempts to boycott his stomach, he generally finds that it is unconstitutional. — Spokane Chronicle.

A polish for stained wood floors is made of eight ounces of yellow beeswax, two quarts of spirits of turpentine and one quart of Venetian turpentine. Cut the wax in small bits and pour the spirits over it. When dissolved, as will soon happen, bottle. Dust the floors well before using the polish and apply it with a soft cloth.

A sure way to remove ink stains from wash materials is to pour a tablespoon of kerosene on the spots and rub well. Rinse in kerosene and the spots will disappear. Then wash in the usual way.

Did you ever make sandwiches of warm cheese mixed to a smooth paste with home made chili sauce? Cut the bread thin and butter it as in other sandwiches. They are delicious.

Buy a ten-cent pair of rubber heels and when you want to wear a low-heeled shoe with high-heeled rubbers; put them in the heels of the rubbers. This saves the rubbers and adds to tne comfort in walking.

Sour cream used in a white sauce in place of milk to serve with fish is not half appreciated or known.

Sometimes it does a man good to reflect that he is but a hundred-millionth part of the people of the United States.

If some people can't make a stir in the world in any other way they stir up trouble.

A Great

MILLION

DOLLAR

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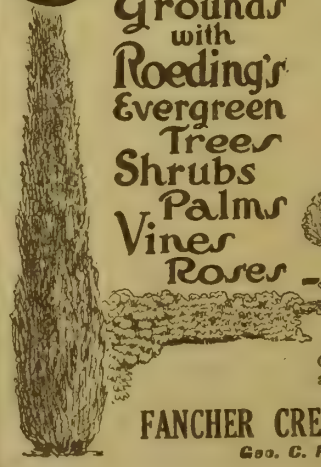


FREE LANDSCAPING SERVICE

Service is becoming a great factor in every business, and the Nursery business is no exception. Many people who have both small and large places to improve are at a loss in many cases as to the plan to follow in laying out their grounds, and also in the selection of the trees, plants and shrubs, which will as their place grows older, add to its beauty. In order to assist interested parties, we will on application mail you our SKETCH PLAN CROSS-SECTION BLANK, upon receipt of which you can make a rough sketch and mail to us, and our Landscape Department will send you a rough outline and recommendation for planting. No charge is made for this service.

BOOK ON ROSES FREE
"How to Grow Roses", just published. Gives names of best varieties and valuable information. Write for a copy.

FANCHER CREEK NURSERIES, 247 Holland Bldg. Fresno, Cal
Geo. C. Roeding, President and General Manager

Los Angeles Market

LOS ANGELES, Jan. 24, 1917.

BUTTER

Wholesale prices:
Rects. wk. ending Jan. 28, 319,387 lbs.
California extra creamery 37
Prime first 35
Extra creamery past wk. (Prod. Exch.)

Jan.	17	18	19	20	22	23
'17	.38	40	40	38	37	37

CHEESE

Brokers' prices:
California fresh, lb. .....20@21
Eastern Daisies 24
Oregon Triplets, lb. .....22@22½
Tillamook 22½

EGGS

Rects. wk. ending Jan. 23, 1337 cases.
Exchange quotations:
Fresh extras 34
Case count 32½
Pullet 31
Fresh extra past wk. (Prod. Exch.)

Jan.	17	18	19	20	22	23
'17	.44	43	42	40	37	34

POULTRY

We quote from growers:
Broilers .....25@26
Fryers .....23@24
Hens .....17@21
Roasters 22
Geese, Young 18
Ducklings, lb. .....18@20
Roosters, old 10
Turkeys .....26@28

LIVE STOCK

CATTLE—We quote cwt. f.o.b. L. A.
Beef steers, av. 1000 to 1100 lbs..8.00@8.50
Cows and heifers .....6.00@6.25
HOGS—
Heavy, av. 250 to 300 lbs.....8.50@9.00
Mixed, av. 200 to 250 lbs.....9.00@9.25
Light, av. 175 to 200 lbs. .....9.00@9.25
Rough, docked 20 lbs.; piggy sows, 40 lbs.; stags, 40%.
We quote per cwt. f.o.b. L. A.
Prime wethers .....8.00@8.75
Ewes .....8.00@8.50
Lambs .....12.00@12.50
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:
Northern .....2.90@3.10
Local .....2.60@2.85
Lompoc .....3.00@3.25
Sweet, cwt. .....3.85@4.00
Seed: Early Rose, cwt. 3.90
White Rose 2.85
Am. Wonder 3.25

ONIONS

Wholesale selling price:
White Globe, cwt. 7.50
Brown, cwt. 7.50
Garlic, lb. 8

VEGETABLES

Wholesale prices:
Artichokes, doz. .....90@1.25
Brussels Sprouts, lb. 10
Beets, doz. bunches .....35@40
Cabbage, fy. sack 2.50
Red, lb. 4½
Carrots, doz. 30
Chicory, doz. 40
Cauliflower, doz. 90
Celery, cr. 5.00
Cucumbers, Hothouse, doz. .....1.00@1.50
Kale 25
Horseradish, lb. 15
Lettuce, doz. 30
Leeks, doz. .....40@50
Mint 40
Onions, green, doz. .....17½@20
Oyster Plant, doz. 40
Peas, lb. .....15@17½
Parsnips, doz. 40
Peppers, Bell 35
Radishes, doz. .....17½@20
Rhubarb—Strawberry 1.25
Crimson Winter 1.15
Romaine 50
Spinach, doz. 25
Squash—Hubbard, lb. .....1¾@2
Chayote .....85@90
Tomatoes, crate 2.25
Turnips, doz. 40

FRUITS

Wholesale prices:
Apples—
Bellflower .....1.20@1.35
W. W. Pearmain .....1.25@1.60
Newtown Pippin, Yellow.....1.35@1.50
Bananas, lb. .....4¼@4½
Grapes—
Red Emperor, cr. 2.00
Pears—Winter Nelis lug 1.50
Persimmons, lb. .....9@10
Pineapples, lb. .....9@10
Pomegranates, half box.....2.00

CITRUS

Navels 2.25
Lemons, $1.75@2.50 Juice 1.25
Grapefruit .....2.40@2.50
Limes, basket 85
Tangerines, lug 1.50

NUTS

Prices named by Cal. Walnut Growers' Assoc.

	1914	1915	1916
No. 1	16.50	13.60	15.50
No. 2	12.00	10.60	12.50
Eggs, 16 oz. Net	....	....	16.50
Added	20.00	17.00	18.00
Combos	18.50	16.60	17.50

HONEY

Wholesale prices:
Extr. lb. White 8½@9½c; A. 8½@9c; W. W. 10@11c; Comb. lb. W. 12½c; Lt. A., 13½@14c; W. W. 14½c
Beeswax, lb. 32

BEANS

Wholesale Prices:
Baby Washington 12.00
Limas 8.75
Pinks .....8.00@8.25
Manchurian Reds 7.80
Garbanzos 6.00
Small White 12.00
Blackeyes 5.90
Lima 6.50
Garvanzos 6.00
Lentils 18.00
Idaho Pinto 5.00

HAY

We quote ton f.o.b. L. A. to producers:
Barley .....14.00@18.00
Oat, tame .....15.00@18.00
Alfalfa, local .....17.00@20.00
Northern .....15.00@17.50
Stock .....11.00@14.00
Straw .....9.00@11.00

GRAIN

Wholesale selling price f.o.b. L. A.
Wheat—No. 1 .....3.05
Corn—No. 2 yellow, 2.55; white.....2.60
Oats—California feed 2.80
Standard 45
Cal. Seed Oats 2.60
Barley—No. 1 bright feed.....2.50
No. 1 dark feed 2.45
Seed 2.55
Milo 2.40
Egyptian Corn 2.45
Rye 3.25

FEED STUFF

Wholesale, cwt. f.o.b. L. A.
Alfalfa Meal 1.35
Bran, heavy 1.90
Shorts and Middlings 2.35
Alfalfa Molasses 1.55
Meat Scraps, accd. to quan.....3.20@3.30
Beet Pulp 1.80
Cracked Corn 2.60
Cracked Wheat 3.15
Cotton Seed Meal 2.40
Bone Meal 2.45
Feed Meal 2.75
Green Bone 2.25
Middlings 2.35
Oil Cake Meal 2.40
Fish Meal .....3.60@3.70
Rolled Barley 2.50
Rolled Oats 2.50
Hulled Oats 3.30
Feed Meal 2.65; Scratch Feed..2.60@2.70

San Francisco Markets

SAN FRANCISCO, Jan. 23, 1917.

BUTTER

Dairy Exchange quotations, lb.:
Rcts. wk. ending Jan. 22, 317,400 lbs.
Fresh extras 38
Prime firsts 36
Firsts 35½
Extra Cr'y (Exch) past wk. & yr. ago.

Jan.	16	17	18	19	20	22
'17	.36	36	36½	37	37	38
'16	..	28	27½	28½	28½	28½

CHEESE

Dairy Exchange Quotations:
Cal. Flats .....17@18 Y. Am...19@21½
Ore. Trip. .....19½ Y. Am.....21

EGGS

Rcts. wk. ending Jan. 22, 10,975 cases.
Dairy Exchange quotations:
Fresh extras 36
Select Pullets 34½
Fresh Ranch (Exch.) past wk. & yr. ago.

Jan.	16	17	18	19	20	22
'17	.42	43½	41½	40	37½	36
'16	..	34	37½	35	33½	37

POULTRY

We quote from producers, lb.
Hens, large ..21@22; Leghorns ...19@20
Fryers, lb. .....24@25
Broilers .....26@28
Roosters, old ...13@14; young .....23@24
Squabs, doz. .....2.50@3.50
Ducks .....18@20
Geese .....18@20
Turkeys, dr. 26@30; live .....23@25
Belgian Hares, lv. 10@12; dr. 15

LIVE STOCK

Prices gross weight:
Cattle:
Steers, lb., 6½@8¼, cows and heifers, 4½@7¼; calves, 7@9½.
Sheep:
Wethers, 8½@9½; ewes, 7½@8; lamb, lb., 11@11½.
Hogs:
Hard grain fed, 8¼@10; undesirable 4@6.

POTATOES

Wholesale selling prices at wharf:
Delta Burbanks .....2.40@2.60
Salinas .....2.60@2.75
Oregon .....2.50@2.65
Watsonville .....2.40@2.60
Yakima Gems .....2.40@2.50
Sweet, Cellar .....2.50@2.75

ONIONS

Wholesale selling price on wharf:
Cwt. 6.00
Garlic, lb. .....3@5

VEGETABLES

Wholesale selling price:
Artichokes, doz., large 60-85; small, 35-40
Celery, cr. .....3.00@3.50
Cucumbers, bx., hothouse.....1.25@2.00
Lettuce, crate .....1.00@1.25
Mushrooms, bx. .....40@65
Peas, lb., small, 5@8; large.....10@12
Rhubarb, box .....1.25@1.75
Squash—
Cream, bx., 100@1.25; Hub. sk. 1.25@1.50
Tomatoes, crate .....75@1.25

FRESH FRUIT

Wholesale selling price:
Apples, bx.—Bellefleur .....60@75
Newtown Pippins .....85@1.25
Bananas, bunch .....1.00@1.50
Pears—Winter Nelis .....2.00@27.5
Other Winter .....1.00@1.75
Pineapples, doz. .....2.00@2.50

CITRUS FRUIT

Wholesale selling price:
Lemons .....1.50@3.25
Lemonettes .....1.50@2.25
Limes, Mexican, cs. .....4.00@5.00
Navels .....1.25@2.65
Tangerines, half orange box.....75@2.00

PEACH PRICES

The California Peach Growers announces price list No. 6. Please note the following advance in prices, effective Saturday, November 18, 1916, at 6 p. m. All prices are f.o.b. factories, California common points, but no orders will be confirmed by us, at the following prices, unless f.o.b. factories where grades and varieties desired are available. All quotations are subject to our approval of variety and assortment, subject to our confirmation and subject to advance without notice: November, December and January shipment.

Price list No. 5 is hereby withdrawn, and ineffective after 6 p. m. Saturday, November 18, after which time prices herein quoted shall apply.

	Yellows.	Muirs.
Standard Peaches	.06¼	.06¼
Choice Peaches	.06½	.06½
Fancy Peaches	.07¼	.08⅛
Extra Fancy Peaches	.08	.08⅝
Slab Peaches	....	.05½
Choice Peeled Peaches	....	.09¾
Fancy Peeled Peaches	....	.11

Above prices bulk basis.
For 50-lb. bxs., unfaced, add ..... ½c
For 50 lb. bxs. faced, add ..... ⅝c
For 25-lb. bxs., unfaced, add ..... ⅝c
For 25-lb. bxs., faced, add ..... ⅞c
For 10-lb. bxs., unfaced, add 1¼c
For 10-lb. bxs., faced, add 1½c

For prices on graded peaches, original, in bags, add ⅞c to the bulk basis prices above quoted.

	—Per Lb.—	
Ungraded, original bags	.07⅛	.07⅜
Choice Unpld. 1-lb. cart.	.08½	.08⅝
Choice Unpld, 5-lb. cart.	.08¼	.08⅜
Fancy Unpld, 1-lb. cart.	.09¼	.09⅜
Fancy Unpld. 5-lb. cart.	.09	.09¾

	Per Lb.
Choice Peeled 2-lb. Cartons	.12
Choice Peeled 5-lb. Cartons	.11¾
Fancy Peeled 2-lb. Cartons	.13¾
Fancy Peeled 5-lb. Cartons	.13¼

The above prices are guaranteed against our own decline to March 1, 1917, and apply only to sales and shipments made direct to the recognized jobbing trade. No goods will be confirmed at above prices to Coast or Eastern brokers, or to speculators, it being our object to eliminate speculation in dried peaches, we preferring to carry our stock in storage here on the coast until actually required by the jobbing trade.

DRIED FRUITS

Wholesale quotations:
PRUNES—Bulk basis, per lb.: 30s and 40s, 6½c; 50s, 6¾c; 60s, 7¼c; 70s, 7¼c; 80s, 7½c.
Other fruit, 50-lb. boxes:

	Standard	Extra Choice	Extra Fncy.
Apples	8 c	8½c 9 c	....
Apricots	15¾c	15⅞c 16 c	16⅝c
Peaches	6¾c	7 c 7½c	8⅛c 9⅛c
Pears	8 c	8½c 9 c	10¾c ....

California Associated Raisin Company's prices on 1916 crop: Package Sun Maid Seeded, 36-16s, per case, $3; package Sun Maid Seeded, 48-16s, per case, $3.95; Bakers Sun Maid Seeded, 25-lb. boxes, per box, $1.75; fancy Seeded Muscats, 36-16s, per case, $3.05; fancy seeded Muscats, 45-12s, per case, $3.15; fancy bulk Seeded, 25-lb. boxes(per box, $1.75; choice Seeded Muscats, 36-16s, per case, $2.90; choice Seeded Muscats, 45-12s, per case, $2.95; choice bulk Seeded, 25-lb. boxes, per box, $1.75. (Wood cases if desired.)

Loose Raisins in 50-Lb. Boxes
One-crown loose Muscatels, floated, per box, $4; 2-crown loose Muscatels, per box, $3.25; 3-crown loose Muscatels, per box, $3.50; 4-crown loose Muscatels, per box, $3.75.

London Layers
Three-crown London Layers, 20-lb. boxes, per box, $1.50; 4-crown clusters, 20-boxes, per box, $1.75; 6-crown Imperial Clusters, 20-lb. boxes, per box, $2.60; 5-lb. boxes, 50c additional; 10-lb. boxes, 25c additional; fancy clusters, 1-lb. cartons, 20 to case, per case, $1.85; fancy clusters, 2-lb. cartons, 12 to case, per case, $2.20; fancy clusters, 5-lb. cardboard cartons, 4 to case, per case, $2.35; bulk layers, in 50-lb. boxes, per box, $3.25; bulk layers, in 100-lb. boxes, per box, $6.25.

All f. o. b. common shipping points. Regular California dried fruit terms. Prices guaranteed to April 1, 1917. All raisins not shipped before January 1, 1917, to be paid for at that time. The company will carry the raisins free of expense to time of shipment, which must be before March 1, 1917, unless otherwise arranged.

No export rebate will be allowed.
Prices subject to change without notice.

NUTS

Jobbers' Prices:
Almonds.—Exchange opening prices: Nonpareil, 20½c; Ne Plus Ultra, 17c; IXL, 18c; Drake, 16c.
Peanuts .....5½@6½

BEANS

Jobbers' prices, cwt. recleaned:
Limas .....8.00@8.10
Garbanzos .....4.50@4.75
Small White .....10.50@11.50
Large White .....10.25@10.50
Pinks .....7.50@7.60
Horse Beans .....4.50@5.00
Horse Beans .....4.25@4.75
Red Kidneys .....11.75@12.00
Cranberry, California .....7.50@7.60

SEEDS

Prices in round lots, lb.:
Millet, recleaned .....3@3½
Alfalfa .....20@21
Rape .....2¼@2½
Flax .....5@6

HONEY

Jobbers' prices:
Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. .....10@12
Ex. Fy. lb.....9c; Lt. A.....6@8
Beeswax .....20@32

HOPS

Prices to growers at shipping points:
Sacramento, lb. .....8@9½
Sonoma .....10@11
Mendocino .....9@10
Oregon and Wash., lb. .....7½@10½

HAY

Scott, Magner & Miller say under date of January 20:

Receipts for the past week 1353 tons, last week 1745 tons. The general tone of the market on all grades is decidedly firm. City buyers have been in country districts buying all hay offering. Alfalfa is in good demand. Straw remains the same as last week.

We quote car lots f.o.b. San Francisco.
New crop.
Wheat, Fy., lt. bales. .....20.00@21.00
Wheat or Wh. & Oat. No. 1..17.00@19.00
Wheat or Wh. & Oat, No. 2..15.00@17.00
Oat, Choice Tame .....18.00@19.00
Other Tame .....14.00@16.00
Wild .....14.00@16.00
Barley .....14.00@16.00
Alfalfa .....14.00@17.00
Stock .....13.00@14.00
Barley Straw No. 1 .....70@90

GRAIN

Grain Exchange prices, cwt.
Wheat, California Club .....2.60@2.65
Wheat, No Limestone .....2.90@2.95
Corn, Eastern Yellow, sk.....2.15@2.17½
Corn, Egyptian White .....2.10@2.20
Oats, White Feed .....2.05@2.10
Red Seed 3.25
Barley, feed .....2.22½@2.27½
Shipping .....2.32½@2.40
Rye, cwt. 2.75

FEEDSTUFFS

Wholesale prices per ton:
Bran .....30.00@31.00
Cornmeal, feed .....48.00@49.00
Rolled Barley .....45.00@47.00
Cracked Corn .....48.00@49.00
Middlings .....35.00@37.00
Alfalfa Meal, carlots .....21.00@22.00
Shorts .....31.00@32.00

Citrus Fruit Market

LOS ANGELES, Jan. 24, 1917.

A large quantity of low grade fruit is going to market, and especially into the auctions, which makes a rather distressing situation. Good fruit, however, is commanding fairly satisfactory prices.

The lemon market is materially better.

Shipments

Shipments of oranges from Southern California to date since November 1, 1916, 4264 cars, lemons 1081, total 5345; to same date last season, oranges 4384, lemons 1187, total 3571. From Central California to date this season, oranges 3909, lemons 135, total 4034; to same date last season, oranges 4097, lemons 97, total 4194. From Northern California to date this season, oranges 841, lemons 594.

FROM THE AUCTION

January 17

New York: Twelve cars navels, 1 mixed, 1 lemon. Navels, $1.30@2.75; lemons, $2.95.

Cincinnati: One car, navels, $1.75.

Boston: Five cars, navels, $1.10@2.15.

St. Louis: Six cars, navels, $1.15@2.15; lemons, $2.20@2.80.

Cleveland: Six cars, navels, $.90@2.30.

Philadelphia: Three cars, navels, $1.50@1.80; lemons, $2.10@2.45.

January 18

New York: Ten navels, 1 lemon, $1.40@2.75; lemons, $2.05@2.35.

Boston: Nine cars, navels, $1.55@2.60.

January 19

New York: Eight navels, navels, $1.50@2.65.

St. Louis: Six cars, navels, $1.45@2.20; lemons, $2.40@2.90.

Cleveland: Eight cars, navels, $1.25@2.50; bloods, $1.45; lemons, $3.05.

Boston: Two cars, navels, $1.85@2.55; lemons, $2.10.

January 22

New York: Eighteen navels, 2 lemons. All stock slightly higher. Navels, $1.40@2.80; sweets, $2.00; lemons, $1.90@3.10.

Boston: Twelve cars. Slightly better prices. Navels, $1.50@3.00; lemons, $3.90.

St. Louis: Four cars, navels, $1.70@2.25; lemons, $2.60.

January 23

New York: Twelve cars navels, 2 lemons. Navels, $1.50@2.90; sweets, $1.45@1.65; lemons, $2.60@3.05.

Boston: Eight cars, navels, $1.50@2.65; lemons, $4.00.

SULPHUR IN THE SOIL

Sulphur is as truly a plant food as is potassium, phosphorus or nitrogen. There is often a deficiency of sulphur associated with a low nitrogen content. This condition seems to be responsible for much dropping of the fruit. In some soils sulphur is so deficient as to be negative to a test showing as little as .0004 of 1 per cent. The complete failure of fruit production in many orchards of the state has been prevented by the mere accident of having fertilized with phosphorus in a form carrying incidentally some sulphur.

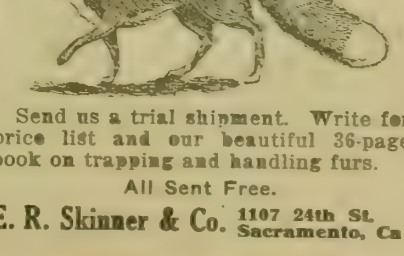
WEATHER CONDITIONS

For the Week Ending Jan. 20, 1917

	Rainfall Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	.00	13 52	21 81	50	28
Red Bluff	.00	11 02	12 57	62	28
Sacramento	.00	6 52	9 31	58	28
San Francisco	.00	9 81	10 87	62	34
San Jose	.00	6 43	7 89	60	22
Fresno	.00	5 21	4 66	52	28
San Luis Obispo	.34	14 37	8 96	56	32
Los Angeles	1.91	9 89	6 85	58	38
San Diego	2.40	6 56	4 53	56	42

Big Money in Trapping

We Pay High Prices for Furs



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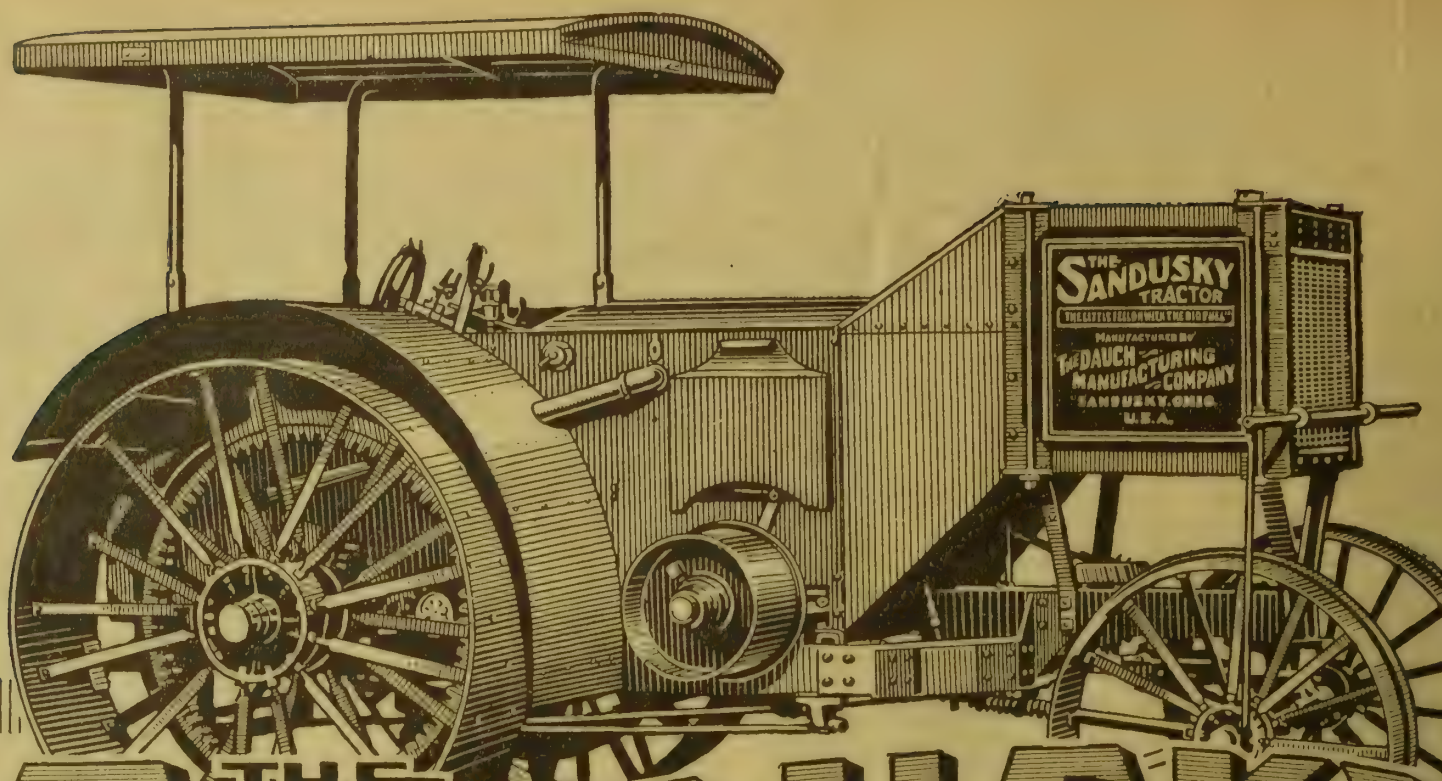

THE SANDUSKY TRACTOR

"THE LITTLE FELLOW WITH THE BIG PULL"

15-35 Model E---Burns Kerosene

THE recognized standard of excellence in tractor construction is found in our Model E. This fact is endorsed by hundreds of users, and admitted by all engineers who are familiar with its construction.

Tractors can give only the service that is built into them. They are called upon to endure strains no other machine is expected to stand; to do their work under conditions that rack and tear any machine with a weak spot.

It is essential, therefore, that they be built of the best possible materials, by the most skilled workmen, after designs originated by the highest engineering ability, and then proved most rigidly in actual field service.

Real performance cannot be assured in untried, hasty designs or cheap construction with which the market is flooded. The Sandusky Tractor is built for service, durability and economy, and represents the greatest attainment in tractor building yet accomplished. You buy tractor certainty when you purchase the Sandusky.

It is sold on a guaranteed basis, after an actual demonstration on your own farm has shown that it is adapted to your needs and capable of doing your work, whether that be plowing, harrowing, discing, harvesting, hauling, threshing, filling the silo, shredding fodder, sawing wood, making roads or operating any belt machinery.

Brief Specifications

Our own four-cylinder, four-cycle 5 x 6½ heavy duty, slow speed, vertical motor; positive self-contained combination force feed and splash oiling system; Bennett air cleaner; three speed selective transmission, 2 to 5½ miles per hour with direct drive on low; ideal three-point spring suspension; all steel construction; small over-all dimensions and short turning brakes; easily handled; surplus cooling capacity.

A NEW PLAN—FREE SERVICE

We announce an entirely new departure in tractor selling. A coupon book for 200 hours of service goes with every Model E. This means expert service and help without charge when you want it. See catalog for details.

Our Binding Guarantee

We guarantee The Sandusky Tractor full 15 horsepower at the drawbar and 35 on the belt pulley; capable of handling at least four 14-inch moldboard plows eight inches deep where a big team can pull a 12-inch plow six inches deep; to run belt machinery up to a 32-inch separator; to have one-third reserve over its drawbar rating, and for one year against defective workmanship and material.

BOOK E-12 FREE—A 40 page book which fully describes and illustrates the distinctive design, high grade construction and exceptional ability of the Sandusky Tractor. A copy will be mailed you upon request.

If the Model E is too large for your requirements, let us send you information covering our 10-20 Model J. Ask for booklet J-12

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SANDUSKY, OHIO

The Sandusky Tractors—both Models—are ready for inspection at and delivery from our principal Factory Branches and Service Stations at: Indianapolis, Ind.; Bloomington, Ill.; Milwaukee, Wis.; Lewistown, Mont.; Minot, N. Dak.; Fargo, N. Dak.; Sioux City, Iowa; Lincoln, Nebr.; Wichita, Kans.; Dallas, Texas; Leesburg, Fla.; Los Angeles, Cal.; Sacramento, Cal.

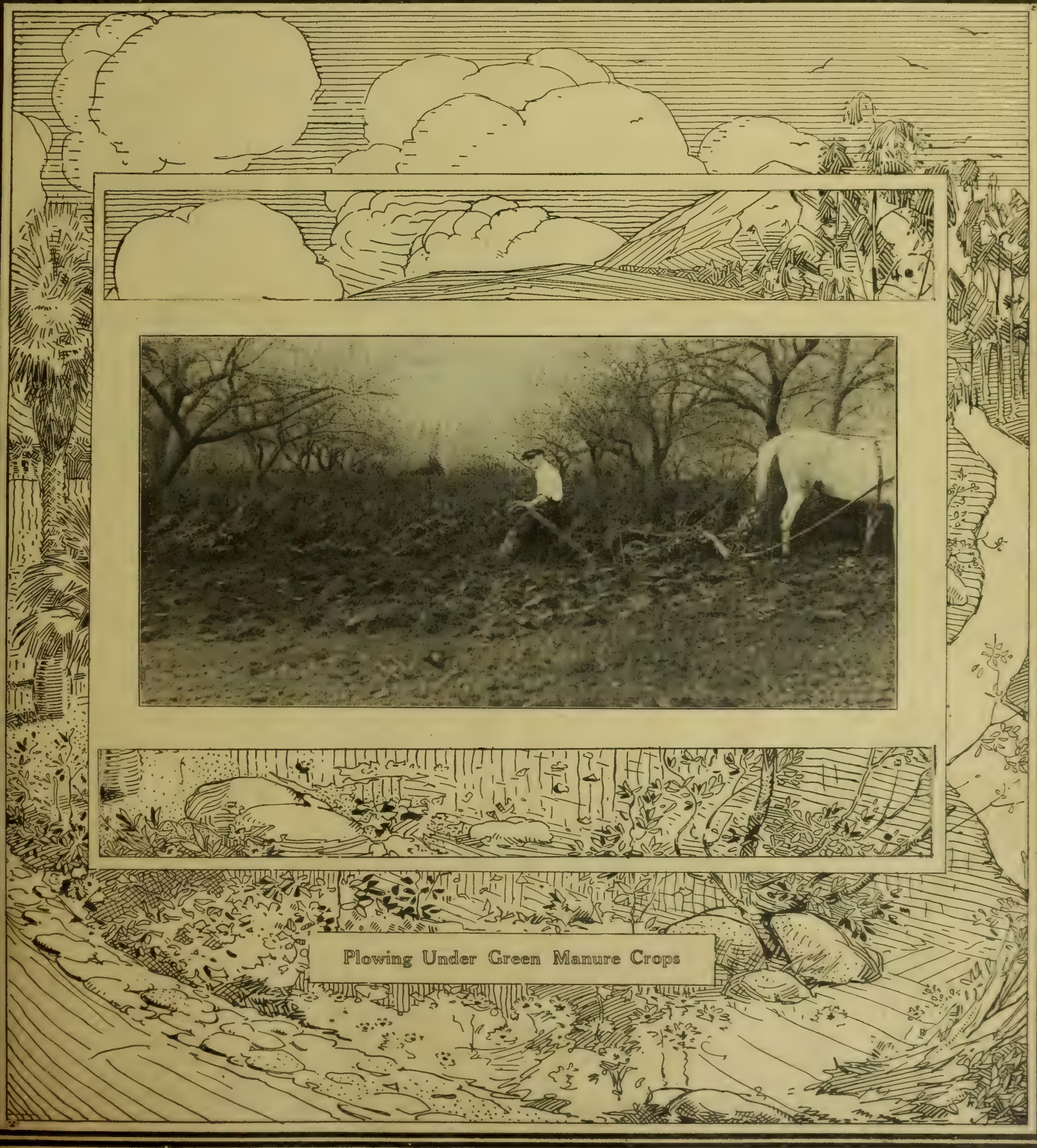
Sep - 6 1917

CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES February 3, 1917 SAN FRANCISCO



Plowing Under Green Manure Crops

THE NEW DE LAVAL

A Bigger and Better Cream Separator for the Same Money

THE FARMER who buys a De Laval this year will get bigger and better value for his money than ever before.

Not only will he get a better machine, a simpler machine, a machine that will skim even closer than any previous De Laval, but he will get a machine of larger capacity.

And the price has not been increased one cent.

Just think what that means to cow owners in the face of rising prices on almost everything else the farmer has to buy, including other cream separators.

Only the tremendous volume of De Laval sales makes it possible to give the farmer more for his money when others are giving less.

The NEW De Laval is the culmination of nearly forty years of experience and development by the largest and oldest cream separator concern in the world. It represents

The greatest improvement in separator construction in the last thirty years

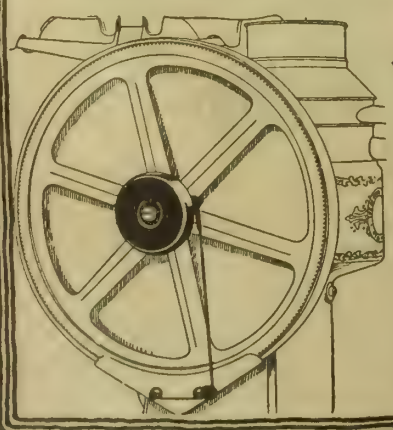
If you are trying to get along without a cream separator, or with a half-worn-out or unreliable machine, why not get a NEW De Laval NOW and stop your cream waste? You don't need to count the cost, because the De Laval will soon pay for itself.

There is a De Laval agent near you who will be glad to explain all the improvements and advantages of the NEW De Laval, and who will set and start a machine for you on your farm and let you try it for yourself.

If you haven't the spare cash right now, that need not stand in the way of your having the use of a NEW De Laval the rest of the winter. We have an arrangement with De Laval agents which makes it possible for any reputable farmer to secure a De Laval on the partial payment plan—a small payment at the time of purchase and the balance in several installments—so that your De Laval will actually pay for itself while you are using it and getting the benefit from it.

Why not see the nearest De Laval agent at once? If you do not know him, write to the nearest office for any desired information.

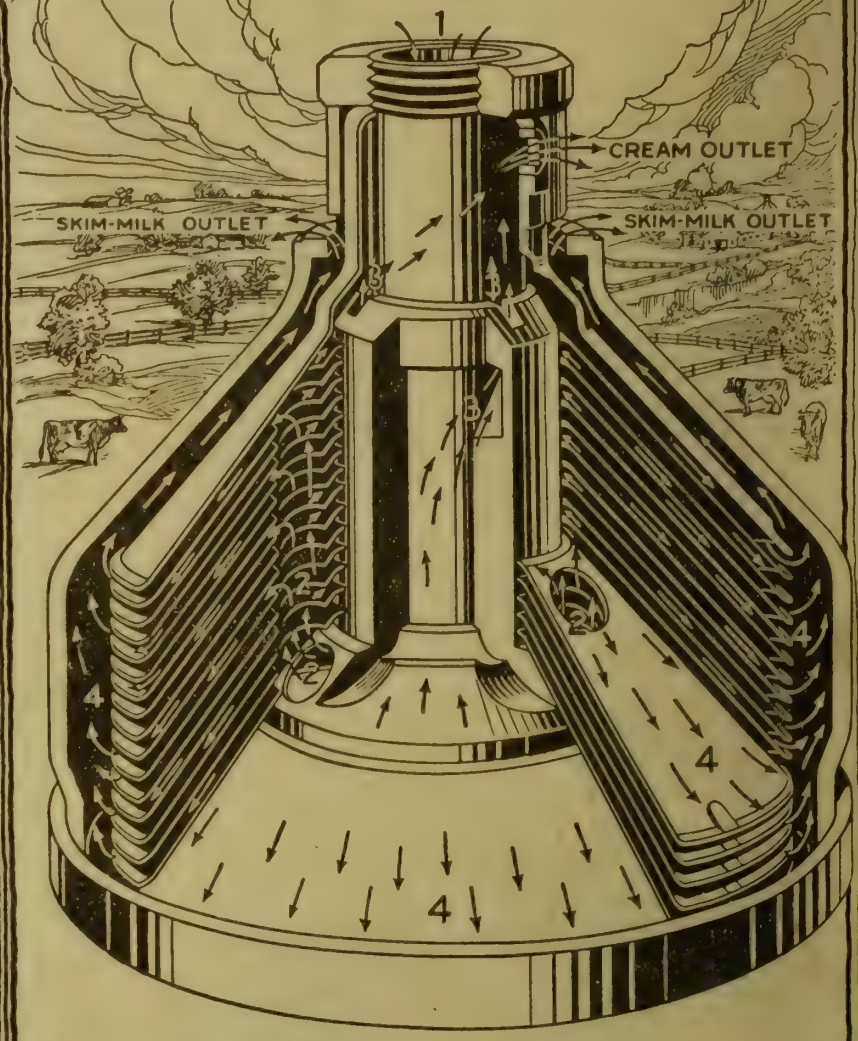
Every NEW DE LAVAL is now equipped with a Bell Speed-Indicator



"The Warning Signal" which insures proper speed and uniform cream

Because nine people out of ten turn the separator handle too slowly and because this always means loss of cream and cream of uneven thickness, every cream separator should be equipped with a reliable speed indicator.

Every NEW De Laval is now so equipped. The De Laval Bell Speed-Indicator is simple. It is accurate. It is reliable. There is nothing to wear out or get out of order. No matter who runs your De Laval, the "warning signal" will tell you when the speed is not right. You hear it and do not need to see it.



THE NEW SELF-CENTERING DE LAVAL BOWL

Some of the points of superiority of the NEW DE LAVAL

The New De Laval bowl design and the new method of delivering the milk into the discs give increased capacity without increasing the weight or size of the bowl or increasing its speed. The incoming whole milk is delivered beyond the cream wall, and this, in conjunction with the improved design of the bowl, makes possible closer skimming than ever before, especially under the more difficult conditions of separation, such as skimming a very heavy cream or separating milk below usual temperature.

The much lower speed of the De Laval than other cream separators (in most cases from one-half to one-third less) insures minimum wear of gears and much longer life of the machine.

The New De Laval concave-bottom, self-centering bowl is so designed and so supported by the detached spindle that it will run true and do perfect work even after long wear, the great importance of which every separator user will appreciate.

There are fewer discs in the New De Laval bowl, and all discs are unnumbered and are interchangeable.

By reason of its simpler construction and the fewer number of discs, the New De Laval bowl is more easily washed and cleansed.

All New De Lavals are automatically oiled, every moving part of the machine being bathed in a constant film of oil. There are no oil holes anywhere on the machine, and the sight feed oil cup on the top of the frame provides for a constant supply of fresh oil.

The gears, pinions and other moving parts of the De Laval are exceedingly simple in arrangement, substantial in dimensions and always interchangeable.

The De Laval tinware is sturdy and heavily tinned, well suited for long and hard wear, and easy to clean.

The low speed of the De Laval bowl, in combination with greater capacity for a given size and weight of bowl than is found in other separators and the automatic De Laval oiling system, make the De Laval the easiest cream separator to turn.

New Catalog will be mailed upon request

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LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST.

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California Cultivator

Vol. XLVIII No. 5 LOS ANGELES: February 3, 1917 One Dollar Yearly

Handling Green Manure Crop in the Spring

Prof. R. S. Vaile of the Citrus Experiment Station Staff Gives Information as to Time of Turning Under. He Says That Cover Crops Should be Plowed Under in Preference to Disking and Discusses General Fertilization of the Orchard

ESTIMATES made from the amounts of cover crop seed distributed in Southern California indicate that some 94,000 orchard acres are at present planted to one of the legume crops as against about 70,000 acres one year ago. There is doubtless a considerable additional acreage planted to non-leguminous crops. With so large an acreage growing green manure crops it is fitting that considerable attention be given to the handling of such crops in the spring. All of the good which the cover crop is capable of doing may be dissipated, and actual injury may be done by wrong methods during the next few weeks. The following suggestions have come to the writer through observations made throughout Southern California during the past several seasons.

As a general rule the turning down of the cover crop should be completed before the middle of March.

Cover crops should be plowed under in preference to disking.

A large proportion, or possibly all, of the fertilizer material to be applied during the season may well be plowed under with the green manure crop.

Plow Early

It is frequently true that green manure crops have not reached their maximum development by late February. If left standing until April the tonnage might be increased in considerable amounts. This increase in tonnage of organic material would possess considerable value. On the other hand, however, there is a large risk involved of allowing the ground to become too dry or too low in available nitrogen just at a time when the trees are putting forth a growth that particularly requires both moisture and food for successful development. Last season, with the absence of late rains —and frequently late rains are absent —there was a very large acreage where the trees apparently suffered either for lack of moisture or nitrogen, or both, before the green manure crop turned under in April or May could possibly be available. Whenever the plowing was done during February or early March, while the moisture conditions were right, groves went through the spring in fine vigor.

The opinion is sometimes expressed that when cover crops are plowed under early they decay too rapidly, while the mature crops are of more lasting benefit to the soil. It is not, however, the material which remains visible to the eye that feeds the tree. The object of soil management is not to increase to any great extent the amounts of plant food or organic material in that soil, but rather to maintain a sufficient, readily available supply for the demands of the crop. In order to meet the demands of citrus trees the moisture and nitrogen supplies must be large and readily available during the spring. If an ample supply of cheap water is available to supplement light rainfall, and if a small amount of soluble nitrogen is added during February, it may be a justifiable practice to leave the plowing until late. Even then it is difficult to plow after irrigation when the ground is in as uniform a condition as following a rain. It is surely a safer practice, and over a long period of years almost as surely a better practice, to plow early so that the ground may be naturally settled by the late rains, and the processes of decay may furnish abundant soluble plant food.

Plowing Preferable to Disking

With our present system of summer cultivation the deep incorporation of all plant foods is to be desired. During the summer the surface soil is exposed to extreme heat and dryness, thus burning out organic material and checking bacterial action. Furthermore, the roots are kept out of the cultivated soil entirely. Therefore, in order that the contents of the cover crop may be in reach of the trees, a large part of it must be turned under deeper than the point of summer cultivation.

The suggestion is occasionally made that in plowing, while the tops are inverted, the roots with their nodules are turned to the surface. In part this is true, but estimates made carefully by many different investigators throughout the country indicate quite clearly that the tops contain between two-thirds and three-fourths of the total nitrogen of the plant. While the bacteria which form the nodules are the agency responsible for any collection of nitrogen from the air, yet the plant can and does assimilate a large part of such nitrogen in its growing top.

It is frequently desirable for expediency in handling the work to disk the orchard crossways to the irrigation furrows and then plow with the furrows. This may be a very satisfactory method. Usually the growth between the trees is shorter than with the furrows because of less moisture during the fall, and also there is frequently less demand by the tree roots for plant food because moisture is not maintained to make it available.

Plow Under Fertilizer

The same problem which has been mentioned above, namely, getting the plant food down to the roots, applies to other fertilizing materials as well as to green manure crops. Doctor McBeth has gathered a great deal of evidence that furrow irrigation tends to concentrate a large percentage of the soluble nitrates in the surface soil from which tree roots are excluded. The deeper the plant food is originally placed, the better chance it has of being carried on down to a zone where the roots can utilize it.

These studies of McBeth have suggested that fertilizer should be applied deeper than the summer cultivation. A fairly satisfactory method to employ is to scatter the fertilizer broadcast and plow it under with the cover crop. The writer is inclined to think that some day a practical drill attachment to be used directly on the plow, dropping the fertilizer into the bottom of the furrow, will be devised.

Plowing itself is, of course, an art. The tool, the horse power, and the operator must each be fitted to the requirements. The writer favors a moldboard to a disk plow as a general thing for covering green manure crops. The moldboard, with a good colter and chain, can certainly be made to do very fine work. On the other hand a 14-inch moldboard does much better work than a smaller one, and where horse power is available even a 16-inch plow is to be desired. This of course necessitates four horses. When a disk plow is used attention should be given to the size and position of the scrapers so that the soil may be as completely unveiled as possible.

An Exposition of Citrus Fruits

Oranges and Lemons Will Make California's Greatest Show of Citrus Fruits at San Bernardino

THE management of the National Orange Show is proposing to make this the greatest exhibit of citrus fruits and products ever. The show will open on February 20. World honors will be awarded for the best quality fruits. There will be many striking features. Northern as well as Southern California citrus districts will compete. Several large tents will house the exhibits. California has some of the finest citrus fruits ever grown and this year's show should be the most successful one.

Besides citrus fruits there will be many orchard and packing house appliances. How to plant, cultivate, irrigate, prune, fumigate, spray, fight frost; how to pick, pack and handle the fruit, and a thousand and one other questions as to the how of the citrus industry may be answered, also the question of "what with?"

Go if you know all about the industry. Go if you don't.

There will be fun provided for the kiddies.

All may go on the railways at reduced rates.

Orange Grove at San Dimas

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One Year Peach Trees

Now ready for delivery. High grade nursery stock in

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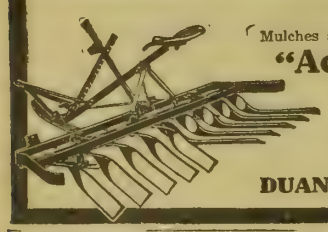

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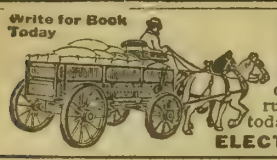

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Successors to

The San Dimas Citrus Nurseries

Teague Trees are Quality Productive Trees

Because properly grown and budded from selected trees producing abundantly only quality fruit. In addition we give quality service in the way of digging, packing and delivery that insure success to the planter. Correspondence and inspection invited; our treatise on "Citrus Culture" and annual Price List sent on application.

R. M. TEAGUE, Manager

San Dimas, California

Spraying for June Drop of Navels

By J. Eliot Coit

ORANGE growers in the San Joaquin Valley have recently taken considerable interest in the possibility of controlling June drop of the navel orange by spraying with fungicides during the winter and spring. In view of the present state of our knowledge in regard to the life history and habits of the fungus which is responsible for black heart rot of the navel and in all probability is also vitally connected with the June drop it is but fair to state that spraying experiments have only just been started and the final results will not be known until next fall. At present we do not know whether spraying will have any effect on the June drop. It is to be hoped that spraying may prove efficacious but hopes and facts are far from being the same. Spraying can do no harm, and if some growers decide to take a chance and spray anyway with the idea that some good may be accomplished, there can be no objection, provided such growers do so with the full understanding that spraying has not yet been recommended by those most conversant with June drop problems; that they are getting ahead of the game and are spending their money in anticipation of results which may or may not materialize during the next year.

There are a number of points in connection with the mode of infection of the blossoms which cannot be cleared up before the next blossoming season. If it is found that infection takes place only in the blossom it is difficult to conceive how spraying the trees in winter could have any effect other than producing a more sanitary condition around the trees. If it is found that the fungus overwinters chiefly in the black rot oranges lying under the trees, spraying had better be directed toward soaking these mummied fruits. Again it may prove cheaper to gather up these mummies after the harvest and burn them rather than to attempt to sterilize them with fungicides. Because a certain trouble may be due to a fun it does not always follow that spraying with fungicides is the proper remedy.

The June drop problem is a very complicated one and while much progress has already been made, the final solution is yet to be achieved.

Citrus Canker in Florida

"The importance of preventing the entrance of citrus canker into the state cannot be overemphasized," is a warning just issued by the state horticultural commissioner. Two telegrams were recently received by Commissioner Hecke. The first is a statement of the cost of eradication in Florida by Dr. Kellerman, assistant chief of the bureau of plant industry, as follows:

Federal appropriation for citrus canker 1915, $35,000.

Federal appropriation for citrus canker 1916, $550,000.

Florida legislature appropriated $195,000.

Florida fruit interests appropriated $100,000.

Estimated total cost this year, $600,000.

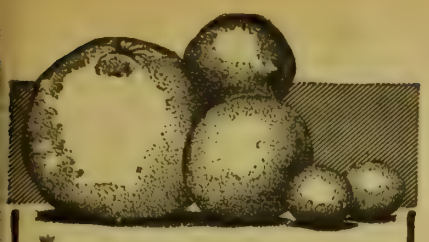
The second telegram came from Professor Wilmon Newell, plant commissioner of Florida, in response to an inquiry regarding compensation to the grower for the destruction of his trees. This message stated:

"Florida growers are not compensated for destruction of trees on account of canker either by state or government."

From these two telegrams it will be seen that there is a very heavy expense attached to the attempted citrus canker eradication work in Florida and that the grower whose trees are diseased suffers the loss of his property with no compensation. Consider what this disease would mean should it get started in California. If at any time there should be a suspicion on the part of a county commissioner or inspector that this disease exists in any part of the state, this office would be grateful for immediate notification and details regarding the supposed infestation. While we greatly hope that it will never get into our groves, should it do so we would like to be able to detect it at the start and if possible eradicate it before the expenditure of large sums of money, as in Florida, would become necessary.

LOAD AND UNLOAD

The Railway Age Gazette gives some interesting information in an analysis of a typical freight car's journey. There are several columns given to the story of this car. In this item we note the average time per trip for each car is 17.72 days. Out of this nearly 18 days devoted to each trip the time in trains, both loaded and empty, is 1.6 days, the time allowed for loading by ordinary demurrage rules, two days, for unloading two days. Other time required, such as in repair yards, at terminals and interchanging points between carriers, and time necessarily idle and of course occasionally in company service aggregates another 12 days. The Gazette suggests a necessary reduction, and to accomplish it recommends a slight increase of speed, reduction of time in repair yards, still greater reduction in time at terminals and interchanging points, and reduction of the time the car is idle. It still leaves two days for loading and two days for unloading. It appeals to us that this time might also be reduced. Take for instance the orange shippers of California. We believe there are but few packing houses which require an average of two days for loading, and except in cold weather on Eastern sidings their unloading should be accomplished in much less than two days. Sure it is there is a shortage of cars and when the orange shipping season is in full swing the shortage will be still more serious. This of course is only one phase of the car shortage but until more cars can be provided or crops reduced every precaution should be taken.



PROFIT comes from fruit, not foliage. On Citrus fruits use immediately available

Nitrate of Soda

It works while the fruit buds are forming.
"Orange Culture" is a valuable book I will send to you Free if you will but ask for it. Send post card.

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The only exterminator that is 100% efficient and guarantees results or money back is

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solves the labor problem and makes the best use of high priced seed. Means $5 to $50 extra profit per acre. Every seed piece in its place and only one. Saves 1 to 2 bushels seed per acre. Uniform depth; even spacing. We make a full line of potato machinery. Send for booklet today.

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Lime $4.25 Ton Carlot Gypsum $4.50 Ton Carlot
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PLANT CITRUS

Written for California Cultivator

AND now comes the shortage in citrus trees and as a result everybody wants them. The larger nurseries are reporting stocks already low, and some orders from those who wish to make large plantings have of necessity been refused. Two years ago citrus stock went begging and, not stopping to think that it takes years to produce a bearing citrus orchard, planters preferred to wait until the prices of citrus fruits and the demand for them was such that the immediate prospect was good. The Cultivator might preach from now until doomsday, and the same conditions would prevail. The same spirit is shown in large cities where it is proverbial that when prices of material are high and labor almost impossible to secure, then the greatest building operations proceed. This season and some others within the past few years have shown many sections to be fitted for citrus culture and many that were not. So it is possible the backward planter has done well to wait and make careful observation of all the conditions. It costs a great sum and takes years to make a bearing orchard so thorough consideration of all the conditions which will confront the orchardists should be given; then plant.

REGULATIONS FOR IMPORTING ORANGE SEED

The season for importing orange seed into California for propagation purposes will soon be at hand. Florida is the one source of supply of sour orange seed available to our planters at this time, therefore the quarantine division has made the following regulations covering the bringing into California of orange seed from Florida:

The shipper must obtain a certificate from the plant commissioner of Florida for each individual shipment, and the certificate must be produced by the consignee before the seed will be released. To obtain this certificate the shipper must swear to an affidavit naming the location in which the seed was collected and the fact that the same has been treated as prescribed. No certificate will be issued for seed collected in any locality where canker has been found or within a fixed distance of the nearest recorded infection.

COLD STORAGE OF CITRUS

We note in Cold, a paper devoted to refrigeration that:

"The best holding temperatures for citrus fruits are somewhat higher than most other fruits demand. Grapefruit should be held at 45 to 50 degrees, oranges at 42 degrees, and lemons at 42 degrees. At lower temperatures the brown stain which is the most common source of loss in stored citrus fruit develops more rapidly than at the temperatures given above. In all cases frequent inspection should be made so that the fruit can be sold as soon as decay appears.

"As in the cases of other fruits intended for storage, it is necessary to practice the most careful handling at all stages and to store promptly after picking. Bruised or punctured fruits will not only spoil themselves, but will quickly cause decay in other fruits that are packed with them."

Wood ashes contain lime and in addition some other valuable plant foods. Two and a half tons of wood ashes have about the same value in correcting acidity as one ton of burnt lime.

TALKS ON
Nitrogenous Fertilization

Number 8

IT is a fact that California soils respond promptly and generously to intelligent fertilization. This is particularly true concerning nitrogen, in which important plant-food element so many soils are deficient. But as is always the case, some forms of nitrogen are better than others.

SULPHATE OF AMMONIA

Sulphate of Ammonia, because it is in the form of a sulphate, gives particularly good results on California soils, not only because of the nitrogen it supplies, but because it aids in bringing the soil into good mechanical condition.

It benefits *all* crops, in the orchard, garden and field.

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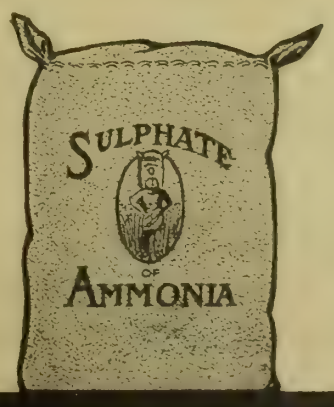

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Box 248, Sta. C, Los Angeles, Cal.
Sample sent on request

1917

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IT IS FREE—mailed on request. It tells how and when to plant garden, flower and field seeds.

SEED POTATOES We now have a fine stock of Oregon-grown AMERICAN WONDER and EARLY ROSE. WRITE FOR PRICES.

ALFALFA SEED We always lead in this item. Send for samples and prices of GRIMM, HAIRY PERUVIAN, TURKESTAN and COMMON CHILIAN ALFALFA SEED.

LONG RED MANGEL—
for stock feeding
Lb. 50c
10 lbs.....$4.50

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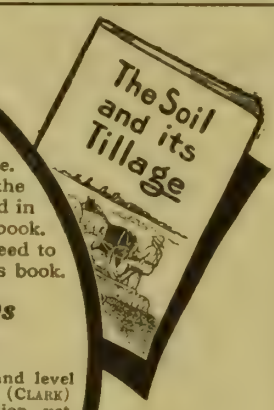
5th and Jay Sts. Sacramento, Cal.

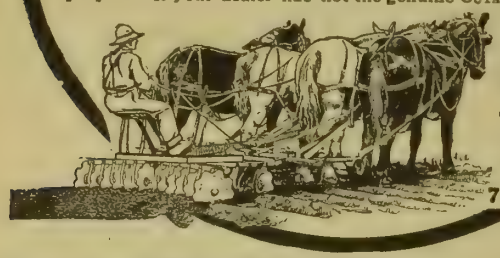
You Need This Book

Our free book, "The Soil and Its Tillage" will help you make this a banner year. Send for it. There's a science of tillage. And, the farmer who understands this science is the one who produces paying crops in good seasons and in bad. "The Soil and Its Tillage" is a practical text book. Tells you in a plain practical way just the things you need to know. No matter what tools you use you need this book.



Cutaway CLARK Disk Harrows and Plows

have cutlery steel disks *forged sharp*. They cut, pulverize and level the soil without bringing up stones, trash or sod. CUTAWAY (CLARK) Double-Action Harrows give two diskings in a single operation, yet are light in draft. In all sizes, (as small as one-horse) and for every purpose. If your dealer has not the genuine CUTAWAY write us direct. Be sure to send at once for our new free book, "The Soil and Its Tillage."



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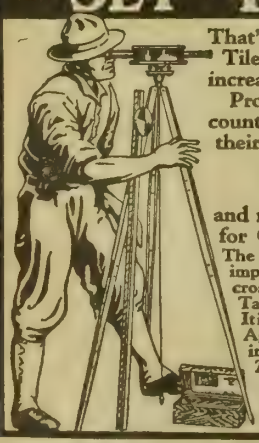

That's what every man does who owns *Properly* Irrigated, Ditched, Tile Drained or Terraced Land. And if you don't want to sell, your increased yearly profits are just like turning waste land into cash. Progressive land owners in every State and practically every county in the Union have discovered that the *only* way to bring their land up to the desired state of production is to get a

Bostrom $15 Farm Level

and make spare days the most profitable days. Also fills the bill for Grading, Road Building, Foundation Work, etc.

The Bostrom Farm Level has been on the market over thirty years, the latest improved having a *Telescope* with *Magnifying Lenses* which enable you to see the cross on the Target a quarter of a mile away. Man Size Tripod, Leveling Rod, Target, Plum-Bob and full instructions included. Weight, 15 pounds. It is used and *endorsed* by Agriculture Schools and U. S. Farm Demonstration Agents, and you will endorse it, too, after using it—if not *Your Money Back*, including express both ways. Write today for description of *Level* and *Telescope*, details of our Money Back Guarantee, and names of Jobbers in San Francisco, Sacramento and Los Angeles who carry it in stock.

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REVERSIBLE TEE BAR ROLLER

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ARNOTT & CO., Inc., 112-18 S. Los Angeles St., Los Angeles

The Kadota Fig

PROF. IRA J. CONDIT of the division of citriculture, Berkeley, has made extensive investigations as to the behavior of the Kadota fig in different sections of the state. This fig has proven of remarkably fine quality, and from a history of the fig and description of its good points we quote:

By Ira J. Condit, Division of Citriculture, Berkeley

Commercial fig culture in California has so far depended mainly upon three varieties, the Calimyrna, Adriatic, and Mission. Other aspirants for favor have appeared from time to time but these three seem to predominate especially as regards the production of dried figs. Recently a variety commonly known as Kadota has been propagated and distributed in large quantities principally in Tulare County. The history of this variety so far as determined by the writer is as follows:

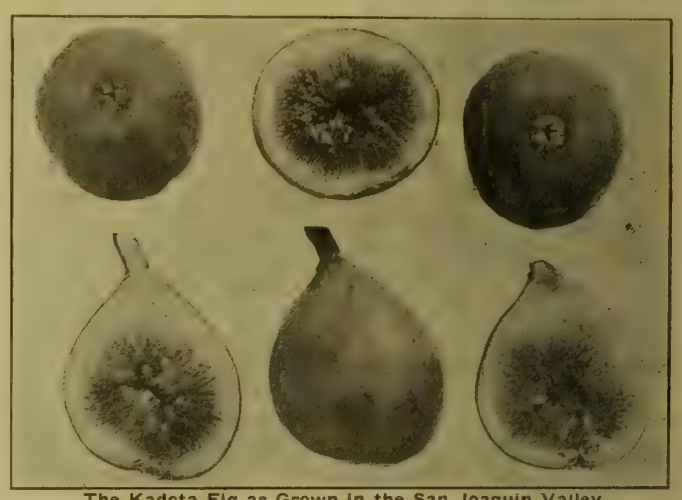
In 1887 a nurseryman of Orange County obtained some fig cuttings from Southern Europe under the name Dottato. Some of these were planted by Theodore Hockett on his place near Orange where they grew and fruited. (A recent visit by Mr. Roy Bishop and the writer to the old Theodore Hockett place near Orange failed to reveal the presence of any fig trees except one which appeared to be the Brown Ischia. The place has changed hands several times since Mr. Hockett owned it.) In 1895 Cyrus Way of Whittier obtained three cuttings from Mr. Hockett and planted them in his dooryard where one of the trees is still growing. In 1898 Stephen H. Taft of Sawtelle gave an address in Whittier and stayed over night with his friend Mr. Way. In the morning they were in the yard looking at various plants, among them the fig tree, and after sampling the fruit Mr. Taft remarked that it was of unusual excellence. Mr. Way replied that he also thought very highly of it and that he got better prices for the fresh figs than for those of other varieties.

* * *

The history of different trees which are planted in Tulare County, some under the name of Datato, others under the name of the White Pacific, is traced by Mr. Condit. One planted at Pomona under the name of the White Dottato, which was regarded as an exceptionally fine white fig, is also thought to be the same fig. Comparison of these figs in different parts of the state is shown in engravings above.

The Kadota Fig as Grown in Los Angeles and Orange Counties

The kadota figs as grown in Los Angeles and Orange Counties are larger than those grown in Central California. They have a distinct neck, are green and glossy and have more or less distinct violet tint to the flesh.



The Kadota Fig as Grown in the San Joaquin Valley

—Photos by Division of Citriculture, University of California.

There is material difference in the appearance of the kadota fig as it grows in the San Joaquin Valley, where it is lemon yellow, amber-fleshed, oblique in shape, without distinct neck.

New Secretary to State Horticultural Commissioner

Mr. E. J. Vosler, secretary of the state horticultural commission, will leave California on January 30 for collection work in Australia with the particular purpose of finding parasitic enemies to control the beet leaf-hopper, which as carrier of the germ of the beet leaf curl disease, has caused considerable loss to the sugar beet farmer. Mr. Vosler was assistant superintendent of the state insectary before his appointment to the secretaryship of the commission. His thorough entomological training and his valuable experience in the state insectary will enable him to carefully

investigate and search for suitable parasitical material.

His successor to the secretaryship of the horticultural commission will be H. S. Maddox, who as manager of the Yolo horticultural exhibit at the P. P. I. E. exposition and the secretary of the board of trade of the same county, has become known throughout California as one of the foremost publicity men of the state. The commission has felt the need of service in this line of work, and Mr. Maddox is well qualified to become a valuable additional to the staff.

ARIZONA EXTENSION SCHOOL

The agricultural extension service of the University of Arizona is planning a series of institutes in Cochise County, Specialists from the university and farm advisers and others connected with the department of agriculture will unite in the programs. The first will be held in Webb school house Wednesday and Thursday, February 14 and 15. The first day's program will be a formal one in which E. P. Taylor, director of agricultural extension service, will talk upon potato growing and gardening, Mrs. Salisbury on household conveniences, G. W. Barnes, live stock specialist, on getting started in the dairy business, E. P. Taylor on the home orchard with pruning demonstration and A. L. Paschall, county agent, on crop rotation. At noon there will be a basket lunch and in the evening illustrated lantern slide lectures.

The next day the forenoon will be given to discussion of foods and cooking by Mrs. Salisbury and the remainder of the day to that most valuable of all institutes, field meetings and demonstrations. These will be in charge of A. L. Enger, irrigation engineer.

On February 16 an institute will be held at the Stewart school house seven miles north of Willcox, and the meeting of Saturday, February 17, will be at the San Simon school house. In both of these latter meetings the program will be somewhat similar to the formal first day meeting at Webb school house.

TO EXPOSITION PARK

We recently gave an item regarding the permanent exposition located in the city of Los Angeles. The article attracted the attention of some of our subscribers to this excellent institution mainained by California and free to all visitors who wish to inspect its magnificent exhibits and inquiry was made as to how to reach the grounds. In answering such inquiry we referred to certain car lines. Mr. Davison now sends correction. In order to reach the grounds take any of the following cars: University lines, Vermont-Georgia, and cross-town Vermont, on the west; East Jefferson (Ascot Park-Exposition Park) and the Santa Monica air line, on the north; Grand Avenue lines (one from North Broadway and one from North Main), Hawthorne-Eagle Rock, and the Vermont Heights cars on the south.

SHORT ON GRANDFATHER

The lady of good family was showing her ancestral home to her small son. She pointed with special pride to a bust of her father.

"And that, Robbie," she said, "is your grandfather."

"Is that all there was of him?" he asked.

AS OTHERS SEE US

She (at the opera)—Don't you think Miss Screecher strains her voice when she sings?

He—Perhaps; but if she does, she uses a mighty poor strainer.

JOHN DEERE IMPLEMENTS

BETTER FARM IMPLEMENTS AND HOW TO USE THEM

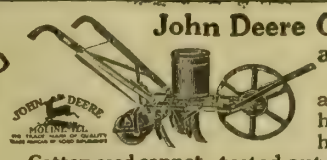
BOOK FREE 156 page reference book—tells all about a complete line of farm implements and how to adjust and use many of them. A practical encyclopedia of farm implements. Worth dollars.

Describes and illustrates Plows for Tractors; Walking and Riding Plows; Disc Plows; Cultivators; Spring Tooth and Spike Tooth Harrows; Disc Harrows; Alfalfa and Beet Tools; Farm and Mountain Wagons; Manure Spreaders; Inside Cup and Portable Grain Elevators; Corn Shellers; Hay Loaders; Stackers; Rakes; Mowers and Side Delivery Rakes; Hay Presses; Kaffir Headers; Grain Drills; Seeders; Grain and Corn Binders.

This book will be sent free to everyone stating what implements he is interested in and asking for Package No. X-111.

JOHN DEERE, MOLINE, ILL.

John Deere Combined Cotton and Corn Planters



John Deere Cotton and Corn Planters are highly successful. They have been thoroughly tested out through years of satisfactory field use. A cotton picker wheel extends through the bottom of the hopper. This wheel revolves in one direction and the cotton spider in the other—separating the seed without damaging it. Change in quantity is made by turning a thumb nut on the hopper.

Hoppers are beaded. Seed plates fit perfectly. All the seed in the hopper is planted. Peanut plates or a special hopper can be furnished for planting shelled or unshelled peanuts.

Cotton seed cannot choke up in the hopper—a cotton picker wheel prevents it.

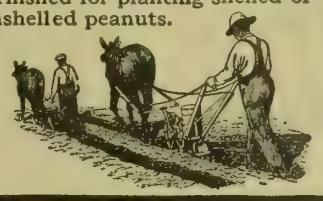
John Deere *OBLIQUE SELECTION, HORIZONTAL CELL DELIVERY SEED PLATE* for corn—an accurate drop.

Positive gear drive with dirt-proof gear case.

Special shaped shovel with reversible points opens furrow and pulverizes the soil without throwing it up on the face of the shovel. Soil falls behind and covers the seed.

Adjustable press wheel can be furnished. No lever used on this press wheel.

Depth of planting can be regulated with the foot while planter is in motion.



John Deere Plows for Light Tractors

So far as quality of John Deere Plows for Light Tractors is concerned, they are built for the farmer who realizes that it is business judgment to buy a high grade tractor plow. Don't forget that a tractor plow is not an everyday purchase.

John Deere Plows for Light Tractors are noted for their high grade work in the field—the real test of tractor plow value.

Before you make your purchase, be sure to see John Deere Plows for Light Tractors. A careful purchase means a permanent saving.

The John Deere Light Tractor Disc Plow works with any standard tractor—the hitch is adjustable.

Three or four discs.

Discs have a double setting. Taking care of all conditions where a disc plow can be expected to operate.

Adjustable scrapers keep discs clean and lighten the draft.

No choking in trashy ground—frame is high, beams are dropped, which gives good clearance under the frame, and there is plenty of room between the discs for trash to pass through.

John Deere Spreader

The Spreader with the Beater on the Axle

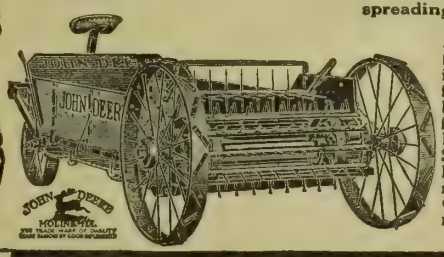
Mounting the beater on the axle simplified the construction, eliminated troublesome parts and made possible a successful low-down spreader with big drive wheels. There are no shafts to get out of line, no chains to cause trouble, and no clutches to adjust. The only spreader with beater and beater drive mounted on axle.

Low down, with big drive wheels out of the way. Easy to load.

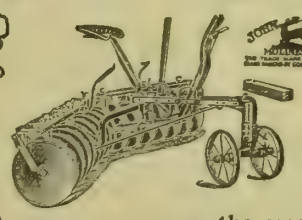
Revolving rake, driven by manure moving toward the beater—no bunching of manure. Ball bearing eccentric apron-drive—a new and exclusive driving device.

Makes uniform spreading certain.

Wide spread attachment for spreading seven feet wide can be furnished for the John Deere Spreader. No chains nor gears. Quickly removed.



John Deere Model "B" Disc Harrow



Using a disc harrow before plowing pulverizes surface lumps, works trash into the seed bed and prevents the escape of moisture. Then when the furrow slice is turned, the trash decays rapidly and no large air spaces are left between bottom of furrow and the turned furrow slice. Water in the subsoil can make its way into the seed bed and plant roots can penetrate to deeper soils.

Discing after plowing removes the weeds, and makes the seed bed compact, but not hard. The discs break up lumps of soil.

The Model "B" pulverizes at even depth its entire width.

Patented spring pressure third lever—inner ends of gangs can be given light or heavy pressure to disc over ridges or cut out dead furrows without burying the harrow.

Independent gangs. All tendency of gangs to crowd to one side is easily overcome by giving them the proper relative angle.

Flexible—only that part of the Model "B" harrow passing over an obstruction is lifted out of the ground.

Rear section can be furnished to make a double action harrow.

John Deere Syracuse Plows

Syracuse Plows have an enviable field record among farmers in chilled or combination plow territory

Here is a feature that is appreciated by the man who buys a Syracuse Plow. Extras ordered will be duplicates of the original parts. Bolt holes will be in the right place. Every part will fit. In fact all necessary parts that go into a Syracuse Plow could be ordered as repairs and when received built into a complete plow. Extra parts are exact duplicates—no trouble results.

Remember, Syracuse quality is uniform.

John Deere-Syracuse Sloping Landside Chilled Plows are unsurpassed for general purpose work in light soils. They leave a clean, open furrow bottom.

Share and shin piece combined—a fresh, clean cutting edge obtained with each new share.

Index or set-over style of beam—easily shifted to give the plow more or less land.

Equipped with Syracuse Chilled Moldboards—noted for satisfactory scouring qualities, strength and uniformity. Right and left hand styles.

John Deere-Syracuse Sloping Landside Chilled Plow

THE JOHN DEERE TRADE MARK

To designate and brand their goods, "Deere & Company," use the "leaping deer" trade mark. It is the best known implement trade mark in the world.

The reason that it is so well known is because of the high quality of the implements themselves.

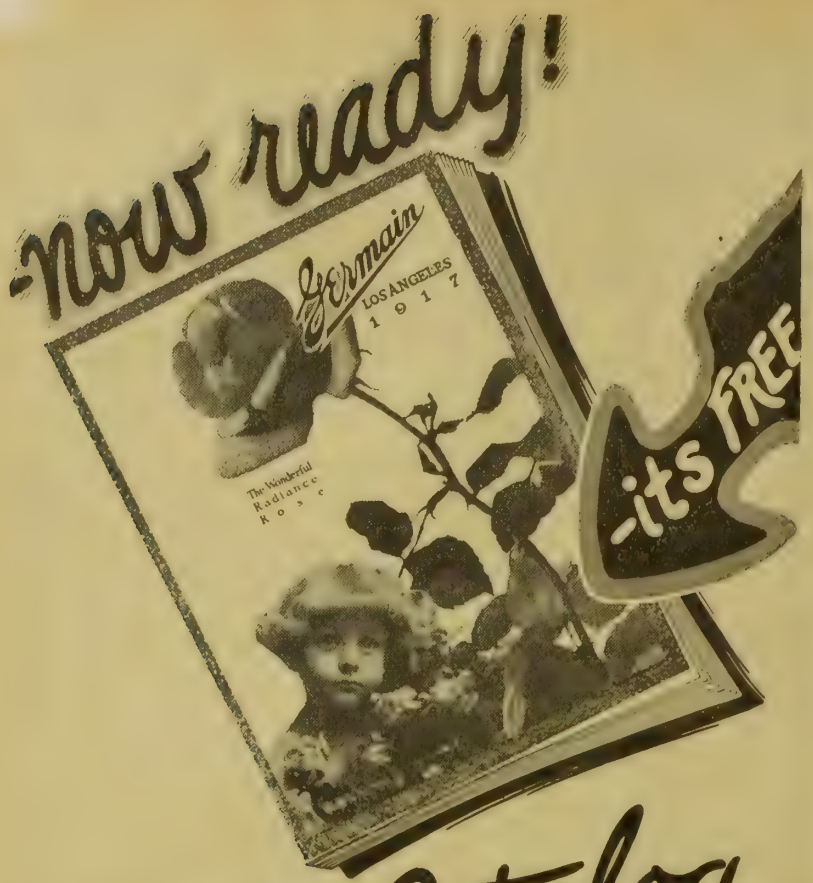
Prestige in farm implements is obtained solely through the superior merits of the goods.

The permanent prestige of John Deere implements has been maintained by the company's strict adherence to principles of manufacture that originally made the goods popular.

The "leaping deer" trade mark is Deere & Company's stamp of approval. It distinguishes John Deere Implements from inferior goods. It means that the implement was made in a John Deere factory, in the John Deere way. It is a guarantee of satisfaction and an insurance policy against disappointment.

Look for the John Deere trade mark when you buy.

JOHN DEERE, MOLINE, ILLINOIS



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REX SPRAY materials are the result of 20 years of scientific investigation into orchard troubles and 20 years of continuous experience in perfecting products best suited for their control.

Rex Lime and Sulphur Solution—Rex Arsenate of Lead—Rex Bordeaux Mixture—Rex Miscible Oils—Rex Soluble Oils—Rex Miscible Distillates—Rex Soluble Distillates—Rex Sulphur Paste—Rex Disinfectants—Rex Soaps—Rex Oil Emulsifier, etc.

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When writing advertisers, mention The Cultivator.

The Vegetable Garden

February Planting Calendar for Southern California

Written for California Cultivator By D. F. Reichard

CALIFORNIA ranchers are many times criticized for not growing their own vegetables. The ranchers plead that in specialized farming there is no place or time for home vegetable growing. This is true where the crop grown produces over $150 per acre, but where the yearly return from an acre is less a part of an acre set aside and cultivated for the home supply of vegetables will pay, if well cared for, better than the rest of the ranch proportionately.

Aside from doing away with the vegetable bill the home garden gives the fresh, crisp product at the time it is to be used, which is an important part of the vegetable portion of one's diet. It is very wise, too, especially in Southern California, that we should eat more vegetables than meat on account of the warm climate. The vegetable garden is also conducive to sociability. Did you ever notice how, when people gather where there is a well kept garden they always want to go out and "see what there is" and "sample" the different things? It brings you to know others as you would never know them.

Having selected a spot for the garden draw a plan of it, no matter how rough, jotting down what you want to plant and where and how much. If you do not know how much seed or the number of plants needed for a given space ask a seedsman. A well planned garden on a plot of ground 50 by 50 feet will produce enough vegetables, except potatoes, for a small family by one person working in it only an average of an hour a day.

If one is planning a permanent garden arrange so that the perennials, such as artichokes, rhubarb and asparagus, are in rows at the side of the plot. If berries are desired put them also at the side. The center is kept clear for the annual quick growing stuff.

February is our heaviest planting month provided the weather is warm. Plant all the hardier varieties of vegetables. The tender plants, like beans, tomatoes, peppers, squash and cucumbers can only be planted in very favorable spots that are free from frost.

It will be wise this year to work up the ground again as the heavy rains of the last month or so have made a crust and unless this is broken up the moisture soon evaporates.

Potatoes may be planted this month in all but low ground; even though the tops are cut back by frost they will sprout out again. Plant stock and sugar beets. As the winter garden is used up fertilize and work it up in preparation for more summer stuff.

Spray your trees and shrubs for fungi either with Bordeaux mixture or lime-sulphur solution before the buds begin to swell. Lime-sulphur is also a good spray to treat black scale.

Any plant that needs pruning should be attended to at once as not to lose too much sap. Paint the fresh cuts over with some old stiff paint or grafting wax. Paint a strip of Tanglefoot around the trees to prevent insects from crawling up. It will be a big saving in fighting pests.

February Planting Calendar for Northern California

Written for California Cultivator By A. R. Gould

OWING to the very severe weather we have experienced we shall find that although we put in a few subjects early they are hardly through the soil yet, and small wonder when for a few mornings in January in many places in the Northern and Central parts of the state the temperature was down to 20 degrees and even 18, with some portions of the garden frozen all day long and unworkable, but happily this does not come every year nor does it last long, and it also has its good points and beneficial effects upon the soil, and that portion of the garden which had been plowed or dug a month or so ago was after the recent frost in fine working condition, the surface actually working to a powder. The writer took the opportunity of sowing several rows 100 feet long of carrots, turnips, lettuce and peas (varieties mentioned last month) in open spaces in the orchard, not forgetting to leave ample space between the rows for cultuvating later on. Such a scheme allows of more extended planting in the vegetable garden, and the rains which we hope to see shortly will do their good work and should carry these crops through to maturity. After the peas are off we shall follow up with tomatoes, which later crop will then secure the benefit of the reserves of nitrogen left in the soil. I feel sure that these records and practical observations will prove of interest and some value and that more than one reader will keep all these points in mind.

Peas

The frost has been hard on this crop which had reached the flowering stage around San Leandro and Hayward, and several acres in the former district were practically ruined where it happened to be growing on flat open ground, but one fortunate grower at Hayward who has 100 acres on the warm side of a hill escaped with a small fortune as he expects to start picking some time this month. There are planting lessons to be learned here. Look to your location when planting on a large scale.

Successional sowings of Little Marvel, Blue Bantam, Stratagem, Senator, Hosford's Market Garden and Melting Sugar may be made this month.

Onion Sets

These miniature onions if planted now on fairly rich soil in rows 15 inches apart and three inches apart in the rows will prove valuable for use in the green state in a few months or may be grown on for an early crop.

Carrots

Continue to make sowings of French Forcing and Danvers Half-long. If your soil is somewhat heavy sow Oxheart, which is a short, stump rooted type, a fine cropper.

Cabbage, Broccoli and Kale

If these were sown too thickly they may require thinning out, which should be attended to, and this will then allow those remaining enough room for further development. We presume these were sown last month as advised. Have your ground also selected and prepared for putting out

these plants in due course.

Turnips

Make another sowing this month of Early Snowball and Early White Milan. Also sow Orange Jelly, a fine flavored yellow variety.

Lettuce

Continue to sow Big Boston, Early Curled Simpson and White Paris Cos; also try May King and Deacon, both splendid varieties.

An economical way of growing lettuce in the early spring is to sow in rows across the garden and thin out plants later to 10 or 12 inches apart, using the surplus plants to plant up other rows. Young plants may also be planted between the rows of peas providing the space between is 18 inches or so wide and has been kept clean weeded. The lettuce will derive nitrogen from the pea crop and it will also prevent a waste of space. The writer has adopted this method for several years successfully and is a firm believer in intensive culture.

Radishes

Sow on a well prepared border the following varieties: Early Scarlet Turnip, Early Scarlet Globe and Scarlet Turnip White Tipped. See that this crop is well supplied with water.

Rhubarb

Plant roots of Myatt's Victoria and Strawberry varieties in beds which have been richly manured. Plant the crowns well under the surface of the soil at distances of three feet apart in rows.

If you desire to secure some rhubarb early take a deep box, make up a mixture of stable manure and garden soil, plant your roots in this and water well. Place this in a dark shed or in the cellar and water every three weeks or so. You will by this method be able to secure forced rhubarb. Plant good strong roots for this purpose.

Tomatoes

Secure seed of the following varieties for sowing next month: Victoria Whole Salad, one of the very best, Trophy, Earliana and San Jose Canner.

Celery

You may also get the seed of this for next month. White Plume, Golden Self-Blanching and Columbia are all good varieties to grow.

Asparagus

Roots of these may be planted in well manured and prepared beds which should be about three feet wide and quite four feet apart. This then allows space between for irrigation. Plant the roots in single rows the length of the beds three feet apart in the row. The best varieties are Concover's Colossal and Palmetto.

Labor Saver in the Garden

The Ornamental Garden

February Planting Calendar for Northern California

Written for California Cultivator By A. R. Gould

THIS is the busy month for planting trees and shrubs, as it is now getting late, and such work should soon be completed or the largest part of it.

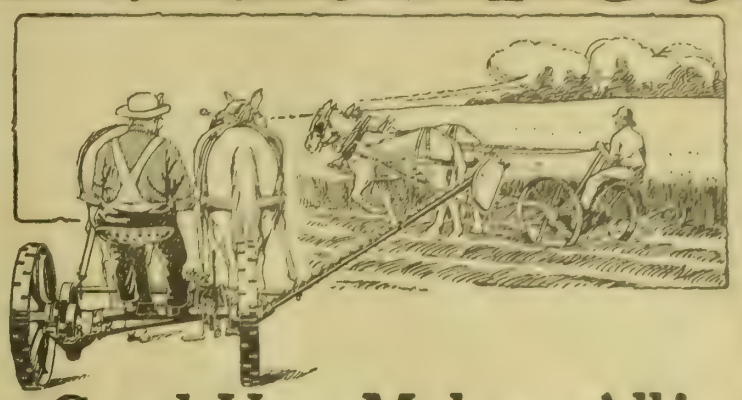
Some of the late flowering shrubs may still be planted and the following are very desirable: Symphoricarpus racemosus, Weigela candida, Viburnum Opulus, Spirea "Anthony Waterer" and S. "Van Houten", Tamarix Africana (also very suitable for situations close to the sea); Genista tinctoria, Deutzia gracilis, Deutzia crenata Watereri, Kerria Japonica and Hypericun densiflorum, Hydrangea hortensis is especially useful for planting in shady situations.

Conifers

No garden is complete without a few of the beautiful subjects which make up this group, and the following are the best and make noble specimens if planted alone: Cedrus deodara, Cedrus atlantica glauca, Cedrus Libani, Cupressus guadalupensis glaucus, Juniperus Bermudiana, Picea pungens glauca, Pinus excelsa and P. Strobus, Retinospora plumosa, Thuya globosa aurea, Tsuga Canadensis Sargentii pendula. An ideal conifer to plant as a hedge to keep out the dust is Cupressus macrocarpa (Monterey Cypress).

Palms Versus Deciduous Trees

One of our contemporaries recently put forth a great plea for palms and preached little else, as they were evergreen the year round and the deciduous trees gave things a winter look. However there is hardly a more beautiful tree even without its leaves than Betula alba and its variety B. a. lacinata pendula and an avenue of the red or white flowering chestnut (Hippocastanum rubicund and H. flore pleno), is a sight to behold when in flower. Palms look their best in the tropics and only Phoenix canariensis, Washingtonia robusta and Livistonia Australis appear to do very well in our section of the state, but even these should not be mixed up with conifers and deciduous trees when a place is being laid out. We are inclined to the view that considering the wide range of selection that conifers are ideal as



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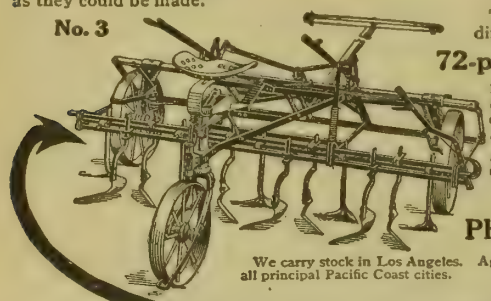

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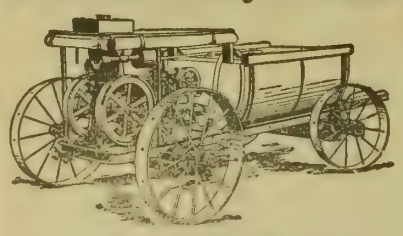

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evergreens for our part of California, even the native coniferous trees which abound in the forests, prove this.

Flower Borders

Considerable attention should be given to the flower borders, and much of the planting of perennials can be completed. If you are planning new borders secure those perennials which are useful for cutting and make your selection with a view to having plants which will give you bloom practically until the end of the season, and if you secure a few of each of the following and group them, placing the tallest in the background, you will have a delightful show throughout the year.

Aquilegia in varieties as follows: A. chrysantha, A. coerulea, A. Californica (a long spurred hybrid), Anchusa myosotidiflora, A. italica, "Dropmore variety". Anemone Pulsatilla, Dianthus barbatus mixed D. plumarius, Doronicum excelsum, Geum. coccineum, "Mrs. Bradshaw", Helenium Hoopesi, Heuchera sanguinea, Iris liberica Lychnis Chalcedonica, Paconia officinalis rosea fl. pl, Papaver nudicaule, P. orientale hybrids, phlox divaricata in varieties, Pentstemon "Newbury Gem", P. grandiflora, Primula veris, P. veris superba, Veronica spicata, Achillea "The Pearl", Campanula persicifolia, Althaea rosea (single and double), Digitalis gloxiniaeflora, Erigeron speciousus, Gaillardia, Kelway's hybrids, Gypsophila paniculata, Anthemis Kelwayi, Aster grandiflorus, A. cordafolia, Boltonia asteroides, Chelone glabra, Cimicifuga racemosa, Delphinium formosum, D. hybrids, Heliopsis Pitcheriana Eupatorium ageratoides, Linum perenne, Lavendula vera, Rudbeckia Newmanni, Statice latifolia, stokesi cyanea chrysanthemum maximum vars, Tritoma hybrids, Gerbera Jamesoni hybrids. Any vacant spaces in the border can later on be filled out with annuals.

Rockery—Suitable Plants.

If you can construct a small rock garden or have your paths edged with stones, plant the following between: Aubretia deltoides grandiflora, Arabis alpina, Alyssum saxatile fl. pl. and saxifraga sarmentosa.

Lawns

These should be top-dressed with well decayed cow manure. Those sown with Kentucky blue grass were almost ruined by the recent frosts.

February Planting Calendar for Southern California

Written for California Cultivator

IF the lawn has any Bermuda—and what lawn hasn't—it is probably one shade of brown. At this time of the year it may be quickly changed by a liberal application of commercial fertilizer. Give a good raking and apply a little complete fertilizer and more of fine ground bone meal. The warm days which will soon be here will quickly bring out the green. For those who have no Bermuda mixed with the blue grass, or rather for those where Bermuda is just encroaching, the next few months will be busy ones, that is if it is desired to give the blue grass an opportunity to show its greatest beauty. The continual raking and following after every indication of Bermuda helps wonderfully in keeping down this pest, but if one must put up with it reasonable care will make of it an attractive lawn and one which will stand almost unlimited abuse.

The lawn which is to be planted this spring should now receive attention. In hoeing kill out all weeds and level up surface in order to prepare a perfect seedbed. Have it ready by the end of February for the planting.

For some of the more tender plants it is perhaps a little early for planting but it is none too early to spade and improve soil conditions and have the ground in readiness for later planting. In more protected situations, however, and with the hardier plants, seed and bulbs may be planted at once. Gladiolus may be planted any time from now until June or even earlier.

Deciduous shrubs and trees should be pruned at once. It is a little late but it is barely possible that rose cuttings may be made and planted in sand or sandy loam. Vines, such as English Ivy, Virginia Creeper and others may be headed in or pruned at this time. In this connection we may remark that English Ivy makes a remarkably fine covering under trees or any place where blue grass or ordinary lawn will not grow. By a bit of clipping with sickle it may be kept fairly close to the ground and make of an unsightly place a beautiful spot.

For iris, daffodils, tulips, anemones, ranunculi, and other spring flowering bulbs a mulch of well-rotted manure is particularly acceptable at this season.

If there is a nook on the place where an abundance of water can not be given scatter a few seed of Shirley poppies, or in another section may be scattered seed of our native California poppy. They will make beauty spots three or four months later. It is of advantage to have these plants where they may be watered if possible for a drouth or lack of spring rains may cause them to dry off rather early in the season. They will stand neglect, however, if forced upon them.

The old-time friends, such as phlox, aster, zinnia, marigold, petunia and others, may be planted now. Later in the month will be an opportune time for putting back into the ground the tubers of dahlias. The dahlia is becoming such a favorite that the demand for the later improved varieties is almost equal to a boom.

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Preserving Citron

A subscriber writes but fails to give address, requesting formula for curing citron. We would refer the subscriber to the issue of the Cultivator of June 3, 1915, in which full information is given.

Name of Flowers

Please give names of flowers enclosed. One has a yellow flower, the other a pink, both the general form of a daisy.—Subscriber, Whittier.

The yellow flower is the African Daisy, Gazania Splendens, the other the New Zealand Daisy, Vittadinia Australis.

Reclamation Lands

Are there any lands in Southern California with irrigation under government management which a farmer

with small means may file upon?—Subscriber, Long Beach.

We believe there are no such lands in Southern California. There is only one reclamation project in Southern California and this is along the Colorado near Yuma, Arizona. All these lands have been filed upon. There are lands on the Arizona side, however, which will soon be open to entry. Information regarding these may be had by addressing "Manager Reclamation Project, Yuma, Arizona."

Poisoning Sparrows

Please give an efficient method of poisoning sparrows. Poisoned wheat does not seem to do the work and shooting is too expensive. They eat all the young plants in the flower garden and it is impossible to raise vegetables except under screen.—Subscriber.

In some sections the English sparrow has proved one of the worst of pests, but plainly our inquirer has evidence of this fact. Probably the best and surest way of destroying them is by means of the trap. Methods of making different types of traps are shown in "The English Sparrow as a Pest," Farmers' Bulletin 493, published by the United States department of agriculture, Washington, D. C. This same bulletin says: "Wheat has proved to be a good bait as well as an excellent vehicle for administering the drug. A convenient method of preparing poisoned bait is as follows: Put one-eighth ounce of pulverized strychnine into three-fourths of a gill of hot water, add one and a half teaspoons of starch or wheat flour moistened with a few drops of cold water, and heat, stirring constantly till the mixture thickens. Pour the hot poisoned starch over one quart of wheat and stir until every kernel is coated. Small-kerneled wheat sold as poultry food, if reasonably clean, is preferable to first-quality grain, being cheaper and more easily eaten by the sparrows. A two-quart glass fruit jar is a good vessel to mix in, as it is easily shaken and allows the condition of the contents to be seen. If the coated wheat be spread thinly on a hard, flat surface, it will be dry enough for use in a short time. It should be dried thoroughly if it is to be put into jars and kept for future use. Dishes employed in preparing poison may be safely cleansed by washing.

"Other seeds, as oats, hemp, or canary seed, may be used instead of wheat in the above formula, but they are less economical because much of the poison is lost when they are hulled, though enough of it usually sticks to the mouths of the sparrows to produce fatal effects. As wheat has no hull that a sparrow can remove it is ordinarily preferable to other seeds. Bread in thin slices spread with the strychnine-starch mixture may be used to advantage alternately with seeds."

We give this formula notwithstanding we note subscriber says "Wheat has not succeeded," but careful following of the formula given above may bring better success.

As to trapping and shooting, we may add that this pest offers a dainty dish for the table. Of course their bodies are very small, but where plentiful, and especially where caught in traps and fed well for a few days before killing, they make a satisfactory addition to the menu.

A most complete study of this pest is made and reported in Bulletin No. 1 of the Division of Economic Ornithology and Mammalogy, published by the department in 1889. We presume this is out of print.

Siphoning From Well

I propose to dig a well on the side hill and siphon water to tank below, using three-fourths inch pipe. How deep will a siphon work?—Subscriber, Los Gatos.

In theory a siphon will work to a depth of 33 feet; in practice 20 to 25 feet is the limit. We do not think this arrangement will be at all satisfactory. All water contains some air and practically all pipes will leak more air, and unless the pipe is absolutely air tight the siphon will work but a short time until the pumps have to be started again to extract the air and start the siphon. The more satisfactory way would be to tunnel instead of digging the well, then gravity cares for the flow permanently and economically.

Gummosis

Having been troubled with gummosis in my eight year old Valencia orchard last year I was planning to take precautionary measures this winter by thoroughly spraying the ground under the trees and also letting it flow copiously into the basin formed by digging the dirt away from the tree, with blue stone (one pound to the gallon), but have been told that it would be very injurious to the trees, even kill them. Not wishing to injure the trees I thought it best to get advice through your valuable paper. Also please tell me if bluestone alone is efficacious or if lime should be mixed with it.—Subscriber, Anaheim.

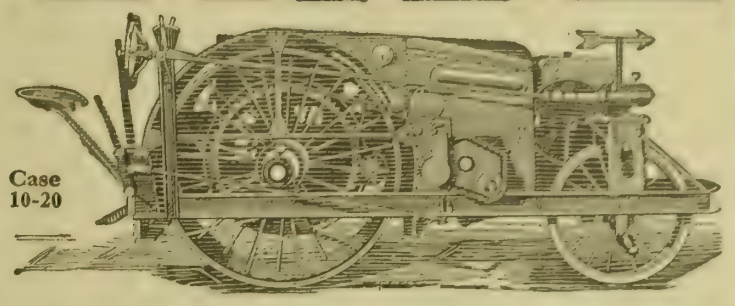
One should not allow copper sulphate solution in the strength referred to above in any quantity about the roots of trees. Prof. Fawcett in a former issue of the Cultivator gave the following instructions for cutting out diseased portions of tree and treating with Bordeaux paste:

"Use a sharp knife with a heavy blade. First determine to what extent the bark is killed to the wood in the vicinity of the exuding gum. Then cut all around the area about one-half to one inch into the live, unstained bark and a little farther at the top than at the sides, as the fungus usually extends faster upwards than in other directions. Then dissect out this entire area of bark that is killed to the wood and treat the wound and the entire trunk as well with Bordeaux paste. Experience seems to indicate that it is unnecessary to scrape the discolored wood.

"A good formula for a small quantity of Bordeaux paste is: One pound of blue stone (copper sulphate) dissolved in three quarts of water in a wooden, earthen or glass vessel; and two pounds unslaked lime slaked in three quarts of water in a separate vessel of any kind. When the lime is cool, stir the two together, making a slightly pasty light blue mixture. On a larger scale the formula would be 12 pounds of blue stone to eight gallons of water; and 24 pounds of lime to eight gallons of water. The blue stone is easiest dissolved by suspending it in a sack at the top of the water over night. If the blue stone is pulverized and suspended in warm water it dissolves rapidly. Good lime that is not air slaked should be used, and after slaking it with the water it should be allowed to cool before being used in making paste. If covered to avoid evaporation each ingredient will keep indefinitely, but after mixing the paste slowly deteriorates. Where it is being used over a number of days or weeks, just enough of the wet slaked lime and the blue stone solution should be mixed to make paste enough to last for one or two days, leaving the remainder unmixed in separate vessels. It may be applied with large brushes as is whitewash."

Continued on Page 142

CASE



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Crop Rotation for the Sugar Beet Nematode

A ROTATION of four or five years is recommended by specialists in the United States department of agriculture as a means of controlling the sugar beet nematode, a pest which has been known to close a number of sugar beet factories in Europe and is already sufficiently prevalent in the United States to be a serious menace to the industry. The rotation should include beets or other suspected crops only once, and it is regarded as safer for the farmer to extend it to six years rather than to content himself with four or five years, the common European practice. In Farmers' Bulletin 772, "The Control of the Sugar Beet Nematode", a list of the crops suitable for such a rotation in the various sugar beet regions of this country is given.

Sugar beet nematodes are exceedingly fine, threadlike, colorless creatures, so small that, except under certain conditions, they can not be discovered by the naked eye. When they first hatch from the eggs they find their way to the nearest rootlet, force their way into it and proceed to feed upon the plant juices. This ultimately results in the production of a characteristic dense mass of rootlets, a condition which in Europe is described as "hunger roots," "bearded roots," "hairy roots," etc. In severe cases the beet itself is stunted and resembles the root of a celery plant. For this reason it is sometimes called "celery root."

The first evidence, however, of the trouble that is likely to be noticed by the farmer is the change in the foliage. Toward the end of July or early in August infested areas become lighter in tint, the leaves of the affected plants droop until they lie prone upon the ground and do not recover during the night. The outer leaves become yellowish, spotted, and generally discolored. Ultimately they wilt and die. The inner leaves fail to reach their normal size and may die as well. In severe cases the whole plant is destroyed and sharply defined bare spots are left in the beet fields.

The reduction in the crop caused by this pest is very great. The average weight of foliage of sugar beets infested with beet nematodes may fall as low as one-fifth that of healthy beets, and the average root weight suffers in proportion. Furthermore, the content of sugar is very materially reduced. Experiments have shown that an average of 14.9 per cent of sugar in healthy beets may be lowered to 8.4 per cent in badly infested stock.

Once the sugar beet root nematode has been introduced into a district it is easy for the pest to spread. Infested soil may be carried from one field to another in a number of ways, one of the most common being the waste water from sugar factories. Owing to the fact that the eggs are frequently preserved in a brown cyst, or sack, into which the female ultimately turns and which effectually protects them from the cold, they may continue in a dormant state for months or sometimes even years, and this obviously greatly facilitates the dissemination of the pest. For this and other reasons it is essential that a rotation of crops adopted to eliminate the nematode should be continued for five years or more.

In this bulletin the beet zone of the United States is divided into four groups. For California and Arizona rotation recommended is: Cowpeas, soy beans, sweet clover, rye, the millets, tomatoes, asparagus, lettuce, cantaloupes, strawberries, barley, corn, Lima beans, wheat.

Where only small areas are found infested the adoption of a crop rotation may be avoided by immediate action. A survey of suspected fields should be made as soon as the hot season has set in. Wherever wilting and yellowing of the leaves is noticed, the beets in this area and those for several feet around should be pulled and destroyed by covering with quick lime. A narrow trench about one foot deep should then be dug around the area and filled with unslaked lime. The ground inclosed by the trench must also be heavily spread with lime, which is thoroughly mixed with the soil. This mixing should be repeated frequently during the hot weather.

It has also been ascertained that even when protected by the brown cysts the beet nematodes can be destroyed by a brief exposure to a dry temperature of 145 degrees Fahrenheit. This does not injure but, on the other hand, improves the germinability of the seed to which the pests may be attached. It is therefore possible that such treatment of beet seed may be a wise precaution on the part of the farmer who fears the introduction of the nematode into his fields.

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SUGAR BEET THRIPS

The sugar beet thrips is an imported insect recognized as a greenhouse pest and also injuring outdoor plants, principally sugar beets and sugar cane, according to the United States department of agriculture.

The insect is dark brown or black in color and about 1.3 millimeters in length. The injury caused is similar to that of other species such as the onion and bean thrips. The plant is attacked by adults and young in the same manner. The leaf cells are pierced and the plant juices withdrawn, causing the cells to shrivel and turn white. When a number of these cells are destroyed they appear as irregular white or light brown spots. If the attack is severe the whole leaf surface becomes invested by these spots and finally shrivels and dies.

Spraying Best Method of Control

Spraying has been found the most satisfactory and effective means of control of this insect. The following solution used in one experiment killed all adult insects and about 95 per cent of the young: Nicotine sulphate, 6 ounces; fish oil soap, 4 pounds; water, 50 gallons. Spray should be applied to both sides of the leaves; if possible on a dull or cloudy day. The adults are not so active at this time and are less likely to move out of reach of the spray.

RELATIVE TO GASOLINE

In a statement recently given out by the United States bureau of standards effort is made to correct two erroneous opinions generally held by the public regarding motor fuel. According to the report, specific gravity is practically worthless as a check on gasoline when it is desired to gauge its value for use in motor cars. Just what is the proper test is still a matter of some doubt, and in this regard the report states:

"It seems most probable that the definition of gasoline will have to be

based on the percentage that distils over between specified temperatures, when the distillation is carried out under specified conditions. This distillation test, speaking in non-technical terms, is a measure of the freedom with which the gasoline will vaporize. The gasoline must not vaporize too freely for two reasons—one that it would not be safe, and secondly, its loss in storage by evaporation would be too great. Hence, the specification may have to contain limitations of the percentage distilling below a certain temperature, coupled, perhaps, with a proviso that certain percentages shall distil below other fixed temperatures, in order that requisite amounts of low-boiling constituents shall be present to insure easy starting of an engine. Likewise the specification must contain a provision that all must distil over below a certain maximum temperature in order to exclude from the gasoline the heavier petroleum distillates, such as kerosene."

Resolutions of National Conference

RESOLUTIONS are not always effective in accomplishing all their words would indicate and too often their fine sentiments are not fully sustained by follow-up work on the part of the organization which fathered them. Again they are the outward manifestations of serious work being done by an earnest body of workers.

Here are resolutions which belong, we believe, in the latter class.

At the national conference on Farm Marketing and Rural Credits in Chicago Dr. Elwood Mead of California was made chairman of the committee on resolutions.

Resolutions indorsing rural credits and urging better marketing methods were passed. As to land colonization:

"If we are to have a scientific land settlement policy it should include the following features:

"Detailed soil and economic surveys of unsettled lands to determine the character of the soil, the need for drainage and irrigation and the kind of agriculture or horticulture best suited to the locality. The results of such surveys should be published as a guide to public and private enterprise in the preparation of plans for colonization and the disposal of land to settlers.

The adoption of a policy under which the federal or state government or the two cooperating, will provide "ready-made farms" that will be habitable and can be made immediately productive. We endorse plans similar to those formulated in the "Report on Land Settlement in Wyoming", which provides for cooperation between the federal and state authorities for the creation of settlements in which community as well as individual needs are cared for. This policy includes provision for town, schools, roads and the determination of the size of farms needed to furnish employment and give a living income to the settler. The Wyoming plan also provides homes for farm laborers which will give them economic independence through the ownership of sufficient land to enable the laborer's family to grow its own fruits and vegetables and keep a cow, pigs and poultry. The object of this is to enable settlers to earn a living income from the soil in less time and with smaller expenditure of money than is possible where each one works unaided and alone. Such expenditures or loans should be repaid by the settler with interest under such conditions and in such time as will permit the money to be earned out of the soil.

Such supervision of private colonization and the private sale of lands as shall prevent misrepresentation and fraud and aid the settler in selecting lands suited to his needs.

"The creation of institutions and the employment of competent farm advisers for beginners as will prevent costly mistakes and promote the spirit of agricultural cooperation, and of community rather than individual action.

"There is an evident need for the establishment of comprehensive, reliable and disinterested national agencies that will furnish: Information to would-be farmers, whether American born or immigrants from other countries. The opportunities for settlement in different sections of the country; and assistance in securing homes and becoming established comfortably upon the land.

"This conference again urges its recommendation of 1915 for the appointment of a federal commission having authority to employ a body of expert assistants to carry on inquiry in all parts of the country which will show: Methods and results of unregulated private settlement; the need for more favorable financial terms of purchase by tenants and would-be farmers of small capital; and the feasibility and value of adopting in this country some of the policies of other countries which have done so much to improve agricultural and social conditions in those countries."

Book Review

"JUDGING FARM ANIMALS"

Judging Farm Animals, by Charles S. Plumb, Professor of Animal Husbandry, Ohio State University, and author of "Types and Breeds of Farm Animals," published by Orange-Judd Company, New York.

With the interest in high school agricultural clubs and the growing appreciation of the need of better judgment in the selection of farm animals on the part of the farmer this book should meet with a hearty reception. It is written by one of the best authorities in animal husbandry, who says clearly what he wants to in good English. The book has many illustrations showing types of animals and making plain the text. The author says in the foreword:

"The study of animal form becomes an instinctive process on the part of most persons who take a natural interest in farm live stock. The form and its suitability for specific purposes is sure to cause discussion and argument, if but two parties are interested. Thus do men think themselves critics and judges of animals, even though their knowledge is based on very limited experience. There are men, however, who have grown up among flocks and herds, who, during the years, have absorbed wisdom through experience, and have naturally become qualified to judge the merits or demerits of certain kinds of animals with which they are familiar.

"Another class of men, lacking in experience, yet with the stockman's instincts, seek information that will enable them to judge animals intelligently, thereby better serving themselves and mankind. In the agricultural school or college, this latter class may secure systematic instruction relative to the principles and practices of judging, whereby they may become better qualified to pass on the comparative merits of farm animals."

There are 53 chapters and an appendix. Two chapters are devoted to form and function, then several chapters discuss the matter of judging the horse, others the judging of cattle, and still others sheep and swine. Every farmer who has to do with live stock will be interested and this book should be in his library.

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The California Cultivator

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Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Time for plowing under cover crops will soon be here. Prof. Vaile's article on leader page is an excellent reminder, as is the photograph on the cover page. Many orchardists formerly "disked in" the cover crops, but more recently the conclusion has been reached that plowing under secures better action. The most important question, however, is not the one of detail, but of securing a heavy crop of vegetable matter to work into the soil.

SOME AUTOS

California has one automobile for every 12 persons within her boundaries. She almost leads the world, but because of big prices for wheat and other general farm products of Iowa her farmers have bought so many machines within the past year that that state has passed her. Iowa has an automobile for every 11.2 persons. During 1916 there was paid into the treasury of the state of California $2.-116,227.85 for licenses on 230,608 autos. New York, Ohio and Illinois all have a greater number of automobiles than has California, but they have not one-half the number per capita.

INCREASED PRODUCTION

Fertilizer companies and some farm organizations are appealing to the railway companies in consideration of the present dearth of transportation facilities to give shipments of fertilizer the right of way over other higher classed freight. Their appeal is addressed to the selfish interests of the railways—more fertilizer, more crops; more crops, more freight; more freight, more profit. In European countries fertilizer, at this period of the year when early arrival means successful and larger crops, is given right of way. The appeal is a reasonable one, for plentiful use of fertilizer means greater production, and greater production means cheaper crops.

BOOST YOUR BREED

Of all California boosters we think the Berkshire boosters boost their favorite hogs with greatest vigor. Not content with having far more Berkshires at the P. P. I. E. than any other breed, they organized at the time of the Exposition the Western Berkshire Congress. This congress has its membership in the Coast states and has been a strong factor in increasing the popularity of the Berkshire hog. At the last congress held in Sacramento at the time of the state fair plans were made for a spring congress at which there should be a sale of pure bred Berkshires. President Guilford and Secretary Steele are some workers, but not content with their own efforts have drawn into line Booster Frost of the Berkshire World. Not only a successful sale but a royal good time is promised to all who attend the congress at Davis.

MEALY BUG CONVENTION

The mealy bugs are not to hold the convention, but the hosticultural commissioners of Southern California are planning for action which might make such a convention wise. State Commissioner Hecke has called a meeting of all horticultural commissioners of Southern California at Riverside on February 6. It is to be hoped that plans for extermination, or at least for more effective control, of the mealy bug may be devised that day.

Mealy bugs were formerly considered a mild mannered sort of a pest, but years of inhabiting the citrus orchards of California have convinced them that climatic and other conditions are ripe for making themselves very much at home, hence they are becoming more of a menace than was dreamed possible a few years ago. Their natural enemies have been encouraged, sprays and double fumigation have been tried, and while millions have been slaughtered, other millions remain. More effective control methods must be devised. Strength to the arm of the commissioners.

GREATEST CITRUS CROP

According to figures secured by the Riverside Press the coming citrus crop will be the state's biggest. That paper estimates that during the present year Northern California will produce nearly 900 cars of oranges; Kern, Tulare and Fresno Counties, or rather Centrol California, will produce 5250 cars; Southern California, 37,000. Central California will produce about 185 cars of lemons, while Southern California will produce 7815. This makes a total of 51,150 carloads of citrus fruits, considerably more than any preceding year.

The largest orange producing district is Pomona, which will ship this year 4700 carloads. The second largest district is Redlands, 4150 cars. Riverside, formerly the queen of citrus producers, will send out 3400 carloads. The banner lemon producing section is Ventura County which it is estimated will ship about 1250 cars. As a county Riverside practically equals Ventura in lemon production, but the Press has divided citrus sections according to natural rather than county lines. The Riverside district will produce about 500 cars, while the Corona district, which is in Riverside County, will produce 780 cars.

LITTLE ECONOMIES

"On account of the war," string, as well as some other things, is high. A great deal of string is used in tying up Thompson Seedless and some other varieties of grapevines which are pruned long. Last week we were in some of the vineyards of Fresno County. In Mr. Roeding's vineyards we noted a little economy which might well be practiced in many sections. He had taken the ordinary fan palm leaves and shredded them into narrow strings, using them to the saving of many thousands of skeins or balls of expensive cord. On another place, that of the University of California, the Kearney vineyard, stacks of hay, green to the very roofpole, caused inquiry. Other stacks were pointed out which were covered with a thatch of fan palm leaves. The hay had been protected from the weather and came from the stack as fresh and green looking as when put in.

The Coachella Valley in Southern California is cutting out some of its date palm leaves and sending to Eastern centers where there is demand for them in certain Jewish rites. This last use of what might otherwise be a waste product is a special and most limited one; it merely illustrates how many things may be made to bring additional income to the producer.

BEST OF MUSIC

Today the home without an instrument to reproduce the voices of artists, the genius of musicians, is like a house without a library."

So speaks a New York daily paper. It is a good text for a sermon, and we may almost add it is a sermon in itself. Most modern farm homes have a telephone, electric lights, even an auto. The latter enables the family to attend entertainments and perhaps hear the best of music. Unfortunately, instead of leading in that direction at all times, it leads toward the cheapest of movies, which are anything but elevating. Good music is not so common as the cheap picture, but it may be, and, what is more, it may be in every home, and this through "canned music." There was a time when the "talking machine" in the neighborhood was an argument in favor of low rents, but the modern phonograph is a vastly different instrument, and today music, and we mean real music, of the highest quality, by the best artists in the world is possible in every home. The farm home should welcome this modern educator. A library of good records is as educational as a library of good books.

SELLING TO HOME FOLKS

For years the Cultivator has argued the use of home markets for our own home products, whether it be fresh fruits, nuts, cured fruits, canned fruits or other farm proudcts. As a rule the entire energies of the marketers have turned toward developing far away markets while home trade was neglected. The prune growers recently observed home prune week, the raisin men have encouraged local consumption, and now comes the Citrus Exchange with the announcement of a local agency in Los Angeles. That market has largely been supplied with culls. It is worthy a better grade of fruit and will use it. The Federated Women's Clubs and the Retail Grocers' Association have united with the Exchange to bring about this change.

Now if as much attention can be given to California orange and lemon consumers as to the Eastern why should not the consumption be far greater proportionately?

Agricultural Notes

Georgia employs practically all her able-bodied convicts in road building.

The allotment from the federal fund for 1917 road building in national forests in California is $140,988.

Increased interest in poultry raising is being taken in all parts of the Union of South Africa. There are now five government poultry experiment stations in the union. Imports of eggs are rapidly decreasing.

The Mediterranean fruit fly has been seriously destructive the past season in western Greece, especially to orange, tangerine, peach, pear and apple crops. Fruit infested largely drops to the ground before maturity.

A proprietor of summer hotels in Maine reports that out of 9181 guests at his hotels during the past season, only 1851 came by railroad; that is to say, more than four-fifths of all these travelers came in their own automobiles.

A bonus amounting to about 16 cents per bushel for wheat harvested in France will be paid for the 1917 and following crops in consequence of a bill just passed through the chamber of deputies—this to cut necessity for importations as much as possible.

A trial order of 40 American made agricultural tractors recently reached the Russian department of agriculture via Vladivostock. These have already been bought up by land owners, payments to be made in two years. The department has ordered another 100 of 8-10 and 60 horsepower.

In "The Fruit World of Australasia" we note: "California sends to Australian markets large shipments of dried apricots, which invariably sell at higher rates than the local article. The California article is no better than the Australian product, but the get-up of the package is far and away ahead of the Australian."

No final statement as to the outcome of the campaign against citrus canker can be expected within a period of at least two years is the opinion expressed by the secretary of agriculture in his annual report. The campaign, however, is progressing very satisfactorily in the commercially important orange and grapefruit regions of Florida.

The 12th Annual Australasian Conference of Fruit Growers met in Melbourne the first week in November. Delegates were present from New South Wales, Victoria, Tasmania, South Australia, and New Zealand. This is the first meeting of this body since the beginning of the war. Control of pests and marketing and shipping problems occupied most of the discussion time.

Cotton seed has vastly increased in value in recent years. The value of products made from seed grown in 1915 was nearly three and three-fourths times as great as the corresponding value for 1900; and during the same period the quantity of seed crushed increased by 74 per cent, although the amount produced was not much greater in the later year than in the earlier.

An insect destructive to the peach and kindred fruits has been discovered by the department of agriculture in the District of Columbia and its environs. In its adult form it is a brownish moth and in its larval stage a small white and pink canterpillar. It attacks both the tender shoots and fruit, causing serious losses. It has been found almost impossible to poison it.

Agricultural News Notes of the Pacific Coast

Northern California

Colusa County shipped out more than 50,000 hogs during 1916.

A farm loan association has been organized in Alturas, Modoc County.

Senator Duncan of Oroville has introduced a bill into the legislature for the control of the star thistle pest.

Grazing permits will be issued in the Stanislaus national forest for 19,000 head of cattle and horses, 9800 sheep and goats.

Members of the Placer County farm bureau are organizing a cooperative creamery. It will be owned by cattlemen and operated in Auburn.

A bill will be presented to the state legislature permitting rice growers to shoot birds at any time of the year when they are damaging their crops.

During the past year Novato, Marin County, shipped by rail over $115,000 worth of eggs. This amount does not include products sent out by auto truck.

Senator Benson of San Jose will introduce a bill into the legislature asking for an appropriation of $150,000 to establish a deciduous fruit experiment station.

Under the auspices of the Northern California Milk Producers' Association meetings will be held in Chico, Nord and Gridley the early part of February.

The rice mill at Biggs, Butte County, has been closed down owing to shortage of rice supply. The farmers are not disposed to let their rice go at the prevailing prices.

There will be a big irrigation rally at Paradise, Butte County, on the evening of February 3rd. There will be present speakers from other irrigation districts in the state.

A petition will soon be presented to the federal government asking construction of eight miles of wagon road through the Hoopa Indian Reservation and Klamath national forest.

At the recent meeting of the California Wool Growers' and Sheepmen's Association at the university farm at Davis a resolution was passed asking for a duty on wool for revenue.

The Anderson-Cottonwood Irrigation District is being gone over by the state engineering department. If the report of the state engineer is in accordance with that of the engineer of the district work on the project will be immediately begun.

Commercial and civic organizations of Yuba, Sutter, Colusa and Nevada Counties recently met at Yuba City and endorsed the proposed cross-counties highway connecting the four counties. The highway would run from Colusa to Nevada City.

Ray C. Hannan of Corning, Tehama County, writes that Beresford Brothers of Colusa have received drafts for the sum of $10,514 for their 1916 prune crop, which was taken from 1200 trees —about 14 acres—near the river. The weight tags, grade sheets, etc., are on evidence to prove the truth of the assertion.

The boundary between Shasta and Trinity Counties has been designated as the mountain divide between the counties. This is so indefinite that some property holders have felt it necessary to pay taxes in both counties in order to secure their titles. The present legislature will be asked to fix a definite boundary.

Central California

Turlock is asking for the next Stanislaus County fair.

The campaign is still on in Fresno for a county farm adviser.

Thirteen farm bureaus have been organized in Fresno County.

The Tulare irrigation district will hold election of officers February 7.

Madera will this fall hold its first county fair and live stock exposition.

A large acreage will be planted to prunes in the Poplar section of Tulare County.

West side settlers are complaining that cattle of the mountain ranges are overrunning their fields.

Sugar beet planting has commenced on over 1000 acres in the district about Livingston, Merced County.

Monterey is planning construction of an inner harbor to afford accommodation for increasing commerce.

The California Peach Growers' Association has decided to build a packing house and warehouse at Hanford.

Farm bureau locals are being organized in Merced County preparatory to securing appointment of farm adviser.

Cream checks paid to Kings County farmers during December of last year amounted to $30,000 more than in December of the previous year.

Practically all the orange packing houses in the Lindsay district have resumed operations. All of them are using separators to detect frosted fruit.

The Turlock Merchants' and Growers' Association will plant a big acreage to cantaloupes in that district. The association is now building packing sheds.

Many thousand head of sheep are shipped out of Visalia every week to San Francisco slaughter houses. The sheep are fattened on beet pulp and alfalfa.

Monterey and San Luis Obispo Counties hope to secure from the present legislature sufficient funds to build the coast highway from Monterey to San Luis Obispo.

The Reedley chamber of commerce has under consideration the building of a $20,000 peach packing house on the site of the old Madison-Bonheur packing house.

Grangers of Visalia, Poplar, Dinuba, Tulare and Alpaugh held a joint installation meeting at Visalia the middle of the month. All grangers report increase in membership during the past year.

J. W. Jeffrey of the state viticultural commission states that Eastern handlers of Emperor grapes find the drum pack unsatisfactory. Table grape growers met at Exeter Monday, January 22, to discuss this matter among others of importance to the industry.

Dr. Cady, the government expert who has been instructing swine growers in hog cholera treatment and prevention, is urging breeders generally to take care in local movements of swine, which he says are largely responsible for spread of the disease.

County Ground Squirrel Inspector Anderson of Fresno says that he will not permit ranchers to use poisoned wheat in killing ground squirrels. He says that barley holds the poison better so that it is not washed off by rains, also it is less readily eaten by birds.

Southern California

March 10 has been named as California Orange Day.

Frost damage to fruit in Ventura County is reported practically nil.

Riverside County has nearly 17,000 acres planted to oranges, nearly 3000 to lemons.

Growers of Arlington are interested in securing the establishment of a cannery in that city.

A local exchange of the California Citrus Growers' Association is being formed at Oxnard.

There was a canners' meeting at Ontario last week. Canners from all over the state attended.

Large quantities of jack rabbits are being secured in Antelope Valley and shipped into Los Angeles.

The Lemon Grove and Spring Valley Irrigation District will hold its annual election in El Cajon February 7.

The Garden Grove Bean Growers' Association recently held its annual meeting, re-electing all old officers.

Imperial Valley Malaga grape growers report sales of considerable acreages of these grapes at $40 a ton on the vine.

The Arlington Poultry Association is considering using auto trucks instead of express for taking their egg output to market.

Practically all the orange packing houses of Riverside County have installed water separators for eliminating frosted fruit.

A walnut pruning demonstration was recently held in the Puente district by an expert from the experiment station at Riverside.

The third Farmers' Free Auction Sale at Imperial was held January 27. Stock, produce and implements of all kinds were on sale.

The Garden Grove Citrus Association expects to enlarge its present equipment to handle next season's largely increased crop.

Half a dozen crate makers are busy hammering together lettuce crates in the warehouses at Brawley, getting ready for big shipments.

Lima bean growers of San Diego County met at Encinitas January 25 to form a local of the California Lima Bean Growers' Association.

Sugar beet growers of Southern California have formed an association. Temporary offices of the association have been opened in Los Angeles.

Supplies of lima beans on hand in warehouses January 1 totalled 513,925 sacks, as against 769,238 last year. Blackeyes this year total 139,641 sacks.

The Riverside County chamber of commerce at its recent meeting at Arlington recommended the securing of a farm adviser for Riverside County.

Fertilizer companies which are collecting kelp off the coast of San Diego County are reported to have "mowed" over 200,000 tons of seaweed last year.

A big addition is to be made to the packing house of the Sierra Madre-Lamanda Citrus Association. It is planned to handle from five to nine cars daily.

A mass meeting of citizens of Azusa, Glendora, San Dimas, Covina and Baldwin Park was held at Covina high school recently to discuss flood control plans.

The Coast

Seattle reports a pest of sparrows and robbins.

Eugene, Oregon, has organized a farm loan association.

Potato jobbers at Seattle are quoting Yakima Gems at $55 per ton.

The prune crop of Clark County, Washington, amounted to 7,500,000 pounds.

The Idaho State Seed Growers' Association recently held a convention at Pocatello.

Potato growers of Idaho organized a state association with A. H. Beasley of Idaho Falls, president.

The University of Arizona will conduct an extension school for farmers at San Simon February 17.

Cattle and horse growers of Idaho are working to establish a permanent live stock show at Lewiston.

The Arizona Cattle Growers' Association will convene at Globe March 5-17 for its annual meeting.

Idaho's output of alfalfa for 1916 was 888,000 tons, making it the heaviest alfalfa producer in the Northwest.

Spokane, Washington, is contemplating establishment of a city market on the site of the National Apple Show.

Bellingham, Washington, estimates some 300 carloads of potatoes still in that district, with a very firm market.

Wenatchee, Washington, will have a fruit by-products plant to manufacture cider vinegar, jellies and evaporated fruit.

Lakeview, Oregon, reports great activity in the wool and mutton market. Thirty cents is reported paid for large clips.

The state of Washington will spend nearly $10,000,000 on good roads the coming year according to figures of county engineers.

The farmers' union of Colfax, Washington, at its recent annual meeting elected F. B. Rogers, president, C. W. Perrine, secretary.

The Washington experiment station at Pullman has issued a bulletin giving soil survey of the proposed Palouse irrigation project.

The Idaho State Dairy Association recently held its annual meeting at Pocatello. The importance of testing cows was urged on attendants.

Spokane is going to try out four public markets on the school grounds in residence districts. No fees will be charged to farmers selling produce.

At the recent annual meeting of the Washington Wool Growers' Association K. O. Kohler of Ellensburg was elected president and Dr. Robert Prior, secretary.

The Egyptian Cotton Growers' Association of Chandler, Arizona, has elected G. R. Johnson president, P. M. James, secretary. This is a local of the central association which met in Tempe the middle of the month.

Utilization of fruit by-products is occupying much attention of Washington fruit growers. A by-products factory is in successful operation at Puyallup. Others are contemplated at North Yakima, Spokane, Hood River and Wenatchee.

The interstate commerce commission has ordered investigations of rates and regulations of the railroads in transportation of potatoes to Southern and Eastern points of the United States. This action was taken as a result of the petition of the Potato Association of America.

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The California Swine Breeders Association

From Address By President C. B. Cunningham Before the Los Angeles Convention

THE swine industry in California for a number of years has not been much of a financial success. The producer has complained of prices received, often times selling for less than the cost of production; the buyers also have complained of the quality of the animals offered and that at even the prices paid there was no money in it for them. The consumer would not buy the finished product of our California raised hog, claiming that it was much inferior to the Eastern product. Something had to be done, for there is no reason why we cannot produce pork at a profit in this state, and why we cannot produce the quality as well. These were the causes that brought this association into existence.

The California Swine Breeders' Association was organized at the university farm at Davis on the 17th of April, 1913. At that time the California Live Stock Association existed, but as that organization was very large and embraced the horse, cattle and sheep interests of the state, it was thought advisable to form an association that would be comprised entirely of those who were interested in the production of swine. The initiative in this movement was taken by some of the professors stationed at the farm and Professor Thompson may rightly be termed the father of this association. Some thirty or more people met on that date and started this organization. In 1915 two meetings were held, both in San Francisco, at the exposition grounds; the first in April, the other in November. During the year just closed, 1916, three meetings have been held. The first at Sacramento in January; the next at Davis in May and the other at Hanford in October. In January, 1916, the first public auction sale of pure bred swine was held in Sacramento under the auspices of this association, and another held at Chico in May. We hope this year to hold five or more meetings in different parts of the state. Today our total membership is but little over 300. Every person who is interested in the swine industry of this state should be a member.

With a larger membership we can accomplish more; a body of men working along certain lines is reasonably certain of success where individual efforts often fail. This is the age of cooperation; we who are interested in the production of swine in this state want to make it a financial success. This association was not formed in the interest of any particular breed of swine, nor for the pure blood breeder. Its object is to promote the swine industry of this state in all its various channels, and this is of more interest to the producer of market hogs than to any other breeder. The slogan of this association is "More and Better Hogs in California". I believe that if it read "Better and More Hogs" it would be more desirable. We must have better hogs first and then after we get better foundation stock we will raise more of the better kind and be in a position to ask for better prices.

It is claimed that something like $30,000,000 is sent out of California every year for meat products. Just stop and realize what that amount would mean if it was spent in this state. What it would mean to every line of business operating in this state. Why should California be an importer? There is absolutely no reason why we should not only produce all we can consume but export as well.

California has had four well known historical eras. The first under Mexican rule as a cattle country, exporting quantities of hides, horns and tallow; next as the great gold producer; again as the great wheat state; today the fruit industry overtops all—but with our wonderful climate and natural resources and thousands of untilled acres, California is going to be known as the great live stock and dairy state and the hog will have a very prominent place therein.

The Swine Breeders in Los Angeles

Written for California Cultivator By J. L. Thatcher

IN writing of the recent meeting of the California swine breeders in Los Angeles one is under the unusual necessity of moderating his statements lest he be charged with exaggeration or at least with overmuch enthusiasm. I have been present at various national, state and breed association meetings from one end of the country to the other, yet I have never attended a swine breeders' meeting where I felt that as much definite good for the swine producing industry was accomplished as was achieved at the Los Angeles meeting.

Aside from the benefit that is always gained when a bunch of live stock men get together to talk things over, and the educational worth of the discussions that take place at such conventions—and there were some mighty good papers and discussions at that meeting—the really great result achieved at Los Angeles was the bringing together of swine breeders and packers. In fact, it was not just a swine breeders' meeting; it was a meeting of both swine breeders and packers, with both elements active participants in the work of the convention, and all striving for the betterment of the swine business on the Coast and the production of more and better hogs.

Swine breeders' meetings are ordinarily just gatherings of hog men for the purpose of discussing problems connected with the breeding, feeding, and management of hogs, and other topics intimate with swine raising, but this meeting of the California Swine Breeders' Association went infinitely beyond the ordinary in that it included in the program consideration and the discussion by packers of the all important subject of the selling price of hogs on the market and the factors which enter into the determination of whether those prices for pork hogs in California shall be high or low and consistent with the prices prevailing in other sections of the United States.

The men in charge of the program and arrangements for this meeting are to be complimented and congratulated for their farsightedness in thus bringing together the breeders and packers of the state.

That there is a decided movement toward improved methods of feeding and handling hogs and the raising of better and more hogs in California no one who is conversant with the facts will deny. Yet will those better hogs, hogs of better quality and properly fed and finished demand more on the market than will poorly fed and poorly finished stuff and get the recognition from packers which they merit and bring to the producer prices which will warrant swine breeders in raising not only the right kind of stock but giving that stock the kind of feed and care that are essential in the production of the highest grade of market hogs?

That question was answered definitely in the affirmative and by the packers themselves.

While the details of the plan have as yet to be worked out, and there are numerous factors to be considered, this definite result was accomplished at the Los Angeles meeting that the future price of hogs will be determined by the worth of the animals themselves, that is on a killing or per cent basis.

Whether the killing per cent on which the market price of hogs is based shall be 74, 75, or 76 per cent is yet to be determined. But this conclusion was reached, that hogs which dress out above the base per cent will demand a premium for every point above that base per cent, and those hogs which dress out below the base per cent will be cut in price for every point they fall below that line.

This is decidedly as it should be and will prove a greater factor in the promotion of the swine producing industry in California than any other thing that could have been achieved. The fact that properly fed and properly finished hogs will bring premium prices on the market will do more for the establishment of better feeding methods than all the talks and discussions one can listen to. It is the returns that count.

The Western Berkshire Congress Meeting

THE forming of the Western Berkshire Congress organization was a step in the right direction, and it is unique with breeders of Berkshire swine. The so-called "congress" is in reality a "get together" meeting, a place where brother breeders may meet and discuss the problems that confront the industry.

The annual meeting of this association will be held at Davis, February 13, 14 and 15. The university has offered the very best of facilities for holding the meeting. Some of the broadest and most able men in American agricultural educational work are connected with this institution, and everything is being done to make this meeting of real benefit to the live stock interests of the West. Every farmer and breeder of live stock in the United States is invited to attend these meetings.

At most such conventions, long and some times uninteresting papers are read which bring out long non-essential discussions, but the program committee of this meeting has done away with all such trite performances. The plans do not include any set program, but the whole meeting from first to last is to be one big informal discussion and Berkshire love feast.

During the evening of February 13 the barrows that the university authorities will select from a carcass demonstration will be judged and discussed. Arrangements are being made for a man of national reputation as a butcher to give this demonstration and later cut up the carcasses. The finished hog for market purposes is the ultimate aim of all swine breeding operations. So we think it very proper that the meeting should open with a discussion of this fundamental proposition.

In the evening a business meeting will be held, at which officers will be elected for the coming year. The following day, February 15, there will be a students' judging contest which will be participated in by several hundred students. This contest will be particularly instructive and interesting.

In the afternoon will be one of the big events of the entire meeting, the ladies' judging contest. There are a great many good judges among the wives and daughters of the Berkshire breeders of the West, and there will be some 30 handsome silver trophies awarded as prizes. The trophies will be silver water pitchers, beautifully engraved, so that they will be useful as well as ornamental.

In the evening there will be a banquet and love feast. This will be a grand event, and one that no one can afford to miss.

All of the third day will be devoted to a public sale, which is in complete charge of L. E. Frost, editor of the Berkshire World. Mr. Frost has had many years' experience in handling public sales, and everything will be done to make this sale a successful one.

The sale deserves particular mention, for at this time 40 or 50 head of the choicest animals from prominent Western herds will be offered. A secret meeting will be appointed to pass on all animals before going into the sale. If in the judgment of the committee the animals are not representative of the breed or are not such as should go into other hands as breeding animals, they will be excluded from the sale. This assures the high quality of the offering. This sale will begin at 12:30. The morning will be devoted to inspecting and discussing the sale offering.

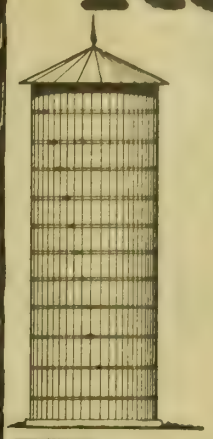
Mark these dates on your calendar now, February 13, 14 and 15.

"INTERNATIONAL 1916"

Messrs. Clay, Robinson & Co., Chicago commission men who broke the world's record in the sale of California Favorite for $175 per hundredweight, have issued "The International 1916", a magnificent brochure illustrated with some of the fat stock scenes taken at the International. Of course California Favorite is there, as is University of California Jock. One feature of the book is account of sale rendered to the University of California showing $1960, less $1.00 commission, paid to the university. One page is devoted to the agricultural college exhibit for which Clay, Robinson & Co. donated $1000 and in which the University of California in competition with seven other universities won almost a third. Regarding this the booklet says:

"In the class for two-year-olds the Angus, California Jock, exhibited by the University of California, won out against a very considerable field, second honors going to Iowa State College and third to Purdue University. In the yearling class a youngster shown by Iowa and bearing the great

Remco



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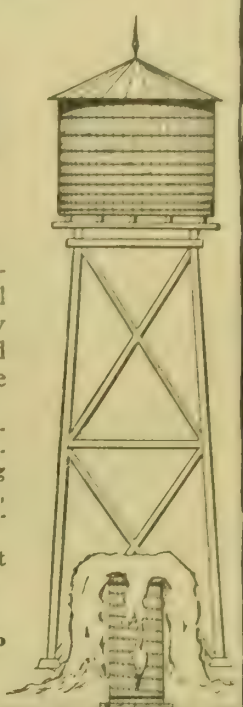

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ARABIAN-THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned Imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent Santa Anita, Cal.

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35 Registered Scotch-Topped Bulls
15 Registered Scotch and Scotch-Topped Cows and Heifers

All This Stock is Tuberculin Tested.
They are Large, Rugged Individuals with Excellent Bone and Quality

A Few Choice Berkshire Boars and Gilts For Sale

H. L. & E. H. Murphy, Perkins, Sacramento Co., Cal.

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Choice breeding stock, both sexes, from Panama-Pacific International Exposition prize winning strain. 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows. $2145 cash awards. Write to

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There are many reasons why you should always buy advertised goods. They are guaranteed.

Buy Berkshires

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Public Auction

THURSDAY, FEBRUARY 15, 1917

Davis, California

Fifty head of Berkshire hogs, the choicest individuals from 15 leading Western herds, will be sold under the auspices of the

Western Berkshire Congress

at University Farm, Davis, Cal.

February 15th

At the International Live Stock Exposition, Chicago, Berkshires won Grand Champion and Reserve Grand Champion carload over all breeds, and Champion Dressed Carcass over all breeds. Berkshires are money-makers.

This sale affords wonderful opportunity for procuring the very best foundation stock, the best of breeding, the best of individuality, and they will be sold to the highest bidder.

For further particulars or catalogue, address either the President or Secretary.

W. S. GUILFORD, President WILLOWS, CAL.

F. R. STEEL, Secretary GRANTS PASS, ORE.

The Western Berkshire Congress

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Make the NEW and Clean the OLD with the MARTIN Ditcher, Dyker and Grader. Makes or cleans irrigation or drain ditches up to 4 feet deep—any width. Makes two to three foot dyke or levee; grades roads. Works in sand, rocks, gumbo or clay—wet or dry—on side hills or level ground,

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OWENSBORO DITCHER & GRADER CO., Inc.
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WON 35 RIBBONS ON 22 HEAD

Worlds Fair San Francisco

Boars, gilts, bred and open, from this World's Champion Hampshire stock, just as nearly perfect as they make them.

Owner F. V. Gordon — Llano Vista Ranch
M'ngr. F. A. Langdon — Perris, Riverside Co., Cal.

Grand Champion Sow, Sioux Queen 24,848, San Francisco 1915

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THE AMERICAN GUERNSEY CATTLE CLUB
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name of Carranza carried off first honors with quite a number of Villistas against him. In the calf class California Favorite was the natural victor, as also, of course, champion steer. In the class consisting of best five head the Kansas College won out, with Iowa such a good second we created a premium of $50 for it not in the catalog. Senor Duggan awarded the ribbons.

"The California College was also very successful with its sheep exhibit, having best wether (Wisconsin, second), best wether lamb (Ohio, second, Wisconsin, third), champion wether and best pen of five wethers. David Mackay awarded these premiums.

"Missouri showed the best barrow of the class, while for the best general exhibit of cattle, hogs and sheep—five of each—first honors went to Illinois and second to Kansas."

ARIZONA COMMISSION OF HORTICULTURE

It was our pleasure to meet at the recent State Swine Growers' Convention in Los Angeles Mr. Andrew Kimball, chairman of the Arizona commission of agriculture and horticulture. He was in California making notes and gathering information as to agriculture, and especially live stock conditions here, coming as an affiliating delegate to the state convention. Mr. Kimball said: "Reports and circulars concerning insect pests and means for their control are published from time to time. These may be obtained free of charge. For information and advice concerning insect pests and plant diseases address State Entomologist, Phoenix, Arizona. Whenever practicable, the commission, upon request, will arrange for institutes in agricultural districts in order to promote the agricultural and horticultural interests of the state. Correspondence concerning this matter should be addressed to the Chairman of the Commission, Thatcher, Arizona."

Goldie Nehalem Beauty, a three-year-old Jersey, owned by C. F. Reid of Portland, Oregon, has suddenly leaped into fame by acquiring the title of "Junior champion three-year-old Jersey". In a 365-day test, conducted under Register of Merit rules and supervised by the Oregon Agricultural College, she produced 12,367.7 pounds of milk and 750.51 pounds of butterfat. The new record exceeds that of Lass 74th of Hood Farm, the former title holder, by four pounds of butterfat.

GET A SHETLAND PONY FOR YOUR BOY OR GIRL

Boys and girls who would like to own a Shetland pony should send their names and addresses to the Pony Man, California Cultivator, 115-117 North Broadway, Los Angeles. We give away Shetland ponies to boys and girls, and if you will turn to the page in this paper with the pictures of the ponies you can see the pictures of some of the fine ones we have already given away and read the letters from those who have received them.

There isn't a nicer pet or playmate in the world for a youngster than a Shetland pony like these we give away. By nature these small horses are gentle and kind and are just the right size for boys and girls to ride and drive to school and to play with.

In the past three years the Pony Man has given away over 100 Shetland ponies to children for doing a little easy work that can be done during spare time. Send in your name and address on the blank printed with the pony pictures and we will write and send you more pictures and copies of many more letters and tell you all about it.

We ship these ponies in crates made especially to send ponies by express, and each pony is thoroughly broken to ride and drive and is perfectly safe for children to handle. Many boys and girls who have to walk to school have gotten our Shetland ponies so they could ride or drive.

Genuine Shetlands like these we give away are valuable animals and riding and driving them is the best

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Don't forget

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The Bacteria that increases the crops.

Get our prices and samples of Alfalfa Seed.

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The most efficient non-skid casings ever produced.

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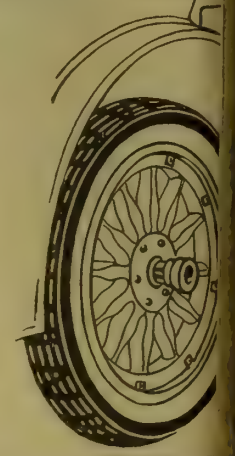

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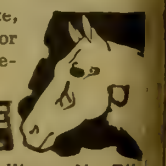
that make a horse Wheeze, Roar, have Thick Wind or Choke-down, can be reduced with



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also other Bunches or swellings. No Blister, no hair gone, and horse kept at work. Economical—only a few drops required at an application. $2 per bottle delivered. Book 3 M free.

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and most wholesome exercise any child can enjoy. Parents who want to make some child happy can do them no greater favor than to help them to get one of our ponies. Send in the name and address of some boy or girl in whom you are interested. It does not make any difference where you live on the western coast or what

Shetland Pony Given Away By California Cultivator All Ready to Go

you do. One boy or girl has an equal opportunity with every other. We had never heard of any of these other boys or girls who got our ponies until they sent us their names and addresses. This places you under no obligation to us whatever, and if after you read all about it, you do not care to go ahead you can drop it entirely. You do not even have to be a subscriber to California Cultivator.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Worms

Please tell me what to do for a six-year-old horse that has intestinal worms. I noticed them last spring and gave him several different kinds of powders and had him at a veterinary hospital for a week, but still he passes a few worms. The horse has an awful appetite, eats anything and is in poor condition. The feed does not seem to do him any good. There is gas in his stomach as I can see it roll in his side, and his passages are loose and watery.—Subscriber, Orange.

You did not state the size of the worms, but we take it for granted they are stomach worms. Get eight ounces of tincture of iron. Twice a week make a bran mash by filling a clean bucket half full of coarse bran. Wet this with boiling water, cover it up and let it cool. When cool add a handful of salt and one ounce of the tincture of iron. Stir it well and let the horse eat it. Also get some good wood ashes, mix it with twice its weight of salt and give a large tablespoon of this in the feed once a day for two or three weeks. A little of the salt and ashes occasionally will probably keep him free from the worms.

Time For a Horse to Eat

What length of time should a horse have to eat his meals morning, noon and night, when not working?—Subscriber, Orange.

The horse should have all the time he wants to eat, and the longer time he takes the better. The horse's feed should not be regulated by his time of eating, but he should be given the right amount and then the slower he eats it the better. Food well masticated and well mixed with saliva will digest much easier and much more nourishment will be gotten out of it. Properly fed the horse should be able to eat his morning and noon meals in half an hour and then if going to work should have as much more time for rest before starting out. At night, when he should be given his largest meal, he should be able to clean it all up in two hours or less.

Locomotor Ataxia

Reporting again on the case of locomotor ataxia that you prescribed for in the Cultivator of January 13 will say that the prescriptions were filled and the medicine all given as directed, but so far can see no improvement in the horse. In fact he is not so well as he was, which may be due to the cold, wet weather. He seems to feel fine but staggers and can not control his limbs. One time when taking him out for exercise he scared at an automobile and fell very hard. We had some trouble getting him up and some difficulty keeping him on his feet after he was up. When taking him out for exercise we can only walk him a few steps at a time and then stop so he can get control of himself. When he falls he goes down like a ton of brick. One of the doctors who treated him for a while gave him half grain of strychnia once a day and he seemed to improve some on that. What do you think we had better do with him?—Subscriber, Charter Oak.

We are more than ever inclined to think that the trouble was started from a hard fall and that there is some pressure on the spine from the injury. Every fall he gets now only retards the healing. Try this as it will probably absorb any congestion that may be affecting the spine: Iodide of potash four ounces, strychnia sulphate 25 grains and water to make one quart. Give a large tablespoon of the solution in the feed twice a day.

Contagious Abortion

A neighbor has abortion among his herd of cows and our 15-months-old bull has, on several occasions, gotten in with those cows. I am not positive that the bull has served any of them. Now in your opinion do you think the bull is liable to carry the disease, and is there any way to prevent it?—Subscriber, Orland.

Yes, there is some danger of the bull carrying the contagion. Clip the hair off his belly and wash it well with soap and warm water with some carbolic acid in it. Also inject the sheath with a warm solution of permanganate of potash; ten grains to the pint of water. This will probably stop all the germs.

CLEANING MILK VESSELS

The first important rule to observe in cleaning dairy utensils is to rinse them immediately after use. This prevents the water in the milk from evaporating and the solid matter sticking to the utensils. If it is impossible to wash the utensils at once rinse them in cold or lukewarm water so that the most of the milk will be removed before it has a chance to stick. Hot water should not be used until the milky substances have been removed with cold or lukewarm water, for the hot water will coagulate the casein in the milk so that it will stick to the tin and require a greater amount of washing before it can be removed.

The Tagus Ranch has contracted with a Los Angeles packer to feed and ship fancy beeves. Their great herd of Aberdeen-Angus cattle is being brought to its highest efficiency. Mr. Merritt made a ten strike when he secured one of the men from Davis that assisted Alex MacDonald to fit the university steers which won so many honors at the Chicago International show in December. A large part of the beef that will be sent to market will be of the "Baby" variety and it will bring a premium over the market. The Tagus people are planning a number of improvements which when completed will place this ranch in the highest rank.

Arlington M. Smith has recently added to his Normandy Farms Berkshire herd three sows from H. L. and E. H. Murphy, three gilts from Chas. M. Talmadge, Washington, one gilt from the university farm, one gilt from F. R. Steel, Oregon, and two gilts from A. B. Humphrey.

Carruthers Farms First Annual Sale of
SHORTHORN CATTLE
will be held at the farms near
MAYFIELD, May 2nd, 1917

The Bulls:

20 Bull calves of rare Scotch breeding will be sold in the sale, two of them sired by Count Avon, the sire of our herd bull, Count Glory; there will also be six sons of Mayflower Sultan—everyone a good one: the balance are young bulls from sires of a national name.

The Females:

35 head will be sold, among them some of the greatest cows of the breed, rich in Crookshank blood; some of the tops will be in calf to Count Glory, California State Fair Grand Champion 1916; there will be two heifers sired by Count Avon, the sire of Count Glory; several heifers sired by Mayflower Sultan; eight cows in calf to Count Glory —all of them being of the rarest breeding. In this sale will be sold more Crookshank cattle than has ever been sold in a sale in the West. Make arrangements to attend the sale, and look over this great lot of Shorthorn cattle.

CARRUTHERS FARMS - - Mayfield, California

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For Every Purpose
NEW Threads and Couplings
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2nd Hand and NEW
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Drive the Solution into the Trees Under a Uniform Heavy Pressure

The satisfactory results obtained with either the Alpha Triplex or Alpha Duplex outfits are due primarily to the following unquestionable superior features of the Alpha Sprayers:

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which insures safety, secures uniform pressure, and eliminates unnecessary wear and strain on both pump and engine. No troublesome relief valves or diaphram pressure regulators are required on Alpha Sprayers. No liquid is pumped except it is forced through the nozzles.

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The Alpha Gasoline and Distillate Engine which is directly geared to the pump is a thoroughly first class machine. Built to stand up under continuous full load. Equipped with built-in, gear-driven magneto. No batteries required. Starts on the magneto without cranking.

You can equip the power sprayer you now have with an up-to-date reliable Alpha Engine. Write us for Special Engine catalog.

The Alpha Re-filler; the Flexible Suction Pipe connection between Supply Tank and Pump; the sturdy steel frame construction and accessibility of Alpha Sprayers are details which would be decidedly to your interest to investigate before buying any spraying equipment.

For full particulars and name of nearest dealer, fill in and mail the coupon.

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E. J. Chubbuck Co., Dept. A San Francisco, Cal.

Whey Separators Save Butterfat

California cheesemakers are wasting or feeding to hogs thousands of pounds of butterfat worth about 30 cents per pound. This was demonstrated to the cheesemakers by the University of California during the two-weeks cheesemakers' course held at the University Farm at Davis.

Through the courtesy of various separator companies whey separators were installed for this course. Much interest was taken in the operation of these machines, and those in attendance returned to their cheese factories with a good impression of the value of the whey separator. With conservative tests for whey, one should recover two pounds of butterfat for every 1000 pounds of whey when making Cheddar cheese, and 2.8 pounds when making California (granular) cheese. Assuming that a factory has 5000 pounds of whey, the fat recovered would be 10 pounds when making Cheddar, and 12 pounds when making California (granular). At 30 cents per pound, this fat would be worth $3.00 and $3.50 respectively. Under these conditions the average cost of operating the separator, depreciation and interest on the investment would be about $1.00 per day. This leaves a net of $2.00 per day when Cheddar cheese is made and $2.50 per day when California (granular) is made.

Disregarding the feeding value of the butterfat, the whey separator, under these conditions, would pay for itself in 115 to 150 days.

Cause of Bitter Cream

Bitterness in cream and milk is a frequent trouble during winter months. Percy Werner, Jr., of the Missouri college of agriculture, attributes it to the following causes: If milk is bitter when it is drawn, the trouble is with the cow or her feed. Very often cows give bitter milk toward the close of their lactation period. The old dry weeds of winter pasture also give rise to a bitter flavor in milk. The remedy in this case is to keep the cow from such pastures.

However, if the bitterness develops after the milk is drawn, which is most often the case in winter, it is due to the growth in it of a certain variety of bacteria. These bacteria get into the milk usually from pieces of dirt or manure from the barn. At low temperatures they will develop a bitter flavor before the milk or cream sours. When the dairy is once infested with such bacteria they may remain in the separator, pails, strainers or cooling tank for a long time. To prevent bitterness due to this cause, these bacteria must be eliminated. This means that all utensils, separator parts, strainers and cooling tank must be thoroughly washed and scalded. All dirt should be kept out of the pail at milking time by keeping the can clean and using a pail with a small opening.

While making such a clean up the trouble might be prevented by adding some sour milk to the cream as soon as separated and keeping it in a warm place until the batch is sour. Then it can be cooled and kept till churning time. Sour cream seldom turns bitter unless kept several days.

A Magnificent Bull

Prince Gelsche Walker 81663, the $12,500 herd sire at Santa Anita Ranch. A wonderfully bred bull that transmits high production to his heifers. At five years of age he has already 21 A.R.O. daughters, including several state and one world's record holder.

And Now the 50-Pound Cow

Official notification of the new world's champion dairy cow for butterfat production over a period of seven days has just been received in the Cultivator office from Superintendent Malcolm H. Gardner of the Holstein Friesian advanced registry. The name of this wonderful cow is Segis Fayne Johanna 114658. In seven consecutive days she produced 722 pounds milk and 40.544 pounds fat. She freshened at the age of eight years, two months. 17 days. Her sire is King Fayne Segis 46767; her dam, Vikina Johanna 64385. She was bred by A. A. Cortelyou of Somerville, New Jersey, and she is now owned by Oliver Cababa, Jr., Elma Center, New York. In the full age class of the seven day division she displaces Hester Aaltje Korndyke 133222, whose record for seven days is 621.1 pounds milk containing 37.429 pounds fat. The production of Segis Fayne Johanna's last seven full days as reported to the superintendent's office are as follows: 97.9 pounds milk. 5.666 pounds fat; 101.3 pounds milk. 6.052 pounds fat; 104.1 pounds milk, 5.466 pounds fat; 105.2 pounds milk, 5.759 pounds fat; 104.4 pounds milk, 5.743 pounds fat; 105.01 pounds milk, 5.785 pounds fat; 104.5 pounds milk, 5.766 pounds fat. The 40.544 pounds fat, so far reported for Segis Fayne Johanna but not exactly covering the days whose productions are given, computed on the 80 per cent basis would be equivalent to 50.68 pounds butter.

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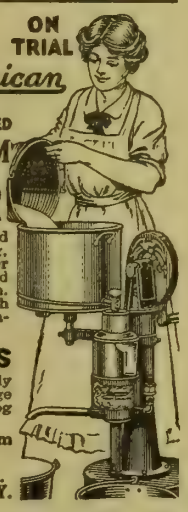

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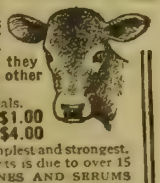

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Feeding Test to Fatten Old Ewes

A feeding test in fattening old ewes for the market has just been completed at the University of California farm at Davis. The objects were first to ascertain practicability of fattening old ewes, value of silage and dried beet pulp. Four hundred and twenty-four ewes had been purchased from the Capay Valley Sheep and Land Company at Woodland at $5.25 each. They were of straight Merino breeding with a six-months fleece and from five to eight years of age, most of them showing a badly broken mouth. They were divided into two lots of 212 each, the following rations being fed: Lot I—Silage, dried beet pulp, and alfalfa hay; Lot II—silage and alfalfa hay. They were fed all the silage and hay they would consume, while the beet pulp was limited to a half pound per sheep per day. Feterita silage of good quality was fed the first three weeks, then Sudan grass silage for three weeks, and after this was all used up the test was finished on sweet sorghum silage. The feeding was done in open yards until the rain set in, when the sheep were given shelter. The sheep were put on feed October 3 and at the end of 44 days feeding, the bunch was topped, marketing 110 head of Lot I and 100 head of Lot II. The sheep were sold to the Western Meat Company, San Francisco, at 6.5 cents per pound, delivered. The following table shows the results:

Period I—44 days	Lot I.	Lot II.
Number of sheep	208	212
Av. wt. at beginning	95.7 lbs.	95.8 lbs.
Av. wt. at close	104.4 lbs.	101.5 lbs.
Average gain	8.7 lbs.	5.7 lbs.

Cost of Silage---Beef Production

The following in reply to a question as to the cost of silage for beef production was written by a silage expert of the De Laval Dairy Supply Co.

The cost of making silage exclusive of growing the crop will run from 50c to $1.00 per ton, depending upon the length of haul, the weight of the crop and other factors, and particularly the skill with which the teams and labor are arranged. The cost of making silage on the ranch of Col. Bugbee of Clarendon, Texas, was approximately $2.00 per ton. This included the growing of the crop and putting it into the silo. Other parties estimate that the raising, gathering of the crop, together with the depreciation in the equipment, will still enable the production of silage as low as $1.50 per ton. It is certain that the cost may be safely placed at right around $2.00 per ton. Now, comparison with the estimated value of silage as placed upon it by various of the experiment stations, will disclose the fact that it is worth for feeding purposes to beef stock approximately three times its cost of production.

Feeding experiments on beef production at the Iowa experiment station during 1911-12 on two-year-old steers showed silage at $3.20 per ton to be the equal to clover hay at $7.65 per ton. It is estimated that ordinarily when alfalfa hay is worth from $12 to $15 per ton for beef production, silage is worth from $5 to $6.25, which is, as stated, approximately three times its cost of production.

We are confident if you can go to the cattlemen of your section and get a hearing from them to the extent that they will thoroughly investigate the advantages to them of feeding silage, that it will result in many of them making provision for silage sufficient to carry on their feeding operations during the winter months.

There is one more suggestion that we have to offer and it is being worked out by several of the large cattlemen of the Pacific Coast today, and that is, providing silage for the calves at weaning time. It is the plan of several to have silage ready to feed to their calves at weaning time, and in that manner prevent the shrinkage that always occurs because of the calf being weaned at a period of the year when feed is mighty short.

One large rancher in San Luis Obispo County told the writer recently that by feeding his calves silage at weaning time, his steers were the equal at two years of others at three years that had been left to shift for themselves. In other words they had gained a year by feeding silage at the right time.

HOW BIG A SILO SHALL YOU BUILD?

The following table gives capacities of round silos of various heights and diameters. In figuring capacity of silo needed 40 pounds of silage per day is the average allowed for each head of cattle. This table was prepared by A. L. Paschall, farm adviser of Cochise and Santa Cruz Counties, Arizona.

Capacity of Round Silos in Tons

Inside Hgt. of Silos	Inside Diameter in Feet 8	10	11	12	13	14	15	16
20	17	26	30	38	44	51	59	67
21	18	28	33	41	47	55	63	72
22	19	30	36	43	50	59	67	77
23	20	32	39	46	54	63	72	81
24	22	34	41	49	57	67	76	86
25	23	36	43	52	60	71	80	91
26	24	38	46	55	64	75	85	97
27	25	40	49	58	68	79	90	102
28	27	42	51	61	71	83	95	109
29	28	44	54	64	75	87	100	114
30	30	47	65	67	79	91	105	119

Frampton Bros., Artesia, purchased one of the best bred and best individual young bulls in the Morris herd at Woodland a few weeks ago. His name is Segis Pontiac De Kol Burke Clyde, calved April 1, 1916. He is out of a son of the great Riverside Sadie De Kol Burke, and his dam, Diotime Clyde Korndyke 152262, has a record of 31.91 pounds butter, 641.21 pounds milk in seven days. She is a four per cent butterfat cow and is now in the Santa Anita herd. Her sire, Korndyke Queen De Kols Prince, has 88 A.R.O. daughters, five of them over 30 pounds butter in seven days. This young bull will be used in the Frampton herd and probably shown at some of the fairs this fall.

E. O. McClure, formerly located at Modesto, recently transferred his fine herd of Holsteins to Santa Ana. Mr. McClure has been collecting a splendid lot of A.R.O. cows, headed by a son of King Segis, King Pontiac Netherland Segis. The cows have records running from 15 to 28 pounds butter in seven days. Mr. McClure purchased what was known as the Moreland ranch, which had the reputation of being the largest and best equipped dairy in Orange County. Many of the buildings are of concrete construction.

When the Swine Growers' convention had adjourned last week the Poland-China breeders present got together and discussed the question of organizing a state wide association which would absorb all the existing minor associations, such as North San Joaquin Valley Association, Kings County Association, etc. This is a move which all the other live stock associations will eventually make, as the old maxim, "In unity there is strength", applies particularly to the stockmen of California at this time.

J. E. Peck of the Imperial Valley is one of the livest swine breeders in the valley and has done much to put the Duroc breed on a high plane. He is a steady importer of the best stock he can buy and makes it a point to buy only mature stock. He recently brought in two Golden Model sows, a daughter of King of the Colonels and Crimson Gano, and a daughter of Ryan Chief. There are about 30 brood sows on the Peck place at the present time.

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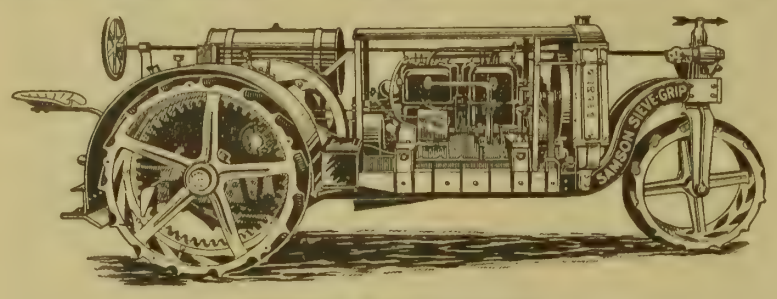

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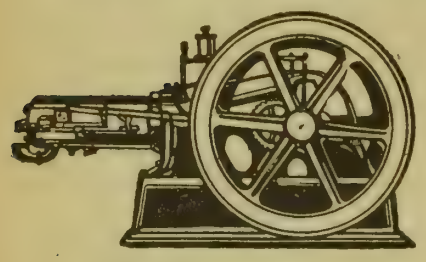

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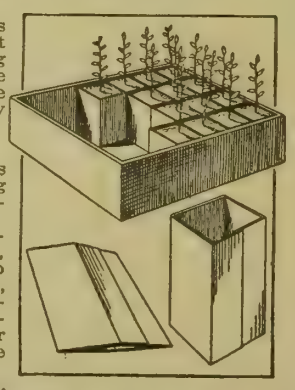

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Gummosis

Continued from Page 131

The sulphate of copper is the principal agent in the curing of this disease, but its use in the form of Bordeaux paste or with lime, as suggested, is safest.

Egyptian Corn for Cows

I am feeding crushed Egyptian corn mixed with beet pulp as a grain ration for my cows. I am told it will dry them up, cause them to give bitter milk, etc. Is there any foundation for such belief? So far have noticed no ill effect, but have not been feeding it long. An early answer would oblige C. B. H., Chino.

This inquiry was referred to Prof. F. W. Woll of the State University who writes:

"There is no reason to suppose that crushed Egyptian corn and beet pulp has anything but a beneficial effect on the milk secretion of cows. The influence of Egyptian corn on the milk may not be as well understood as that of beet pulp, as it has only been used as a cow feed to any appreciable extent during late years. However, the practical feeding experience accumulated by this time warrants us in saying that it is a good component of the grain ration for milch cows and will neither dry up cows nor cause them to give bitter milk. Some farmers are inclined to believe that barley has such an influence on the milk secretion, but the results of feeding trials conducted for several seasons at the University Farm, show that it is one of our most valuable dairy feeds, although better results are obtained when it is fed mixed with other concentrates than when fed alone. This, of course, holds good for nearly all feeding stuffs, particularly when fed to dairy cows or to stock fed for a large production. Egyptian corn and other grain sorghums will be found of nearly similar feeding value, pound for pound, as Indian corn or barley when given in rations for dairy cows. But small differences occur in their contents of digestible nutrients. Barley, e. g., contains about 85.3 per cent total digestible matter, kafir 80.0 per cent, milo 79.9 per cent, and gyp corn 79.0 per cent.

Propagating Figs and Olives

What is the best way to propagate figs and olives? What is the best kind of figs for a poor man to plant on five acres? When should a fig tree be pruned, especially where tops are frosted? Could one use wood from the branches of olives which are two inches in diameter and ten inches in length for cuttings? Is it necessary to tie young growing tree to stake? In setting in orchard form which is the best size of tree, large or small? Should one cut back trees at planting time just under the ground?—Subscriber, Fresno.

As to best kind of figs to plant there is difference of opinion as was shown at the recent fig growers meeting at Fresno. Some prefer the true commercial Smyrna, others the White Adriatic, others the Kadota, etc. For a man who is not able to give attention to detail at exactly the right time it is possible that the culture of the Smyrna would be too complicated. In such case the Adriatic or other variety would be best. Either figs or olives are reproduced readily from ripe dormant wood cuttings. We would not prune young fig trees excepting when branches come where not desired. We have seen shapely, healthy olive trees grown from large wood cuttings as suggested. Have even seen cuttings made from logs six or eight inches in diameter, which were quartered, the roots and top growth coming from buds on the bark side. In setting would prefer the larger, thriftier tree, that is, of same age. Where the cuttings are put out at the same time and one grows large and lusty, the other small, the question naturally comes, why is one larger? This will lead to the conclusion that the larger for some reason has a stronger grip on life. We would not cut olives below the ground as suggested; leave practically all of the top. Staking helps in making a straighter and more shapely tree. However, tying up is not done in all cases, some orchardists preferring to have the low-headed, branching type of tree.

Fruits For Home Orchard

Will you kindly advise me of some of the best varieties of the peach and apple, suitable for a home fruit orchard, which would grow well in the Pomona Valley?—Subscriber, Spadra.

Apples: Skinner's Seedling, White Winter Pearmain, Early Harvest, Peaches: Stump the World, Mayflower, Burbank's Family Peach, Yellow St. John, Belle of Georgia.—J. W. M.

Grafting Almond

I have an almond tree 15 or more years old and in vigorous condition, but it has never borne more than a half peck of almonds at a time. What shall I do with such a loafer? Cut it down or will it serve to graft on some other almond or nut that will produce?—Subscriber, Pasadena.

You do not state what variety of almond you have. If it is one of the paper shells, graft in a Drakes Seedling on part of the tree. If it is a Drake's Seedling, Texas Prolific or Languedoc, graft it over to some sort of plum or prune.—J. W. M.

Grafting Persimmons

Can persimmons be grafted? If so, how, and at what time of year? We have two nice trees which bloom every year but never set any fruit.—Subscriber, Tulare

Persimmon trees can be grafted the same as other trees. Any time during February will do.—J. W. M.

New Zealand Flax

I send folder describing New Zealand flax. Has this plant a profitable commercial prospect? Has it been grown in this state?—Subscriber, San Diego.

The fiber from this plant is usually called New Zealand hemp. It is obtained from the leaves of Phormium tenax. Bailey's Cyclopaedia of Agriculture says: "The plant is native of New Zealand and is distributed in many parts of Australasia. It has been

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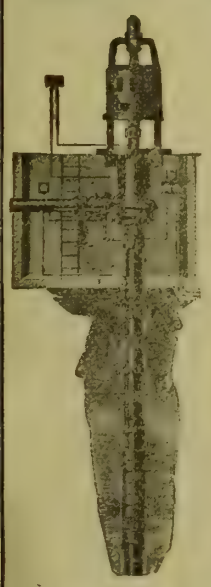

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Soil and Water Analyses

Consultation on Agricultural Problems
Mark Walker, B.S., 211 W. First St., Los Angeles

introduced as an ornamental in California and the southern states and also in Europe even as far north as Ireland and Scotland. It is cultivated for fiber-production on a commercial scale in New Zealand and to a small extent in southern Europe. It is the only important hard-fiber plant of the temperate zones. In New Zealand it grows between latitudes 35 degrees and 45 degrees, where it is subject to frost and snow, but it will not endure the more severe winters of our northern states. It grows best in a rich, porous, sandy or loamy soil, moist but with good drainage. Some of the varieties will grow in swamps. It is propagated by transplanting roots. The leaves are cut about once each year, and the fiber is cleaned in part by machinery. The machines thus far brought out leave the fiber but partly cleaned, requiring considerable hand work to prepare it for market. Under favorable conditions the plants yield 800 to 1200 pounds of fiber per acre." The plant has been grown freely in California but we have known of no case where it has been used in this state for other than ornamental purposes. We will appreciate information from any reader of the Cultivator who has produced the plant in sufficient quantity to dispose of it for commercial purposes. Until there is a market assured it would not be safe to plant in a large way.

Eastern Green Corn

Will Eastern green corn seed produce a good crop in California the first year, assuming that conditions are favorable?—Subscriber, Los Angeles County.

It will not do as well as acclimatized seed. However, our best corn growers find it wise to occasionally secure seed from Eastern growers. The seed grown here for years seems to "run out" so that renewal is occasionally necessary. However, the second or third year's crop from the introduced seed is better than that of the first year.

Steam Heat for Frost Protection

Kindly advise if there have been any successful experiments in the use of steam heating systems in orange groves to prevent freezing. Would like full information regarding any such experiments.—Subscriber, Exeter.

The matter of raising temperatures by the use of steam has been tested in a way but so far as we have learned has proved too expensive. Some accounts of early efforts at frost protection referred to a Riverside method of piling wet straw or coarse manure on screens over fires. The fires were expected to raise the temperature of the water in the straw and release this in the atmosphere. The success of the experiment was only indifferent, and while it was tried a few seasons it was eventually abandoned. This method is referred to in "Climatology of California," Bulletin of the United States Weather Bureau, 1903. It was also referred to in O'Gara's Bulletin No. 5 of the Weather Bureau Station of the Rogue River Valley. He refers to the method as having been used in the 16th century. In the same bulletin Mr. O'Gara refers to the discussions which are to follow, and says: "Frost prevention by means of heating and smudging only will be considered. Various other methods such as irrigation, sprinkling or spraying with water will not be discussed. Bulletin 70 of the state board of horticulture, published in 1896, touches upon various smudge fires, damp smudge method above referred to, and other methods. In this same bulletin on page 15 Mr. H. C. Finkle's plan is described as "providing for the erection of several large plants for the evaporating of water from pans in coal oil furnaces. On page 233 of Climatology of California above referred to we note that Wright Brothers of Riverside used a 35 horsepower boiler and two-inch pipe for delivering warm or hot water into irrigation furrows. By the use of this device they were able to raise the temperature nearly 30 degrees but the expense was found prohibitive. The point seems to be that it costs more to raise the temperature of water and use that to raise the temperature of the air than it does to apply the heat direct to the air.

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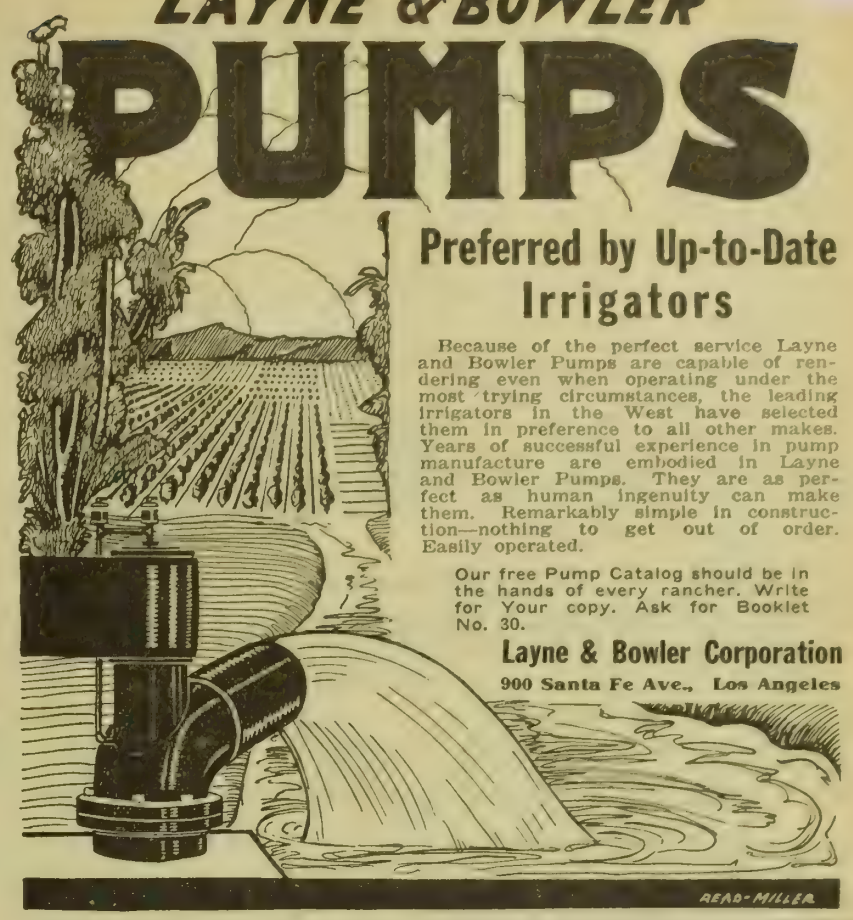

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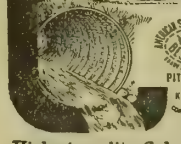

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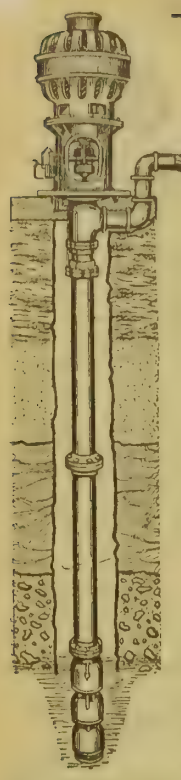

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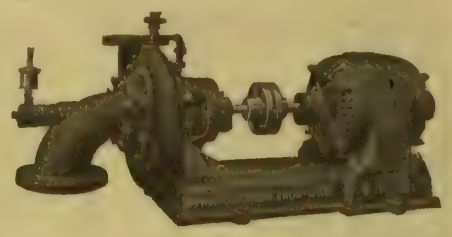

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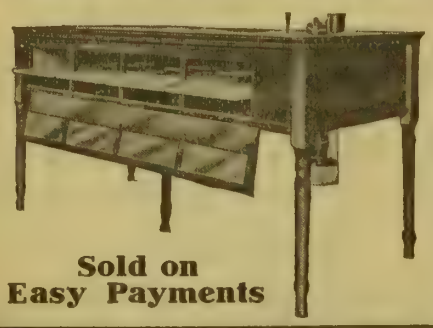

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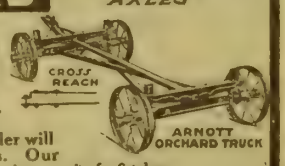

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ARNOTT & COMPANY, Inc., 112-18 South Los Angeles St., Los Angeles

Letters to a Beginner

Written for California Cultivator By Jean A. Koethen

WHAT THE BABY CHICK NEEDS MOST

DEAR GEORGE: Your experience with that first incubator brood was surely heart-rending. It made me think of my own "first time," the time I learned once for all what a chick needs most. I knew about as much about raising chicks as a cat does—rather less, perhaps, for she would not have let them suffer—but the chicken fever got me and I bought 50.

I had watched 100 little White Orpingtons belonging to a neighbor play around their fireless brooder, which stood right out in the wind on the damp ground. Surely if he could raise chicks that way, I could. How was I to know that I was following a blind leader, or that his chicks were dying off by threes and fours, chilled by that dreadful fireless brooder We made a brooder like his, only we made it as large for 50 chicks as his, which was designed for 100 and was too big for them, manufactured an elaborate hover out of an old broadcloth skirt, set the brooder out on the ground in the wind, and awaited results. They came, oh, very quickly. Next day some chicks were "stuck up" behind. I consulted a neighbor and was told that brooder chicks almost always got white diarrhoea, that I should have given them milk to drink instead of water, and that very likely they had been eating adobe, which was always fatal. After a day or two, as more and more became "stuck up" and they stood shivering in bunches, trying to keep one another warm, I got a "hunch" that they were cold and put up wind breaks, but it was too late. They were as cold at night as during the day, anyhow, and morning after morning I went out with fear and trembling to find always more and more dead in the corner where they had crowded in the hope of finding warmth. My heart nearly broke, George, when I realized that my own stupidity was responsible for those 40 deaths—for only ten survived—but I had learned my lesson, and from that day to this I have never lost a chick from chilling, except perhaps once in a great while one that was smothered by a careless hen.

What is the first need of the baby chick? Just the same as the first need of a human baby, warmth and quiet and a chance to sleep. The trip out of the nowhere into the here is a long, weary one, for both human baby and chick. The chick has been for three weeks in a temperature of 103 degrees or more, and the air of a brooder that is heated even to 98 or 99 degrees must seem pretty chilly at first. As for the nursery of the incubator, that is an uncertain quantity, but we have this test, whether the chicks are in incubator or brooder: If they lie down comfortably and sleep they are warm enough; if not, then not. You can't depend on the thermometer, but the chick's appearance and attitude never lie.

You will find brooding chicks by the hundred a more difficult matter than handling small hatches. Your losses will be greater, but labor will be lighter, so the two balance pretty well. Just the other day I visited a brooder house where 1000 chicks had been brooded. It was a very simple affair, just a square house with hot air coming up in the middle from a stove outside. Had the heat come up through that hole in the floor with nothing above to keep it from being dissipated through the house, the chicks could never have been kept warm, but there was a sort of hover above the hole, just a board affair, without felt or cotton, but it kept the heat at the level of the floor, and 90 per cent of the chicks had lived and thriven. The owner admitted that he preferred hot water to hot air for brooding, but the hot air brooder was what he had, and the chicks had done pretty well because they were warm.

A good many people have tried in the past to make us believe that there is a terrible hobgoblin called white diarrhoea that stalks through the country seeking to devour every baby chick. Don't let them scare you. I think they've rather had the wind taken out of their sails of late by the experiment stations which have found that while there is a disease they call bacillary white diarrhoea, it isn't nearly as common as we once thought, and that nearly all the deaths of baby chicks which are apparently caused by diarrhoea, are really caused by chill.

We Give Away Shetland Ponies to Boys and Girls

Send in Your Name Today----Just the Prize Every Boy and Girl Wants

Wouldn't you like to own a nice gentle Shetland pony, one that you could ride and drive to school or anywhere? Well,—here is your opportunity to get one, without its costing you one cent of your money. You might just as well have one of these Shetlands as anyone. I have given away many fine Shetlands and now I am going to give away some more to advertise this paper, and the first thing for you to do is to send me your name and address on the blank printed below so I can write and tell you all about it. You can get one of these Shetlands or a fine, gentle Hungarian pet pony easily and quickly, for doing a little work for us that you can easily do during your spare time. Many other boys and girls say it is easy, and I believe you will say it is easy, too.

You Can Get a Shetland Like This One

DO YOU WANT A SHETLAND?

My plan is an easy way to get one. Many boys and girls who have to walk to school have sent to me for a Shetland pony. It don't make any difference where you live outside of cities of over 25,000 population, or what you do, you have just as good an opportunity to get one of these Shetlands as anyone. It costs you nothing to enter and as soon as we receive your name and address we will send pictures of other ponies we have given away and tell you all about it. We are going to give away three ponies and many other fine prizes and money Saturday, March 24, 1917, to boys and girls who do some work for us that will be easy for them to do. With the first prize pony, "Sparkle", we will give away a fine pony runabout and harness.

A PRIZE FOR EVERY BOY AND GIRL

And here is another important point. If you send us your name and address at once you will be entitled to take part in the Extra Prize Awards and you can sure earn a fine camera and gold watch or other valuable prize. You cannot lose, everyone taking part will receive a prize or cash for the work done.

These ponies we give away are all gentle and well broken and safe for children to ride and drive. A Shetland pony is a child's horse and they are loving and kind and learn to do many cute tricks. They are valuable animals, too. A Shetland pony would make the nicest present a child could possibly own.

Fathers and mothers who want a Shetland for some member of the family should take advantage of this opportunity.

Each Pony Is Gentle and Well Broken

What They Say:

I have already given away many fine Shetland ponies and pony rigs to boys and girls, and if you haven't a pony, now is your time to get one. And the boys and girls who received these ponies have written and said that they were delighted with their ponies, and you would be, too. Some say they have been offered $200 for their pony and outfit and wouldn't accept it, so you see these are valuable prizes we give away.

Hanford, Cal., Dec. 30, 1916.

Dear Pony Man: I received "Mary" the day before Christmas, and brother Arnold and I went with Grandpa to get her. I was so pleased to get her and the outfit. Many thanks, and I would advise all little boys and girls that want a pony to enter as I did.

Charles Edwin Teague.

Downey, Cal., Dec. 29, 1916.

Dear Pony Man: Words fail me when I try to thank you for the beautiful little bay and white Shetland pony which you sent me with saddle, blanket, and bridle. He is as clever as he is beautiful, and I know there was no boy more happy than I was when my pony came to me .

You have been only too good to me for the amount of subscribers I sent in. Thanking you again for my pony and your kindness to me, I am sincerely,

Leslie B. Riggins.

Ventura, Cal., Oct. 27, 1916.

Dear Pony Man: I want to thank you very much for the fine pony "Trixy" which you sent to me. We all think a great deal of her. She is as gentle as can be, and she lets me on her back without either saddle or bridle. We were very much surprised to see such a fine buggy and harness—surely it was far above our expectations. It is certainly fine and dandy.

Thanking you again for my dear pony, I am ever a friend,

Beulah De Witt.

If you would like to know about how to get one of the Shetland ponies we give away sign this blank and mail it today to Pony Man, California Cultivator, 115-117 North Broadway, Los Angeles.

Please tell me how I can become the owner of one of the Shetland or Hungarian ponies you are going to give away.

My Name .....

My Address .....

R. F. D. or St. Address.....

State .....

My Father's or Mother's Name.....

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Address all Communications to PONY MAN, CALIFORNIA CULTIVATOR, Los Angeles

If the baby chick is chilled during the first two or three days, the yolk of the egg, which was taken into its abdomen the day it hatched, cannot be digested there is diarrhoea or perhaps constipation, and the chick, being at first a very frail little creature, loses its slender hold on life.

Others will tell you it is eating too soon that kills baby chicks. Don't believe them, either. A chick does not care to eat till it is nearly 48 hours old. When it has had its sleep out and begins to feel good and chirpy, peeping out through the feathers of its mother's wing, if it is fortunate enough to have a mother, hunting in the chaff and sand on the brooder floor for eats, if it has only a foster-mother, then it is time to feed, no matter how old the chick is. A little common sense goes a long way in raising chickens, George. If you once understand the chick and its needs you can raise them any old way, under the kitchen stove, about a jug of hot water, or in a box without any heat at all. But write this large on the pages of your understanding, that the first need of the baby chick, and the second, and the third, is warmth.

Here's hoping you will have better success with the next hatch.

Aunt Jenny

Wonderful Egg Producer

Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and make hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs" and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this year's production of eggs, so if you wish to try this great profit maker, write E. J. Reefer, poultry expert, 4262 Reefer Bldg., Kansas City, Mo., who will send you a season's supply of "More Eggs" Tonic for $1.00 (prepaid). So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied your dollar will be returned on request and the "More Eggs" costs you nothing. Send a dollar today or ask Mr. Reefer for his Free poultry book that tells the experience of a man who has made a fortune out of poultry.—Adv.

Limited Number of Chicks from Hens That Laid 194 Eggs Each Last Year

Wishing to help poultrymen to get high grade stock for building up their flocks, we have made arrangements so as to offer a small number of chicks from F. M. Molby's famous 194-egg hens.

So long as they last we make this offer: With every order for 500 White Leghorn chicks we offer FREE 25 Molby chicks and with every order for 1000 chicks we offer 50 Molby chicks free.

SCHOFIELD and OLSEN AT VAN NUYS will sell choice pullets 10 weeks old, all broken to roost at 55c each. This is for a short time only. Address all communications to

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Baby Chicks fed on Milk Diet don't have bowel trouble.

Laying hens lay more eggs on Milk Diet.

We would like to tell you about Milkoline, which is a condensed buttermilk product from one of America's largest creameries. Write for particulars and prices.

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BARGAINS - BARGAINS
Mandy Lee Incubators

We are selling out our line of Mandy Lee Incubators. While they last we will offer 140-egg Mandy Lee Incubator for $15.00 f.o.b., Los Angeles. This is less than we paid for them. Absolutely guaranteed. Other sizes for sale. Send for catalog.

GLOBE MILLS Los Angeles, Cal.

Educational Committee's Report

California State Poultry Breeders Association

By C. A. Wilkins, Secretary

A MEETING of the educational committee of the California State Poultry Breeders' Association was held in the Chamber of Commerce rooms, Sacramento, November 4. After discussion regarding the Breeders' Association and its best interests, it was decided to visit the university farm at Davis with a view of gaining all knowledge possible regarding the industry. On arrival at Davis we were met by Prof. J. E. Dougherty and escorted to his office and there discussion was opened relative to the poultry industry.

Regarding the matter of instruction at Davis we find the number of regular students total 50, short course 55. Considerable investigation work has been done by the division but the results have not been made known to the breeders owing to the fact that no publicity work is issued by the division other than the bulletins of the university. It is the opinion of this committee that a bulletin should be issued monthly by the division to all breeders throughout the state upon application. Much larger research work could be done with greater appropriations, and the department seems to be doing everything possible with the limited funds at hand.

Ten acres is devoted to the poultry plant and more land can be had whenever requirements demand. All standard makes of incubators and brooders are used for instructional work among the students. Fifteen hundred White Leghorns are used in the experimental work and about 300 of other breeds. It seems the White Leghorn is the cheapest bird to experiment with and nothing more will be done with other breeds until more funds are at hand to purchase breeding pens of other varieties.

In the matter of research and ex perimental work and instruction the committee feels there should be a better representation of standard bred poultry covering all classes and thereby giving all breeders a chance to know the results that are obtained by this department from the respective breeds.

The department does not favor exhibiting the stock of Davis farm at state fairs or any local fair at the present time. This committee does not favor this idea, and we believe the division should exhibit at all fairs whenever possible so to do, even though they do not enter into competition with other breeders. We feel as though birds should be shown in order that breeders may have the benefit of the work of this department.

Regarding egg contests, Professor Dougherty thinks this is one of the best things that can be done to stimulate breeding. The following suggestion was offered by him, namely, that 50 poultrymen among the membership of the state association be appointed as an advisory committee to confer with him quarterly with a view to estimating the results and offering suggestions for experimental work which would be of greater benefit to the poultry industry of this state. We recommend that the president appoint this committee at the earliest possible date.

The total amount invested in the poultry department at the Davis farm is about $50,000. The sum required for overhead expense is about $25,000. In order that the department may be placed in a position to do more experimental work the committee feels that something should be done towards obtaining additional funds for the proper maintenance of this department. With this additional fund Professor Dougherty states many new features could be introduced. A bacteriologist and extension workers could be provided and better equipment supplied. More publicity is needed.

To establish closer relationship between the breeder and this department we must have the hearty cooperation and support of each and every member, and in order that this department may be made of greater value to the community by the proper securing of legislation and funds, each breeder by consulting the state assemblyman and senator in his district, could do valuable work if they make it known to the state officers in their respective districts just what legislation and funds were needed by the poultrymen of this state. Signed.—John T. Skelton, A. H. Currier, James D. Yates, F. H. Green, C. A. Wilkins.

BLUESTONE FOR COLDS

"Many poultrymen have been using permanganate of potash to prevent the spread of colds and other catarrhal diseases," says a bulletin from the Storrs, Connecticut, agricultural experiment station. "During the past two years this product has risen in price from 50 cents a pound to $2.50 and $3.00 a pound. Thus it is not surprising that a good substitute is being looked for. One authority suggests the use of bluestone or copper sulphate which can be used as follows: Dissolve four ounces of the bluestone in a quart of water, this to be known as a stock solution. Add one ounce of this solution to each gallon of the drinking water. This can perhaps be well used for a short period but should not be too long continued. Furthermore, one ought to use enamelled or earthenware vessels as the copper sulphate solution may produce undesirable chemical changes when used in galvanized pans."

Leland Fobes of Loomis has been elected director of the Sacramento Valley division of the Poultry Producers' Association of Central California vice Leonard W. Eskridge resigned.

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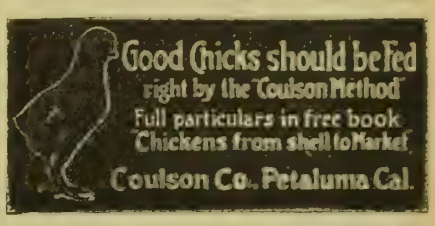
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Recleaned Alfalfa Seed, good quality, excellent color, high germination test; common variety 17c, Smooth Peruvian 24c, and the famous Hairy Peruvian 30c per pound, delivered your railroad station. Do not buy until you have compared my samples with seed others offer. E. F. Sanguinetti, Yuma, Arizona.

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Giant Winter Rhubarb Plants. Big profits. From ⅝ acre first season after planting I sold 675 boxes rhubarb, receiving $673.70. Grand prize San Diego Exposition. Big discount on plants for prompt orders. Booklet free. W. A. Lee, Covina, Cal.

Sweet Clover—The best legume known for introducing nitrates into soil. A large-producing, non-bloating forage and hay crop. Stands alkaline conditions well. Seed 15c per lb. V. M. Shuey, Manzanar, Cal.

Berry Plants—Loganberry, phenomenal berry, Cuthbert raspberry, Lawton Mammoth and Himalaya blackberry. Now ready. Prices lowest. M. J. Moniz, Sebastopol, Cal.

Strawberry Plants, Brandywine, Klondyke and Winner. The Winner plants the finest for home markets. Plants best I ever offered. 12 years in business. E. H. Learned, Route 1, Burbank, Cal.

Cory's Mammoth Thornless Blackberries. Orders are being booked now for February delivery. Prices and other information upon application. Ekstein Nursery Co., Sole Distributors, Modesto, Cal.

Florida Sour and California sweet seedling orange seed from cultivated Florida and California groves. Order early. Milo Hunt, Whittier, Cal.

Alfalfa Seed—Recleaned. Buy direct from grower. Get the best. Prices and samples on request. State quantity wanted. The Hollis Ranch, Thermal, Cal.

Mr. Alfalfa Grower—Permit me to send you samples and prices of alfalfa seed; common and Peruvian. Best seed at lowest prices. O. C. Nordahl, Bard, Cal.

Ever-blooming Choice Roses 12 for 50 cents postpaid. All will bloom this summer. Kavan Nurseries, San Bernardino, Cal.

Alfalfa Seed—The very best, guaranteed 16c. Wm. Stuthman, 1239 West Pico St., Los Angeles, Cal.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

Wagner's Giant Crimson rhubarb roots. $2.00 per 100, 5c each, small lots. Currier Bulb Co., Seabright, Cal.

For Sale—1000 pounds garlic, large white, common 10c lb., f.o.b. Fillmore. F. E. Atmore, R. No. 2.

WANTED

Wanted Information — A general plan showing best income from farming with $10,000 cash capital. Fruit, stock, crops, dairying or anything. Will give $10 for the best practical answer. Give location, where plan can be carried out. C. Painter, Box 5, Laguna Beach, Cal.

Wanted—Position on ranch by married man. Can care for fruit ranch or diversified farming in first class manner. 10 years' California experience, both citrus and deciduous orchards. Give me a chance. Wm., Box 3, Cultivator, Los Angeles.

Wanted—Men, with rigs preferred, in each California county to represent California's largest and most read California weekly. Good pay and permanent connection to right persons. Address Circulation Department, California Cultivator, 115 North Broadway, Los Angeles.

Wanted—Salesmen and Agents in every city and town on this coast to represent this company. A cracker-jack proposition for live wires. General Sales Agent, 414-424 9th St., San Francisco.

Married Man wants position to take charge of ranch. 12 years' experience. Best of reference furnished. B. W., care Cultivator, Los Angeles.

Wanted to Lease or as manager, fully equipped dairy ranch by dairyman of ability and experience. Address X, Cultivator office.

Wanted—Mammoth Pekin ducks only, also eggs for hatching. Address Robert Baldwin, R. F. D. No. 1, Box 161, Corona, Cal.

Wanted—Lowest price on 2000 to 3000 Citrus Trifoliata Seedbed Stock. Give size, age and condition. Address Box B, Cultivator office.

LUMBER

AAA—Lumber, New and Second-Hand; rough, $10 M; finished, $15; "A" R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St., San Francisco, Cal.

PATENT ATTORNEYS

Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS".

FARM LANDS FOR SALE

SANTA CLARA VALLEY—ONLY ONE HOUR FROM SAN FRANCISCO

My specialty is income and orchard properties. I sell no junk or over-priced places. Exclusive bargains for this week:

10 A. full bearing apricots, other fruits, house, barn, well; big income; owner going away. Sacrifice at $6250; only $2250 cash. The place is worth $7500.

11 A. young cots and prunes, near highway; irrigation; big barn; house big enough for garage; chicken house, etc. Positively bargain at $6250, only $1000 cash, balance as you like.

130 A. grand view; timber; living stream; fine for stock; midst rich men's homes. Only $15,000. Terms.

157 A. redwoods, living stream, good road, only $5000 terms.

10 A. fine fruit soil; young trees to be set out soon; $425 per acre; any terms.

40 A. rich soil, near highway; best orchard soil, irrigation; less than $400 per a. Only $5000 cash. No other bargain like it.

1 to 5 A. orchard home sites; some with oaks and creek frontage, only $150 per a. down, nothing for 3 years.

13 A. part cots; no house; fine view; $7500; terms. Worth $10,000.

Write me for further details, or for any kind of place you want. I have it.

W. D. WASSON, PALO ALTO, CAL.

10 Acres, irrigated, 4-room house and barn, chicken houses, 2 miles out, $2000. 30 acres, irrigated, checked, nearly new cottage, 40x52 barn and tankhouse, with concrete floors, other outbuildings, fenced hog tight, $6500. 80 acres, on Highway, 2 miles out, very level, for alfalfa, corn, rice, $10,000. 145 acres, on river front, nothing better anywhere for walnuts, prunes, etc., 55 acres alfalfa, complete dairy, electric light and power, subdivision 1 mile selling at $250. My price $125 per acre. 640 acres, level and rolling, house and barn, finest soil for almonds, lands nearby selling at $75 and $100. My price $30 per acre. 720 acres in foothills, 15 miles from R.R., easy auto and stage road, 150 acres has been plowed, 35 acres alfalfa, 3000 cords of wood in large trees, no brush, 7 room house, barn and other outbuildings, windmill, garden and some fruit. A pretty and very cheap place at $15 per acre. JOHN C. MOGK, Colusa, Cal.

NO PAYMENT DOWN!

FARMERS ARE MAKING GOOD IN THE "PROJECT OF NO REGRETS" AT ORLAND, CAL. WATER FURNISHED BY UNCLE SAM. WE SUPPLY THE LAND AND ASK NO PAYMENT UNTIL YOU CAN MAKE SAME FROM CROPS: NO BETTER SOIL FOR ALFALFA, ALMONDS, OLIVES, ORANGES, LEMONS, ETC. WRITE US FOR U. S. GOVERNMENT REPORT AND BOOKLET "ORLAND FARMS."

F. D. BURR CO.,
253 RUSS BLDG., 235 MONTGOMERY ST.
SAN FRANCISCO.

For Sale—80-acre improved foothill ranch, 12 miles east of Porterville. 30 acres citrus land now in wheat; 15 acres alfalfa land; hog fencing; pasture; timber; river; railroad adjacent. Modern new house (furnished if desired), gas plant, furnace, etc. Five outbuildings; implements; live stock. Nothing delapidated. Ideal place for country life. Sacrifice $25,000. $17,000 will handle. Address New, Box 3, California Cultivator.

Oregon & California Railroad Co. grant lands. Title to same revested in United States by act of congress dated June 9, 1916. Two million three hundred thousand acres to be opened for settlement and sale. Power site, timber and agricultural lands. Containing some of best lands left in United States. Large sectional maps showing lands and description. Price $1.00. GRANT LANDS LOCATING CO., P. O. Box 610, Portland, Oregon.

For Sale—320 acres fine sandy loam soil 5 miles northeast of Modesto, 1½ miles directly south of Riverbank in Modesto Irrigation District, average yearly water cost less than $1 per acre. Land suitable for alfalfa, grapes, deciduous fruits or farm trucking. Will sell as a whole or in 20-acre tracts. Average price $150 per acre. Will make suitable terms to parties buying for improvement. B. F. Kierulff, 757 S. Los Angeles St., Los Angeles.

California Land $1.00 Per Acre Cash, balance 90c per month per acre. Immediate possession given. No taxes, no interest. Level San Joaquin Valley. Only four hours from San Francisco. Five acres up. Clear; ready to plow. Open ditch irrigation $1 acre per annum. Particulars, maps, photos, free. Stevinson Colony, Desk E, 785 Market St., San Francisco.

For Sale or Rent—80-acre ranch 7¼ miles west from Bakersfield, one-half mile from paved highway and Rosedale store. All under cultivation; good pumping plant, 140 inches water at 8-foot level; plenty buildings, telephone, good sandy loam soil. Price $150 per acre. W. F. Marks, owner, 226 South Main St., Los Angeles, Cal.

For Sale—Highly improved dairy ranch, 66 acres. New buildings, modernly equipped; best of soil; 1 mile to Merced and creamery, ¼ mile state highway. Reasons for selling. If you are in the market for something good, see this ranch. If you mean business correspond with owner for fuller description, price, terms, etc. Box 644, Merced, Cal.

What Do You Pay for potatoes, butter, eggs, bacon, ham, beans, grains, fruit and many other food products? Let me show you good California land with water at $150 per acre. Near town, school, railroad, state highway, etc. Be a producer. J. H. Dickey, 627 Citizens National Bank Building, Los Angeles, Cal.

For Sale—Finest kind cranberry peat land, 1 to 5-acre tracts at $200 per acre; similar land nearby producing 150 barrels cranberries to acre. Monthly payments if desired. Henry S. Gane, R. F. D. No. 3, Santa Barbara, Cal.

For Sale—Excellent lands, San Luis Obispo Co., $10 to $25 per acre. Inquire about them. Carl Dewlaney, Santa Margarita.

Free New Blue Booklet—State, government and Indian lands. Bargains overlooked. Joseph Clark, Sacramento.

Money to Loan on Farms, city and suburban property. C. G. Paul, 407 Chamber of Commerce Bldg., Los Angeles.

Write for List of ranches and homesteads. Low Priced Lands Company, Carmel, Cal.

FARM LANDS FOR SALE

For Sale—1700-acre ranch near Roseburg, Ore., at $27 per acre. Half of it can be plowed with tractor. Fine sheep ranch. Similar ranches in California would cost 3 times this price. Good farm buildings. Right near railroad. Henry S. Gane, R. F. D. No. 3, Santa Barbara, Cal.

Land For Sale in Solano County, Cal. 160 acres known as Northwest Quarter, Section 28, Township 20, Range 2 West, in northwestern part of Solano County. Low price and easy terms to the right man. Address M. A. Green, 822 Mission Street, San Francisco, Cal.

Ideal Location for Poultry Ranch—2½ acres 2½ miles from Hayward; good drainage, fine view; can be purchased on terms at very reasonable price. Will sacrifice. Iver Blomgren, Hayward, Cal.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit". It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

Second Hand Pipe For Sale—All sizes standard water pipe and screw casing, half inch to ten inches. Also valve and fittings. Guaranteed good as new. Cheap for cash. Write for our prices. Weissbaum Pipe Works, 169 Eleventh Street, San Francisco.

The Quickedge Sharpener abolishes the greatest household annoyance — dull knives and shears. Sharpens them in ten seconds. For particulars call or write G. Sherwood, 631 Homer Laughlin Bldg., Los Angeles.

Buy Salmon at Wholesale—Fish world's famous Puget Sound Salmon 100 lbs., net salmon in brine $6.50; 20 lbs. smoked salmon $2.50; 20 lbs. net salmon bellies in brine $2.50. T. A. Beard, 4322 Winslow Place, Seattle, Wash.

Study Telegraphy, Stenography, Bookkeeping, Law, English. Board, room and tuition may be earned. Catalogue free. Mackay Business College, 911 Main St., Los Angeles.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

MACHINERY

USED RANCH TOOLS, WINDMILLS, TANKS, PUMPS, ENGINES, PIPE

16-ft. windmill, fine for irrigating, cost $250, for $125; 8-ft, $21.50; 10-ft. $29.50; 12-ft., $55. Complete windmill outfits or any part. TANKS. TANKS. New 1000-gal. galv., $28.50; 2000, $38.50; all sizes new used wood tanks, 100,000-gal. Redwood tank, fine for reservoir, $400; 8-hp. boiler, 80-h. boiler, $195; 75-h. steam engine, $350; 12x12 compressor, $250; 14-in. riding plows, $15 and $22.50; 14-in. moldboard, $27.50; fine 2-gang riding plow, $45; 3-gang disc plow, $60; Fresno, $10; walking plows, spike harrows, 2-h. riding cultivator, $22.50; alfalfa renovator, $28; manure spreader, another fine BULL TRACTOR, $350; new Samson tractor, $550 f.o.b. Thermal, 20-40 tractor, $600; steel cable 5c; cement mixer, $35; mounted sprayer, $19.50; mowers, rakes, seeders, buck rake, $25; Autofedan h.p. baler, $75; 250 ft. 7-in. irrigating pipe, 16½c; bone cutter, $9. PUMPS SPECIAL: No. 3 AMES double acting, with 150-ft. 7-in. pipe rods, 6-in. double acting cylinder, $300, all complete (head alone cost $660). No. 2 Ames double acting pump, $95; horizontal and vertical single and two-runner centrifugal pumps, all sizes. Fine Means deep well, double acting pump, good for 50 inches, $300; plunger pumps, all sizes, brass cylinders, pipe, rods to suit; 1½-hp. International engine, $25; 2-h. Fairbanks, like new, $55; 6-h. Oriental, $65; 14-h. St. Mary's oil burning engine, new, $350; 12 Fairbanks, $195; many other sizes gas engines, power blower, horse powers, winches, sundries. Material as represented. We buy tools if in good shape. Trade us what you don't want for what you do, with little cash. DEMMITT CO., UPSTAIRS 120 N. Main. YARDS, 816 Yale, Los Angeles.

IRRIGATION ENGINEERS

Contour Tree Staking, pumping plants, pipe lines, flood control and conservation. Bennett & Duling, Engineers, 1125 Central Bldg., Los Angeles, Cal.

TURKEYS

Bronze Turkeys — Panama-Pacific and 1916 California state fair winners. Guaranteed Eastern strains. Choice lot of stock toms for sale, also eggs in season. Correspondence solicited. John G. Mee, St. Helena, Cal., R. F. D. 3.

Choice Mammoth Bronze Gobblers for sale. We won first at California State Fair and Oakland show. Eggs in season. N. E. Mulick, Willows, Cal.

AGRICULTURAL IMPLEMENTS

For Sale—One orchard cultivator, 1 disc harrow, 1 cross reach orchard truck, 1 walking plow, 1 drag harrow and several other implements. Also one second-hand wagon, slightly used. Cheap for cash or time. Arnott & Co., Wholesale Implements, 112 to 118 South Los Angeles St., Los Angeles.

For Sale—Panel top wagons, 3 open delivery wagons, 2 buggies. Cheap for cash or time. Arnott & Co., Wholesale Implements, 112 to 118 South Los Angeles St., Los Angeles.

HORTICULTURAL PRINTING

Catalogues — Good Printing. Specialists in preparing nursery, seed, poultry and live stock catalogues and all kinds of commercial printing. For prices and information address WOLFER PRINTING CO., 115 No. Broadway, Los Angeles.

Perfect Printing Pays. We do it. Highest class work. Letter heads, folders, catalogues, etc. Write me before placing your order. G. C. Gallagher, The Service Printer, 441 Sacramento St., San Francisco.

FARMS WANTED

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

DOGS

Fox Terrier Puppies For Sale. Inquire of Dixon Poultry Yards, Dixon, Cal.

SORGHUMS

The sorghums are generally classed into two groups, says J. F. Nicholson of the University of Arizona. "The saccharine, a mild sorghum used for syrup making or for forage, and the non-saccharine sorghums, sometimes called grain sorghums, used for grain and forage.

"The grain sorghums are of tropical origin, and flourish best in hot climates. They are particularly drouth resistant, and admirably adapted to the semi-arid regions of the South. They reach their best development under eight to ten inches of rainfall during the growing season.

There are three general types of grain sorghums classified according to the character of head: Kafir, with compact, erect heads; durra, with compact, pendant heads; broom corn type, with loose spreading heads.

"The varieties of grain sorghums profitably grown in Arizona that belong to these types are as follows: Black hull white Kafir, dwarf and standard, white milo or durra, yellow milo, generally called milo maize, dwarf and standard, feterita, one of the durras, shallu, a broom corn type, sometimes called Egyptian wheat, kowliang, another broom corn type."

ONE WAY OF FIGHTING MORNING GLORIES

The Colorado Agricultural College gives another way of fighting morning glories:

"If amber cane or sudan grass do well in your locality, probably the best thing you can do to clean up land infested with morning glories, will be to plow at least twice each year and produce a heavy crop of cane or sudan grass on the land. These crops, if they do well at all, do so well as to smother out almost any other growth. With early disking and plowing before the preparation of the seed bed and by plowing after the crop is removed, seeding of the morning glories can almost be prevented. It is necessary to prevent seeding, if the crop is to be killed out. It is quite likely that such treatment will have to be repeated for two or three years in order to be really successful."

A bill providing for the eradication of yellow star thistle and other injurious weed pests has been introduced by Senator Duncan of Oroville. This bill is the result of efforts put forth by the Sacramento Valley Development Association, their interest having been aroused because of the seriousness of the aforementioned thistle in certain counties of the Sacramento Valley, and the great difficulty experienced in its control.

A pure seed bill has been introduced into the legislature by Senator Rigdon of San Luis Obispo County.

COMMERCIAL HELPS AND HINTS

Don't fail to learn about soil bacteria. An interesting booklet called Westrobac will be sent free by the Western Soil Bacteria Company of San Francisco.

Don't neglect to save the furs from the wild animals you catch. They are worth money. Write E. R. Skinner and Co., Sacramento, for full information.

Don't forget to read the advertisements in the Cultivator. They show what you want and tell you where to get it.

The new catalogue of the Valley Seed Company of Sacramento has just been issued. It's worth writing for.

Morse's 1917 seed catalogue is just off the press. It's better than ever. A postal request will bring it.

The Cunningham land roller pulverizes the soil most perfectly. A circular of this valuable farm implement will be sent free by the Spalding-Robbins Disc Plow Co., San Francisco.

"HOGS FOR PROFIT"

Mr. R. H. Whitten has issued a unique and exceedingly attractive publication, "Hogs for Profit". Mr. Whitten's office is in the city of Los Angeles; his ranch near Terra Bella in Tulare County. Mr. Whitten's favorite is the Poland-China of the Big Type. In his booklet he says: "The chief demand of the practical farmer is for size—not at the expense of quality, but with quality. He wants a hog that will ripen quickly for market at 200 to 250 pounds, if desired, or that may be profitably carried to 500 or 600 pounds, or even more. To get these results he must have foundation animals that do not stop growing until they attain an enormous size. Big boars and big sows mean big pigs at farrowing time. Big pigs grow faster and make greater gains. And economical gains are what every man in the hog business wants."

A Pennsylvania Farmer Says Concerning Electric Motors on His Farm

"A one-horse power motor is located in the spring house for separating milk, churning butter, turning a grinding stone, etc.

"In the house, my wife has a ⅙-horse power motor for running a washing machine. This motor can be attached to any lamp socket.

"In the barn a 15-horse power motor mounted on a little truck may be moved to any part of the barn or barnyard for grinding feed, baling hay and threshing grain. By extending the cable we have used this motor 400 feet from the barn."

This letter suggests equally profitable installations around your house and barns. The General Electric Company manufactures all sizes of electric motors for farm use. Information will be gladly furnished by your lighting company or our nearest motor agency.

General Electric Company

Los Angeles Office: Corporation Bldg.

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Solid comfort

When the rains and cold weather come, be comfort-prepared with a good oil heater.

A gallon of PEARL OIL gives 9 hours of intense, odorless heat.

Prices: $3.75 to $7.75

Perfection Oil Heater

Dealers Everywhere

STANDARD OIL COMPANY
(California)

Household Department

AN OLD VALENTINE

When slumber first unclouds my brain
And thoughte is free
And sense, refreshed, renews her reigne,
I think of thee.

When next in prayer to God above
I bende my knee,
Then, when I pray for those I love,
I pray for thee.

And when the duties of the day
Demand of me
To rise and journey on life's way
I work for thee.

Or if, perchance, I sing some lay,
Whate'er it be,
All that the idle verses say
They say of thee.

For if an eye whose liquid light
Gleams like the sea
They sing, or tresses brown and bright,
They sing of thee.

And if a wearie mood, or sad,
Possesses me
One thought can all times make me glad,
The thought of thee.

And when once more upon my bed,
Full wearily,
In sweet repose I lay my head,
I dream of thee.

In short, one only wish I have—
To live for thee,
Or gladly, if one pang 'twould save,
I'd die for thee.

A VALENTINE REVIVAL

DR. MARCH, on his rounds, dropped in to see Annie Tupper as a matter of course. Annie was a cripple and dependent for a home upon her married brother, a hard-working mechanic; and though her good friends, busy folk all, called as often as they could to make sure that comforts were not lacking, she spent many hours alone. When Annie saw who was at the door her face brightened with pleasure, for the bluff, kindly old surgeon had been her friend and confidant for many years.

"What's all this, Annie?" he asked with interest; "been playing paper dolls all by yourself?"

She laughed in some embarrassment "There, now! I was hoping you didn't notice; but of you won't tell I'll let you into the secret. Well, doctor, I'm making valentines."

"Valentines!" There was wonderment in his tone.

"Sounds foolish, don't it? But it's like this: Sitting here alone, I guess I think more about the holidays than if I was up and doing; and sometimes I get low-spirited, thinking how much more they used to mean than they do now. Wicked, ain't it, and me so well fixed? The other day, when I saw how near the 14th was, I began thinkink about the days when I was young and straight and pretty and used to get a peck of valentines every year. I was getting real sorry for myself, when all of a sudden, thinks I, 'Annie Tupper, do you s'pose your plain, middle-aged face is the only one St. Valentine don't notice nowadays? How many of your friends that's over fifty ever see a valentine any more?' To be sure, their lives are fuller'n mine, so maybe they don't miss such things much! but all the same I bet they like it when some one remembers. So I made a list of the getting-middle aged ladies with no beaux or husbands, and the married ones with husbands that look too busy or matter-of-fact to remember birthdays and Valentine days and such things, and I made up my mind I'd send 'em each a little remembrance my own self even if it wasn't much.

"I think it's a beautiful idea," said the doctor, heartily. He was deeply touched by the thought of those patient hands undertaking such a labor of love; he wondered, too, whether his own quiet, gray-haired wife was on the list, and counted remorsefully the years since he had remembered her violets on the good saint's anniversary. "You're a good little soul, Annie!" he added, impulsively.

"Not such a saint as I might be," Annie confessed, with a twinkle of fun in the brown eyes; "sometimes, looking through the list, I can't help being tickled, thinking what good subjects for 'comics' some of 'em would make. There's Mrs. Adams' slack housekeeping, and her bonnet over one eye; and the way Mrs. Wood gossips; and Mary Trask, with her big hats and short dresses and high heels, trying to look like a spring chicekn; and—oh! lots of funny little ways that folks have. But when such things come to me, I remember how Mrs. Adams wore herself out nursing me when I had fever, and how generous Mrs. Wood is; and as for Mary, she's a perfect angel to her grumpy old father, and a master hand at cooking, as I've reason to know. Every one of 'em's been good to me, and I only wish I had something better to give than my little paper fixings."

Valentine's day arrived, bright and cold. Toward evening Doctor March could not resist dropping in to see Annie for a few moments. The invalid sat in her chair by the window, her face flushed with excitement and happiness. In her lap, caressed by her thin fingers, was a heap of bright cards and dainty trifles, while more substantial reminders of the day were in evidence.

Annie looked at him with radiant eyes, "Oh, Doctor March, what a good time I've had!" she sighed, blissfully. "Why, all day long the doorbell's been ringing, and valentines just pouring in—some of 'em so funny and cute they made me laugh, and some so sweet I 'most cried. And even my pussy cat got one—didn't you, Topsy? See the dear little bundle of catnip some one sent her! Folks have been good to me before, but it just seems as though these loving, frilly, not-useful things make 'em seem more friendly than ever. Doctor," her face clouded with sudden anxiety, "you didn't tell on me, did you? I'm afraid if wouldn't be quite so—so perfect, if people knew I was going to send to them, and wanted to sort of even up you know."—Exchange.

A VALENTINE PARTY

Written for California Cultivator by Georgie Palla

HERE are my plans for a valentine party for young folks. I live in the mountains, 1600 feet elevation, 10 miles from a railroad. The land is in large ranches and neighbors not very near, but we get together and have some very enjoyable times.

Invitations: Send squares decorated with hearts and cupids cut from red mounting paper or red blotting paper and paste on or, if handy with brush, paint or draw them.

Who's Who (guest's name).

When? When? February 14, 8 o'clock, p. m.

What? What? Valentine box, bring comic valentines for guests.

How? How? Make them or buy them.

Games: Have valentine box near door so guests can mail addressed valentines. Pin a large red heart on wall for target. Have paper arrows for each guest, blindfold and have them pin arrow on heart. Best one to receive box home-made candy. Consolation prize, all-day candy sucker.

Another game: As many words as

Your Copy is ready

ONE of the most interesting booklets ever written. It describes in detail the wonderful

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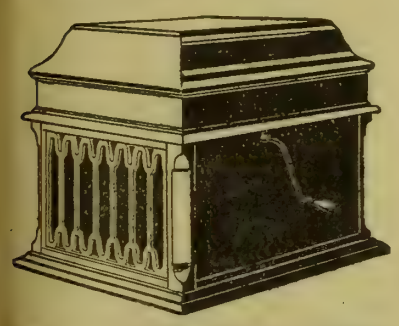
Write us today for your copy of the Free Booklet and let us tell you about our Easy Payment Plan of Purchase—a postal will do.



Prices $30, $50 and $75

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SOUTHERN CALIFORNIA MUSIC COMPANY
332-334 SOUTH BROADWAY, LOS ANGELES

Please mention California Cultivator when writing

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Plant
WAGNER'S IMPROVED
NOW

Yields $1000 per acre annually. Splendid results in six months. Special price for immediate planting (also Cactus, Berries, small Fruits, etc.) Write

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Rhubarb-Berry & Cactus Specialist
PASADENA, CALIFORNIA

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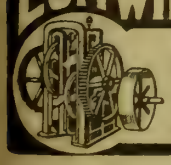
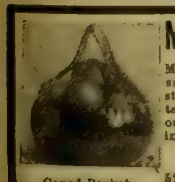


2 irrigation booklets free. Install this famous pump. Eliminate trouble. Cheaper water. Perfect service. Luitwieler Pump. Eng. Co., 707 N. Main, Los Angeles.



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520 W. 4th St., CHANUTE, KANSAS

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strengthens weak, inflamed eyes, and is an ideal eye wash. Good since 1795. Keep your eyes well and they will help keep you.

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Write for our Booklet. It is FREE
JOHN L. THOMPSON SONS & CO.
158 River St., Troy N. Y.

can be made from the words "Saint Valentine," For this game choose partners thus: Cut hearts(one-half number of guests). Write familiar verses, names of songs or proverbs on each. Cut in two; let guests match to find their partner, keeping one-half for the boys and other half for girls to draw from.

Luncheon: Fruit salad (or cocktails) in red jello, crackers, ham and mustard sandwiches, cheese and pimento sandwiches or bread and butter sandwiches. White layer cake, pink fruit color icing. Drinks: Chocolate or lemonade. Nuts, candy, red apples.

Make fruit salad from oranges diced and bananas sliced acording to "jello" directions; serve on lettuce leaf. Add spoonful whipped cream on top.

Open valentine box.

VALENTINE PARTY

Written for California Cultivator
By Mrs. Otto Kohler

TO be given the Junior High School class, an afternoon or evening affair.

Invitations

I will cut double heart shapes from white note paper, outline with red and gold (water colors) and then inscribe "To my Valentine." On the inside write the invitation. These may be cut in size to suit ones taste.

Decorations

Now comes the decorations for livingroom and dining room. I shall take red and gold color crepe paper, cut in strips about three inches wide and crinkle the edges. Now take strips of the two colors and drape from the chandelier to all the different corners of the room. When this is done cut hearts of the same colors, the red a little smaller than gold, tie the red on top of the yellow with a small ribbon, paint an arrow of gold on the red heart. Attach one of the hearts every three or four feet on the draped strips. Have one large gold heart with a red heart tied on each side to hang under the chandelier which will be over the table in the dining room or one can have a kewpie to swing under the chandelier.

The Table

Have my linens snowy white. For the centerpiece have a large kewpie wearing a big sash of red and gold ribbon. Lay plates for the number to dine. At each plate have a small kewpie wearing a red paper heart down back and front, being inscribed on the back "To my Valentine," on the front the name of the person to be served. Will have red baby ribbon tied to the small kewpies leading to the large one in the center which may stand in a mass of asparagus fern. Also have the red and gold hearts pinned on the table cloth between guests. This is very simple and pretty and the small kewpies make lovely souvenirs.

Refreshments

Hot tamales served with tomato sauce on a lettuce leaf, pimento sandwiches and sandwiches made of Neufchatel cheese and chopped walnuts mixed with mayonnaise. Cut sandwiches in heart shape with cookie cutter. Serve pickles (sweet) and olives.

A nice gold loaf cake decorated with candy hearts. If possible carry out the red and gold color.

Pineapple ice cream with chopped nuts sprinkled on top. Coffee with whipped cream.

There will be dancing and card games to help work up an appetite as these are the usual amusements in this vicinity.

NEXT HOUSEHOLD CONTEST

The next household contest will be on the Kitchen Garden. The making and the tending of the kitchen garden generally fall to the housekeeper and it is a pleasant change from indoor work—if there isn't too much of it. Of course the heavier details need man power or horse power, but many women find the planning and general care a solid satisfaction.

According to your means in time and strength, what do you find the most satisfactory kind of planting?

I know a business woman living in a tiny rented house in the city who has much satisfaction in the chayote vine growing over her back porch, the tomatoes and onions, parsley and mint, Kentucky Wonder and sweet corn in a tiny patch of ground. For the minimum amount of labor these furnished her last year many dinners of fresh vegetables. She knows nothing of farming, but "sticks in" the potatoes and beans and somehow they grow and flourish and save many a dime and dollar. This fall she visited a city bred girl who is now living on a real ranch and had a chance to see a real vegetable garden on a real acre of fenced ground where the horse and plow and the hired man are available for the heavy work when needed. There were berries and grape vines on trellises at the sides, artichokes and rhubarb at the ends and cabbage, tomatoes, etc., etc., in rows and rows, well tended, crisp and delicious.

Here is a pocket handkerchief garden and a really truly one. Which is yours? Or does yours lie in between? Maybe it's still a "some day" garden. Whatever it is let us hear what it is and what it means to you—in dollars and cents if you have records.

Cash Prizes

For best article will be given $2.00 cash; for second best, $1.00. All published will entitle sender to three months' extension of subscription to California Cultivator. With your article send name and address of one to whom you wish extension credited. These will be published in the issue of February 28 and should be addressed to Household Department, California Cultivator, Los Angeles, and mailed so as to reach this office anytime before February 17, the sooner the better.

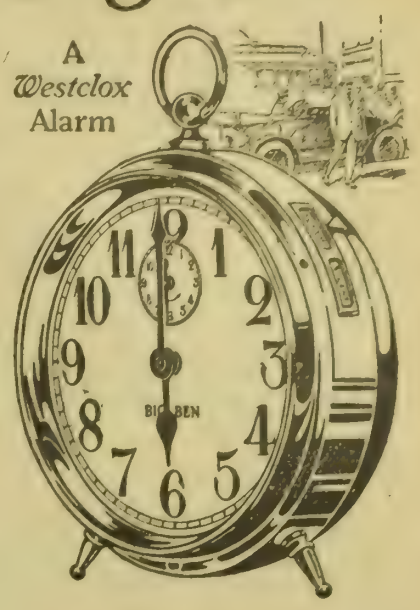
PRIZE WINNERS

Prize winners in the Valentine party contest are Georgie Palla, first, and Mrs. Otto Kohler, second.

Health authorities have been telling us for a long time that nervous disorders are on the increase and that the cause is our manner of living, our efforts for social and business supremacy. In this connection the public health service says: "So far as is known no bird ever tried to build more nests than its neighbor; no fox ever fretted because he had only one hole in which to hide; no squirrel ever died of anxiety lest he should not lay by enough nuts for two winters instead of one; and no dog ever lost sleep over the fact that he did not have enough bones laid aside for his declining years."

The need of books in the farm home cannot be too strongly urged upon the young man and woman when they begin life in the new home. Reading is something that must be indulged in often or the desire is apt to wane. Provide the living room with a generous reading table, a neat bookcase, and a desk for letter writing.

Big Ben



SIX A. M. for the big man of business—who knows the luxury of ample time—who's up before duty insists. Try Big Ben in the business of living. Set him a little ahead.

There's success in his wake. With mind alert you're on good terms with a new day.

You'll like Big Ben face to face. He's seven inches tall, spunky, neighborly—downright good.

At your jeweler's, $2.50 in the United States, $3.50 in Canada. Sent prepaid on receipt of price if your jeweler doesn't stock him.

Western Clock Co.
La Salle, Ill., U. S. A. Makers of *Westclox*

Other Westclox: Baby Ben, Pocket Ben, Bingo, America, Sleep-Meter, Lookout and Ironclad

They wear like iron—

Mayer

HONORBILT SCHOOL SHOES

Ask your dealer for Mayer Shoes. Look for the trade-mark on sole.

F. Mayer Boot & Shoe Co.
Milwaukee, Wis.

FLOOD CONTROL
Check Dams Retaining Dams
Mountain Torrent and River
Consult Flood Control Expert
Geo. Ian Maxwell
Phone Sunland 82 Box 463 R. F. D. No. 11 LOS ANGELES

Those who do not read the advertisements in the California Cultivator will miss a lot of useful information.

IRRIGATION Preparedness

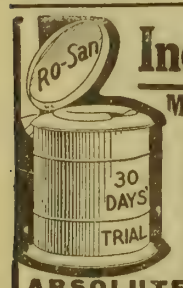
Wouldn't it be a rather good plan after a prosperous year to replace your old uneconomical plant with a newer and better one. Let us furnish it.

Or perhaps all your engine or pump needs is a good overhauling. Let us do that and we will do it right too.

SMITH-BOOTH-USHER CO.

Irrigation Machinery and Supplies

Los Angeles -:- California



Indoor Closet

More Comfortable, Healthful, Convenient

Eliminates the out-door privy, open vault and cesspool, which are breeding places for germs. Have a warm, sanitary, odorless toilet right in your house. No going out in cold weather. A boon to invalids. Endorsed by State Boards of Health.

ABSOLUTELY ODORLESS

Put It Anywhere In The House

The germs are killed by a chemical process in water in the container, which you empty once a month. **Absolutely no odor.** No more trouble to empty than ashes. Closet absolutely guaranteed. Write for full description and price.

ROWE SANITARY MFG CO. 229A ROWE BLDG., DETROIT, MICH.

Ask about the Ro-San Washbowl—Hot and Cold Running Water Without Plumbing

F-O-S-T-E-R-S

California "ASTER" Seeds, Best by Test

Crego's Lavender and White. Giant Branching Lavender and Pink. Giant Comet, all colors, Rose King and Violet King, Mixed. Large package 10c, 3 for 25c, 7 for 50c, ounce $1.00. FOSTER'S FLOWER SEED FARM, 1468 Locust St., Pasadena, Cal.

When writing advertisers, mention the Cultivator.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

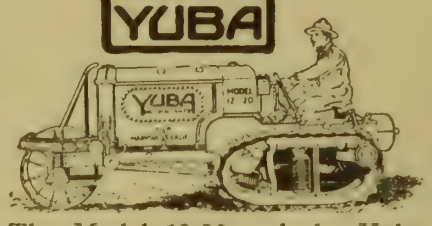
Unsigned communications receive no attention.

Trust Deed

I have a dairy ranch on which there is a trust deed about to become due. The holder will not renew same and I am not in position to pay it. The deed is in my wife's name and has never been in my name. When the trust deed and note were executed I signed with my wife. If the owner of the trust deed starts foreclosure proceedings must he not get personal service on my wife?—Subscriber.

Under the terms of the usual trust deed it is unnecessary to bring any action of foreclosure. All that is required is publication of notice of sale and public sale by the trustee. At that sale the property is sold to the highest bidder, and if sold for less, the amount of the sale is credited upon the trust deed and action may be taken upon the note for the balance due. In case the property is sold for more than the note and costs of sale, the excess is returned to the trustor. So that in the above case, since both husband and wife signed the note, both would be liable on the note if there was any deficiency.

BUY A YUBA



The Model 12-20 and the Yuba plow form a one-man outfit—even in the orchard.

An all around machine though it was designed especially for the orchard.

It plows 10 acres, cultivates 25 acres, and hauls 12 tons per shift. It will operate a 6-inch pump.

It is narrow enough to go in 7-ft. hop rows, or 7-ft. vineyards.

Write for catalogue.

Yuba Manufacturing Co.

Department B 1

433 California St., San Francisco

Joint Tenancy Deed

Is the deeding of community real estate to both husband and wife the best way to hold the property so that in case of death of either party the property would revert to the living without expensive court proceedings? If there is a better and less expensive way of accomplishing the same result please explain how one should proceed. In this case there are no children.

A deed is sometimes made to two parties, such as husband and wife, as joint tenants with the right of survivorship. In such instance, upon the death of either of the parties ,the title vests in the other. To complete the chain of title it is necessary to file a petition in the superior court setting forth the fact of the death and procuring a decree establishing such fact of record. The above method while not essential is universally required by all careful abstractors. Another method achieving the same result is by homesteading property. The additional benefit from homestead lies in securing the property against creditors both in the lifetime and after the death. As to which method is best, depends, of course, upon the nature of the business which the parties are engaged in. The same mode of procedure is found advisable in case of homestead as in the case of deed under joint tenancy.

Avoiding Probate

What can I do with my own hand and pen to prevent my property from passing through the courts at my death? I want my wife and children to have it divided without going through the courts.—Subscriber.

The efforts of the average man of any amount of property to draw more or less complicated legal papers himself or with the information derived from legal handbooks has probably been one of the most prolific sources of income to the legal fraternity. Knowing nothing of circumstances I would refrain from giving any advice other than to go to a competent attorney in your locality and consult with him upon the subject. This would cost you a comparatively small sum and would certainly be good insurance.

Title By Occupancy

A permits B to live on a piece of land. B builds a room, puts out a garden and keeps chickens. Is there any law which permits B to acquire title to the land he cultivates?—Subscriber.

In view of the fact that B has no written claim of title to the property the only possible means by which he can gain title by adverse possession is by protecting the property by substantial enclosure and cultivating or improving it and paying all taxes, state, county and municipal, levied and assessed upon the land, for a period of five years continuously. Adverse possession invariably requires that persons occupy the land under a claim of ownership; a mere permissive occupancy is never sufficient to found an action for adverse possession.

Community Property

Man and wife accumulate property after marriage; the husband signed over this property to his wife three or four years ago. Is it still community property or now can he claim one-half of the property on a separation?—Subscriber.

It is only stated that a separation had between husband and wife. In such instances any division of the property or provision for separation is usually a matter of contract between the parties. If an action for divorce is instituted the court may assign community property in such proportions as it may deem just in case the action be upon the ground of adultery or extreme cruelty. If upon any other ground the community property must be divided equally between the parties. Although the property is, as to third parties, possible community property as between the husband and wife it depends entirely upon the facts attending the vesting of the property in the wife. It is the presumption of law that a married woman in whose name title is vested owns that property as her separate property. That is, however, but a presumption and may be rebutted upon proving that there was no gift in fact. It places the burden upon the husband of proving his case.

Title

A's mother sold a piece of land to B many years ago and B after keeping it many years sold to C. C in looking up the records finds that he has no clear abstract. Now B is after A to clear it with C although A's mother is dead. A bought that piece of land and signed it over to his mother. B's lawyer now writes A that he was once interested in the property and failed to release it or his mother forgot to record it. Now all that A can see in the matter is that he lived with his mother on the farm and has a child's share in it yet. Now could you kindly tell me whether A could collect child's share by law or not?—Subscriber.

The length of time transpiring between the different transfers above noted is not given, and it does not appear whether or not A was a minor either at the time of his deed to his mother or at the time of her death or now. It would probably be the case that if B and C had lived upon this land, cultivated it or improved it in the usual manner, protected it by a substantial enclosure and paid taxes on it for a period of five years that adverse title to the land is in C, so that he could quiet title in himself by appropriate method, especially if it was shown that there was a complete chain of title with the exception of possibly somebody along the line forgetting to record a document. If A is, or during any of the time has been, under the age of majority, then the period during which adverse possession might be attained would be extended up to 20 years. It is possible, however, that A might have some interest in the property, and if it is of any great value it might pay him to consult his attorney.

WALLACE NURSERIES

(Established 1871)

TREES

ORANGES—LEMONS—GRAPEFRUIT—OLIVES

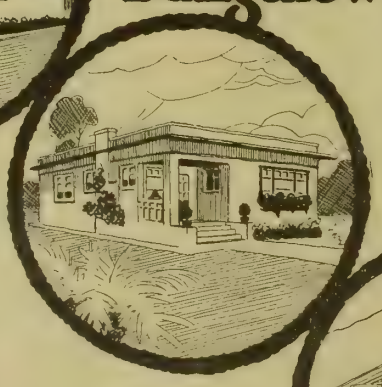
You want reliable trees. We want your business.

Real Estate exchanges considered. ORDER NOW.

SALES OFFICE: 504 I. W. Hellman Bldg., Los Angeles, Cal.

Avoid Rising Home-building Costs-

Own a California Ready-Cut Bungalow *and* Save $100 to $500



Up, UP go living and home building costs, and down, DOWN goes the cost of owning and erecting a California Ready-Cut Bungalow. Why? Because under this new way of building all waste of both labor and material is entirely eliminated. There's no waste anywhere when you erect a California Ready-Cut Bungalow. You choose the house plan you like best and we supply all the lumber, mill work, hardware, paint, etc., you need at a big saving to you. Materials are supplied cut-to-fit; just enough of each but not too much. No waste anywhere. Mail the COUPON today for complete information.

Right in your own town or neighborhood there are probably many happy owners of California Ready-Cut Bungalows. They were just like you a few months ago. They wanted to own and erect their own homes but heard so much talk about the "high cost of building" that they "put off" just as you are "putting off" building. Then they heard of the California Ready-Cut IDEA, heard how they could have the very house they wanted at bed rock prices with all waste eliminated. They learned that instead of **waiting months** they could live in their house in a **few weeks.** They learned how they could save time, save money and **then** they became enthusiasts for the California Ready-Cut IDEA.

Mail the COUPON today and find out for yourself how we can save you money.

Mail this coupon!

California Ready-Cut Bungalow Co., Dept. "C C 3", 1811 South Main Street, Los Angeles.

Please send me complete information showing how I can save $100 to $500 on your California Ready-cut Bungalows.

Name .....

Street or R. F. D. .....

Town ..... State .....

California Ready-Cut Bungalow Co.

1811 So. Main St. Los Angeles

Los Angeles Market

LOS ANGELES, Jan. 31, 1917.

BUTTER

Wholesale prices:
Rects. wk. ending Jan. 30, 259,002 lbs.
California extra creamery.....40½
Prime first 38½
Extra creamery past wk. (Prod. Exch.)

Jan.	24	25	26	27	29	30
'17	37	37	38	39	39	40½

CHEESE

Brokers' prices:
California fresh, lb. .....20@21
Longhorn 25

EGGS

Rects. wk. ending Jan. 30, 1437 cases.
Exchange quotations:
Fresh extras 34½
Case count 33½
Pullet 32
Fresh extra past wk. (Prod. Exch.)

Jan.	24	25	26	27	29	30
'17	33	32½	33	33	33	34½

POULTRY

We quote from growers:
Broilers .....25@26
Fryers .....23@24
Hens .....17@21
Roasters 22
Geese, Young 18
Ducklings, lb. .....18@20
Roosters, old 10
Turkeys .....26@28

LIVE STOCK

CATTLE—We quote cwt. f.o.b. L. A.
Beef steers, av. 1000 to 1100 lbs..8.00@8.50
Cows and heifers .....6.00@6.25
HOGS—
Heavy, av. 250 to 300 lbs.....8.75@9.25
Mixed, av. 200 to 250 lbs.....9.25@9.75
Light, av. 175 to 200 lbs.....9.50@10.00
Rough, docked 20 lbs.; piggy sows, 40 lbs.; stags, 40%.
We quote per cwt. f.o.b. L. A.
Prime wethers .....8.00@8.75
Ewes .....8.00@8.50
Lambs .....12.00@12.50
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:
Northern 3.50
Local 3.25
Lompoc 3.50
Idaho Russets 3.50
Sweet, cwt. 4.00
Seed: Early Rose, cwt. 3.25
White Rose 3.25
Am. Wonder 3.40

ONIONS

Wholesale selling price:
White Globe, cwt. 8.00
Brown, cwt. 7.50
Garlic, lb. 8

VEGETABLES

Wholesale prices:
Artichokes, doz. .....1.00@1.35
Brussels Sprouts, lb. 10
Beets, doz. bunches .....35@40
Cabbage, fy. sack 2.50
Red, lb. 4½
Carrots, doz. 30
Chicory, doz. 40
Cauliflower, doz. 90
Celery, cr. .....4.50@5.00
Cucumbers, Hothouse, doz.....1.00@1.60
Kale, doz. 25
Horseradish, rt. lb. 12½
Lettuce, doz. .....30@35
Leeks, doz. .....40@50
Mint 40
Onions, green, doz. .....17½@20
Oyster Plant, doz. 40
Peas, lb. .....13@14
Parsnips, doz. 40
Peppers, Bell 35
Radishes, doz. .....17½@20
Rhubarb—Strawberry 1.25
Crimson Winter 1.35
Romaine 50
Spinach, doz. 25
Squash—Hubbard, lb. .....2¼@2½
Chayote .....85@90
Tomatoes, crate 2.25
Turnips, doz. 40

FRUITS

Wholesale prices:
Apples—
Bellflower .....1.35@1.50
W. W. Pearmain .....1.25@1.60
Newtown Pippin, Yellow.....1.35@1.50
Bananas, lb. .....4¼@4½
Pears—Winter Nelis lug 1.50
Persimmons, lb. .....9@10
Pineapples, lb. .....9@10
Pomegranates, half box.....2.00

CITRUS

Navels 2.25
Lemons, $1.75@2.50 Juice 1.25
Grapefruit .....2.40@2.50
Limes, basket 85
Tangerines, lug 1.50

NUTS

Prices named by Cal. Walnut Growers' Assoc.

	1914	1915	1916
No. 1	16.50	13.60	15.50
No. 2	12.00	10.60	12.50
Pkgs., 16 oz. Net	.....	.....	16.50
Budded	20.00	17.00	19.00
Jumbos	18.50	16.60	17.50

HONEY

Wholesale prices:
Extr. lb. White 8½@9½c; A. 8½@9c; W.W. 10@11c; Comb. lb. W. 12½c; Lt. A., 12½@14c; W. W. 14½c
Beeswax, lb. 32

BEANS

Wholesale Prices:
Lady Washington 11.50
Limas .....8.25@8.50
Pinks .....8.00@8.25
Manchurian Reds 7.80
Baby Mex. 6.00
Small White 11.50
Blackeyes 5.90
Tepary 6.50
Garvanzos 6.00
Lentils 18.00
Idaho Pinto 5.00

HAY

We quote ton f.o.b. L. A. to producers:
Barley .....14.00@18.00
Oat, tame .....15.00@18.00
Alfalfa, local .....17.00@20.00
Northern .....15.00@17.50
Stock .....11.00@14.00
Straw .....9.00@11.00

GRAIN

Wholesale selling price f.o.b. L. A.
Wheat—No. 1 .....3.25
Corn—No. 2 yellow, 2.55; white.....2.60
Oats—California feed 2 30
Standard 2.40
Texas Red 2.90
Cal. Seed Oats 2.60
Barley—No. 1 bright feed.....2.50
No. 1 dark feed 2.45
Seed 2.60
Milo 2.30
Egyptian Corn 2.40
Rye 3.25

FEED STUFF

Wholesale, cwt. f.o.b. L. A.
Alfalfa Meal 1.45
Bran, heavy 2.00
Shorts and Middlings 2.35
Alfalfa Molasses 1.50
Meat Scraps, accd. to quan.....3.20@3.30
Beet Pulp 1.50
Cracked Corn 2.60
Cracked Wheat 3.40
Cotton Seed Meal 2.40
Bone Meal 3.45
Feed Meal 2.75
Green Bone 3.25
Middlings 2.40
Oil Cake Meal 2.40
Fish Meal .....3.60@3.70
Rolled Barley 2.55
Rolled Oats 2.45
Hulled Oats 3.30
Feed Meal 2.65; Scratch Feed..2.60@2.70
Oil Cake Meal 2.60

San Francisco Markets

SAN FRANCISCO, Jan. 30, 1917.

BUTTER

Dairy Exchange quotations, lb.:
Rcts. wk. ending Jan. 29, 296,500 lbs.
Fresh extras 39
Prime firsts 38
Firsts 37½
Extra Cr'y (Exch) past wk. & yr. ago.

Jan.	23	24	25	26	27	29
'17	37	37	37	37½	38	39
'16	..	28½	28½	28½	28½	30

CHEESE

Dairy Exchange Quotations:
Cal. Flats ....17@18½ Y. Am.....19@20
Ore. Trip. .....19½ Y. Am.....21½

EGGS

Rcts. wk. ending Jan. 29, 12,365 cases.
Dairy Exchange quotations:
Fresh extras 32½
Select Pullets 31
Fresh Ranch (Exch.) past wk. & yr. ago.

Jan.	23	24	25	26	27	29
'17	33½	32½	32	32½	32½	32½
'16	..	43½	35½	33	33½	37

POULTRY

We quote from producers, lb.
Hens, large....21@22; Leghorns ...18@20
Fryers, lb. .....24@25
Broilers .....26@28
Roosters, old ...14@15; young .....23@25
Squabs, doz. .....2.50@3.50
Ducks .....20@22
Geese .....18@20
Turkeys, dr. 27@30; live .....24@25
Belgian Hares, lv. 10@12; dr. 15

LIVE STOCK

Prices gross weight:
Cattle:
Steers, lb., 6½@8¼, cows and heifers, 4½@7¼; calves, 7@9½.
Sheep:
Wethers, 8@9½; shorn, 1½ to 2c less; ewes, 7½@8; lamb, lb., 11½.
Hogs
Hard grain fed, wt. 100 to 150 lbs., 8½@8¾; 150 to 300 lbs., 10¼@10½; 300 to 400 lbs., 9¾@10; undesirable, 4@6.

POTATOES

Wholesale selling prices at wharf:
Delta Burbanks .....2.65@2.85
Salinas .....2.75@3.00
Oregon .....2.50@2.65
Watsonville .....2.75@3.00
Yakima Gems .....2.75@2.85
Sweet, Cellar .....3.00@3.25

ONIONS

Wholesale selling price on wharf:
Cwt. .....6.50@7.50
Garlic, lb. .....3@5

VEGETABLES

Wholesale selling price:
Artichokes, doz., large 60-85; small, 35-40
Celery, cr., large, 4@4.50; small, 2.50@3.50
Cucumbers, bx., hothouse .....1.50@2.50
Lettuce, cr. .....85@1.25
Mushrooms, bx. .....40@65
Peas, lb., small, 5@8; large .....10@12½
Peppers .....20@25
Rhubarb, box .....1.25@1.75
Squash—
Cream, bx. 1.25@1.75; Hub. sk. 1.25@1.50
Tomatoes, crate .....75@1.25

FRESH FRUIT

Wholesale selling price:
Apples, bx.—Bellefleur .....60@75
Newtown Pippins .....90@1.25
Bananas, bunch .....1.00@1.50
Pears—Winter Nelis .....2.50@3.00
Other Winter .....1.00@1.75
Pineapples, doz. .....2.00@2.50

CITRUS FRUIT

Wholesale selling price:
Lemons .....1.50@3.25
Lemonettes .....1.50@2.25
Limes, Mexican, cs. .....4.00@5.00
Grapefruit .....1.50@2.50
Navels .....1.25@2.65
Tangerines, half orange box.....75@2.00
Mandarins .....1.00@1.25

PEACH PRICES

The California Peach Growers announces price list No. 6. Please note the following advance in prices, effective Saturday, November 18, 1916, at 6 p. m. All prices are f.o.b. factories, California common points, but no orders will be confirmed by us, at the following prices, unless f.o.b. factories where grades and varieties desired are available. All quotations are subject to our approval of variety and assortment, subject to our confirmation and subject to advance without notice: November, December and January shipment.

Price list No. 5 is hereby withdrawn, and ineffective after 6 p. m. Saturday, November 18, after which time prices herein quoted shall apply.

	Yellows.	Muirs.
Standard Peaches	.06¼	.06¼
Choice Peaches	.06½	.06½
Fancy Peaches	.07¼	.08⅛
Extra Fancy Peaches	.08	.08⅝
Slab Peaches		.05½
Choice Peeled Peaches		.09¾
Fancy Peeled Peaches		.11

Above prices bulk basis.
For 50-lb. bxs., unfaced, add ..... ½c
For 50 lb. bxs. faced, add ..... ⅝c
For 25-lb. bxs., unfaced, add ..... ⅝c
For 25-lb. bxs., faced, add ..... ⅞c
For 10-lb. bxs., unfaced, add 1¼c
For 10-lb. bxs., faced, add 1½c

For prices on graded peaches, original, in bags, add ⅞c to the bulk basis prices above quoted.

	—Per Lb.—	
Ungraded, original bags	.07⅛	.07⅜
Choice Unpld. 1-lb. cart.	.08½	.08⅝
Choice Unpld, 5-lb. cart.	.08¼	.08⅜
Fancy Unpld, 1-lb. cart.	.09¼	.09⅞
Fancy Unpld. 5-lb. cart.	.09	.09¾

	Per Lb.
Choice Peeled 2-lb. Cartons	.12
Choice Peeled 5-lb. Cartons	.11¾
Fancy Peeled 2-lb. Cartons	.13¾
Fancy Peeled 5-lb. Cartons	.13¼

The above prices are guaranteed against our own decline to March 1, 1917, and apply only to sales and shipments made direct to the recognized jobbing trade. No goods will be confirmed at above prices to Coast or Eastern brokers, or to speculators, it being our object to eliminate speculation in dried peaches, we preferring to carry our stock in storage here on the coast until actually required by the jobbing trade.

DRIED FRUITS

Wholesale quotations:
PRUNES—Bulk basis, per lb.: 30s and 40s, 6½c; 50s, 6¾c; 60s, 7¼c; 70s, 7¼c; 80s, 7½c.
Other fruit, 50-lb. boxes:

	Stand-ard	Extra Choice	Extra Fncy.
Apples	8 c	8½c	9 c
Apricots	15¾c	15⅞c	16 c
Peaches	6¾ 7 c	7½c	8½c
Pears	8 c	8½c	9 c

California Associated Raisin Company's prices on 1916 crop: Package Sun Maid Seeded, 36-16s, per case, $3; package Sun Maid Seeded, 48-16s, per case, $3.95; Bakers Sun Maid Seeded, 25-lb. boxes, per box, $1.75; fancy Seeded Muscats, 36-16s, per case, $3.05; fancy seeded Muscats, 45-12s, per case, $3.15; fancy bulk Seeded, 25-lb. boxes(per box, $1.75; choice Seeded Muscats, 36-16s, per case, $2.90; choice Seeded Muscats, 45-12s, per case, $2.95; choice bulk Seeded, 25-lb. boxes, per box, $1.75. (Wood cases if desired.)

Loose Raisins in 50-Lb. Boxes

One-crown loose Muscatels, floated, per box, $4; 2-crown loose Muscatels, per box, $3.25; 3-crown loose Muscatels, per box, $3.50; 4-crown loose Muscatels, per box, $3.75.

London Layers

Three-crown London Layers, 20-lb. boxes, per box, $1.50; 4-crown clusters, 20-boxes, per box, $1.75; 6-crown Imperial Clusters, 20-lb. boxes, per box, $2.60; 5-lb. boxes, 50c additional; 10-lb. boxes, 25c additional; fancy clusters, 1-lb. cartons, 20 to case, per case, $1.85; fancy clusters. 2-lb. cartons, 12 to case, per case, $2.20; fancy clusters, 5-lb. cardboard cartons, 4 to case, per case, $2.35, bulk layers, in 50-lb. boxes, per box, $3.25; bulk layers, in 100-lb. boxes, per box, $6.25.

All f. o. b. common shipping points. Regular California dried fruit terms. Prices guaranteed to April 1, 1917. All raisins not shipped before January 1, 1917, to be paid for at that time. The company will carry the raisins free of expense to time of shipment, which must be before March 1, 1917, unless otherwise arranged.

No export rebate will be allowed.

Prices subject to change without notice.

NUTS

Jobbers' Prices:
Almonds.—Exchange opening prices: Nonpareil, 20½c; Ne Plus Ultra, 17c; IXL, 18c; Drake, 16c.
Peanuts .....5½@6½

BEANS

Jobbers' prices, cwt. recleaned:
Limas .....8.00@8.10
Bayous .....7.15@7.25
Garbanzos .....4.00@4.50
Small White .....10.50@11.00
Mexican Red .....7.75@8.00
Large White .....10.25@10.50
Pinks .....7.50@7.60
Horse Beans .....4.50@5.00
Blackeyes .....5.00@5.25
Red Kidneys .....11.75@12.00
Cranberry, California .....7.60@7.75

HONEY

Jobbers' prices:
Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. .....11@12
Ex. Fy. lb.....9c; Lt. A.....6@8
Beeswax .....20@32

HOPS

Prices to growers at shipping points:
Sacramento, lb. .....8@9
Sonoma .....10@11
Mendocino .....9@10
Oregon and Wash., lb. .....6@10

HAY

Scott, Magner & Miller say under date of January 27:

Receipts this week 1283 tons, last week 1353. Market firm but trade light. Country demand good. Alfalfa in good demand. Straw firm.

We quote car lots f.o.b. San Francisco.
New crop.
Wheat, Fy., lt. bales. .....20.00@21.00
Wheat or Wh. & Oat, No. 1..17.00@19.00
Wheat or Wh. & Oat, No. 2..15.00@17.00
Oat, Choice Tame .....18.00@19.00
Other Tame .....14.00@16.00
Wild .....14.00@16.00
Barley .....14.00@16.00
Alfalfa .....14.00@17.00
Stock .....13.00@14.00
Barley Straw No. 1 .....70@90

GRAIN

Grain Exchange prices, cwt.
Wheat, California Club .....2.60@2.65
Wheat, No. Bluestem .....2.90@2.95
Corn, Eastern Yellow, sk.....2.25@2.27½
Corn, Egyptian White .....2.10@2.20
Oats, White Feed .....2.05@2.07½
Red Seed .....2.75@3.00
Barley, feed .....2.20@2.25
Shipping .....2.32½@2.40
Rye, cwt. 2.75

FEEDSTUFFS

Wholesale prices per ton:
Bran .....30.00@31.00
Cornmeal, feed .....48.00@49.00
Rolled Barley .....45.00@47.00
Cracked Corn .....48.00@49.00
Middlings .....35.00@37.00
Alfalfa Meal, carlots .....21.00@22.00
Shorts .....31.00@32.00

SEEDS

Prices in round lots, lb.:
Millet, recleaned .....3½@4
Alfalfa .....20@21
Rape .....2¼@2½
Flax .....5@6

Citrus Fruit Market

LOS ANGELES, Jan. 31, 1917.

Oranges are going forward at the rate of 100 to 150 cars daily. Fairly good weather prevails in Eastern markets and fruit is moving very satisfactorily. Frosted fruit is still going forward and this accounts for low averages in the auctions and some low sales in other markets. Strictly first class fruit, of which there is plenty, is commanding fair prices.

Shipments

Shipments of oranges from Southern California to date since November 1, 1916, 4911 cars, lemons 1201, total 6142; to same date last year, oranges 3057, lemons 1267, total 4324. From Central California to date this season, oranges 3938, lemons 140, total 4078, to same date last year, oranges 4310, lemons 113, total 4423. From Northern California this season, oranges 842; last season, 597.

FROM THE AUCTION

January 24

New York: Twelve cars navels, 2 lemons, $1.55@3.35; lemons, $2.50@2.90.

Boston: Five cars. Navels, $2.45@3.70; lemons, $2.65@3.55.

St. Louis: Six cars. Oranges higher, $1.90@2.45.

Cleveland: Four cars. Navels, $1.30@2.60; lemons, $3.00@3.60.

January 25

New York: Eight navels, 1 lemon.: Navels, $1.80@3.30; lemons, $2.80@2.90.

Boston: Five cars. Navels, $1.65@2.50.
Philadelphia: One lemon, $1.90@2.30.

January 26

New York: Five navels, $1.65@2.85; tangerines, halves, $1.35.

Boston: Nine cars. Navels, $1.60@3.15.
Philadelphia: Navels, $2.00@2.55.
Cleveland: Five cars. Navels, $1.50@2.95.

St. Louis: Six cars. Navels higher, $1.25@2.75; lemons, $1.95@2.60.

January 29

New York: Twenty-five cars Navels, 1 lemon. Lemons higher. Navels, $1.60@3.40; tangerine halves, $1.40; lemons, $2.80@3.25.

Boston: Fifteen cars. Lemons higher. Navels, $1.65@3.00 even; lemons, $2.15@3.45.

St. Louis: Three cars. Navels, $1.95@2.65.

January 30

New York: Twelve Navels, 1 mixed, 1 lemon. Lemons higher. Navels, $1.95@3.45; lemons, $2.65@3.40.

Boston: Twelve cars. Oranges higher, $1.50@2.70.

Philadelphia: Four cars. Navels, $1.70@2.00; lemons, $2.50@2.95.

WEATHER CONDITIONS

For the Week Ending January 27, 1917

	Rainfall Wk.	Rainfall Season	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	.34	13.86	23.51	50	36
Red Bluff	.00	11.52	13.57	68	32
Sacramento	.00	6.52	10.29	62	34
San Francisco	.00	9.81	12.06	64	40
San Jose	.00	6.43	8.73	64	28
Fresno	.00	5.21	4.97	66	34
San Luis Obispo	.00	14.37	9.87	68	36
Los Angeles	.00	9.89	7.52	70	40
San Diego	.02	6.58	4.89	66	49

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All Sent Free.

E. R. Skinner & Co. 1107 24th St. Sacramento, Cal.

Oakland Sensible Six

"Sturdy as the Oak"

Get the *real* thrill of the open road in an *Oakland Sensible Six*. The valve-in-head motor develops full 41 h. p. at 2500 r.p.m.—one h. p. to every 53 pounds of car weight.

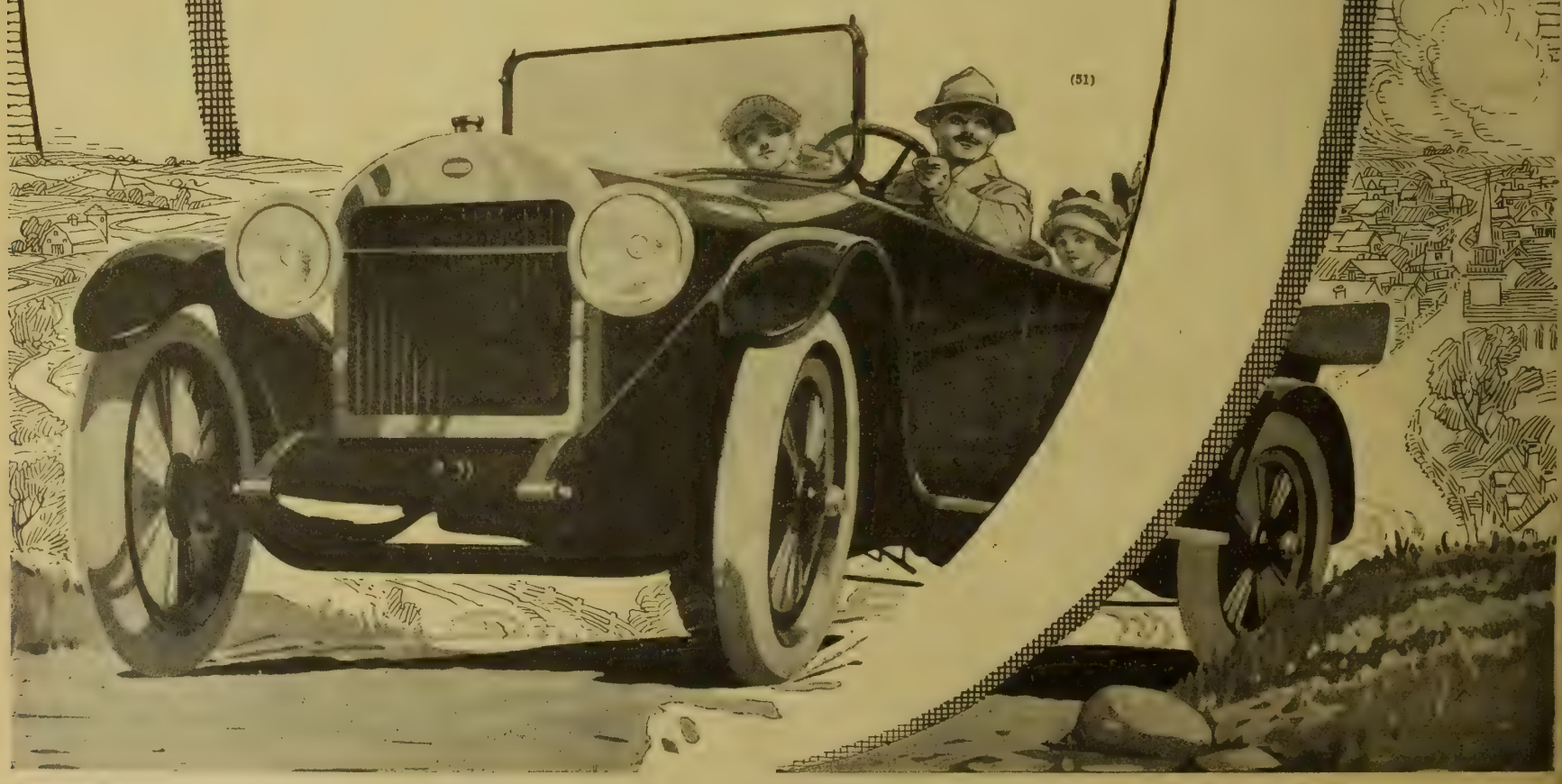
And every mile is an easy mile. The big, over-size tires, 32 x 4, the long, semi-elliptic springs, 51″ in rear, 112″ wheelbase, all make the *Sensible Six* one of the most comfortable and easy riding cars of its size ever built.

It has the power, comfort, good looks, reliability you want in an automobile—yet it is sensibly priced — $875, and built to operate at moderate cost.

Oakland Eight—$1585—is a big luxurious 73 h. p., 7-passenger touring car for those who demand the utmost in power, speed and luxury.

OAKLAND MOTOR COMPANY, Pontiac, Michigan

(51)



CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES February 10, 1917 SAN FRANCISCO

A Well-Pruned California Walnut. See Mr. Neff's Article

Wizards of Transportation

George Stephenson is rightly called the father of the steam railway. He ran the first successful steam engine on the 25th of July, 1814. In September, 1825, he opened the first railway over which passengers and goods were carried by a locomotive.

The Human Interest In Progress

THE man who is responsible for a system by which the world enjoys safer, easier, quicker and cheaper transportation, is a determining factor in progress.

When George Stephenson started the first locomotive on its way he pushed the world forward centuries. Today we see the automobile with all its possibilities made practical and its energy made effective by the rubber tire.

The leading example of highly specialized and efficient tire service is found in Firestone Non-Skid Tires.

The miles of reliable wear on any road at all seasons, the car-protection and easy-riding, make Firestone Tires a world-wonder in transportation.

And as there is a man-power behind every big work, so this service is vitalized and given the personal element by the name on every tire of the founder and present head of the business, Mr. Firestone. That name on the tire is your assurance of quality.

Your dealer can get Firestones for you, and this quality will cost you no more than ordinary tires. Because Firestone Tires are widespread in use and the output is tremendous and efficiently handled by the Firestone Organization. Your dealer will serve you.

Send for free book, "Mileage Talks," No. 36.

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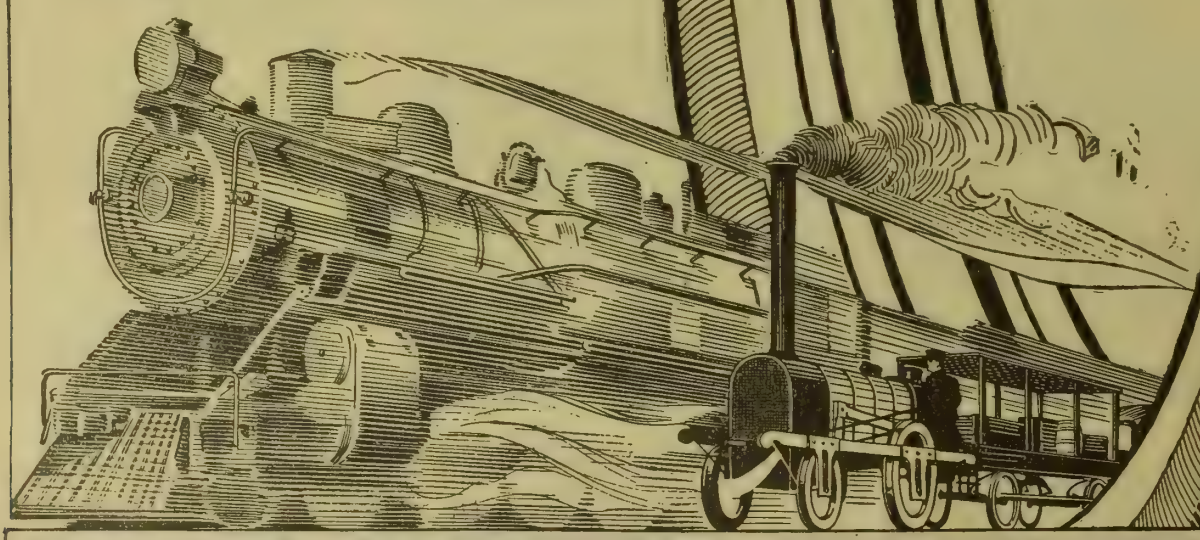


Firestone

California Cultivator

Vol. XLVIII No. 6 LOS ANGELES: February 10, 1917 One Dollar Yearly

Training the Walnut in the Way it Should Go

J. B. Neff Writes for California Cultivator Readers of Pruning and Shaping the Young Walnut Tree

THE pruning of a walnut tree should begin early in its life, and while it is not always necessary to cut back the single stem that is made the first year this can be done to advantage if the roots have been badly mutilated in removing from the nursery row. The head of the tree should be started at from four and a half to five feet from the ground and formed with three or four branches not starting directly opposite each other nor at the same height. If more are left they will have to be removed later to the detriment of the tree because of the scars which do not heal rapidly and leave decaying wood unless much care is given to keep them covered with paint. The walnut must not have the short pruning usually given deciduous fruit trees and must not be generally headed back at any time.

During the first eight to ten years the necessary pruning will be that which will give proper form to the tree and the removal of all branches turning downward. It is often best to drive a stake two inches square by nine feet long near the tree soon after planting, and by tying the lower branches to the top of this with soft rope they can be trained to the proper place. Do not head back any branch if it can be avoided, but train by cutting back to a branch which is going in the right direction.

When the trees become so large and the growth so thick that the sunshine does not go through the trees they must be pruned or the crop will be small and the nuts undersized. The small branches near the center of the tree will also die and small growth be made. Large nuts and large crops are grown only on thrifty trees, and old trees can be kept thrifty only by vigorous pruning. The branches should be kept thin enough to allow sunshine to show lights and shadows on the ground under the tree. It is not practical to thin each particular branch to its end, but by going back three or four feet from the end and taking out crossing and interlocking branches the desired result can be obtained. Instead of cutting out wood that has already died from overcrowding thin out the branches so those remaining will not die but will produce large walnuts and grow vigorous wood for the next year's crop.

Sap will frequently flow from the fresh cuts. This will not injure the trees but may be of advantage by causing the buds to open a few days later in frosty localities.

Draining Down the Alkali

Experimental Plat on the Kearney Vineyard Property of the University of California. One Hundred and Sixty Acres at One Time of No Value Now Producing Hay Crops

ONCE almost a desert, the lands of small portions of the San Joaquin Valley are becoming salt marshes. Because of subsoil conditions irrigation canals which have brought life to these arid acres are now proving a menace because of the waters filling the soil and refusing to drain away, and worse, "bringing up the alkali". The department of agriculture has engineers and soil experts discussing the question for a decade. Expensive drainage systems have been recommended. It has seemed impossible to get the land owners to provide for the great expense, and the question is continually asked: "What can we do to save these lands at a cost within reach?" Some of these lands are within the boundaries of the great Kearney Vineyard Estate, now the property of the University of California. S. P. Frizelle, manager of the estate for the university, and James Mills, one of the regents of the university, recently gave the editor of the Cultivator a fund of information regarding this estate, and especially regarding the experimental drainage plot which covers a quarter section of the land. Most of the vineyard is still productive and is yielding to the university a handsome sum each year, but many of the acres are entirely barren, being in the lower sections where the soil is naturally richer. The question is asked, "How can they be saved?" On this one quarter section the condition of the land is shown in one of the engravings accompanying this article. This photo was taken January 27. This land was once covered by one of the most productive vineyards in Fresno County. The experiment being tried is that of tiling, and while this particular field is being drained at a cost which is almost prohibitive, lessons are being learned which, if the experiment proves successful, will make possible far more economical draining of other fields. The cost in this case was approximately $100 per acre, and while it is not probable equally as efficient drainage may be given to other fields at half the cost, it is thought that at least $60 will cover the expense per acre.

The plan consists of tile drains, the main drain of which is about seven deep and laid of eight and 12-inch tile. There are eight parallel laterals of six-inch tile, 315 feet apart and varying in length from 500 to 1700 feet. There are concrete silt wells along the main drain about 500 feet apart and at one corner a large cistern or well over which is an electric pumping plant. The method of operation is to flood for a week lands in the basins which are shown in the engravings. The alkali is washed to the lower depths, and the surplus water draining to the receptacle at the lower corner is lifted into the irrigation ditches and passed on to other lands. Chemical tests have been made of this water and it is found to contain only a trace of injurious salts. While the "washing out" of the alkali is the idea in this drainage system, and this has already succeeded to the extent that heavy hay crops have been grown on this particular 160 acres, yet it seems to carry the injurious salts into the lower subsoils.

One other experiment being carried on in the Kearney Vineyard Estate, which is being watched with a great deal of interest, is that of applying sulphuric acid. This we believe is the first effort of the kind. Forty acres of the land were sprinkled with sulphuric acid, which after the rains were cultivated and a crop later planted. This is the first extensive experiment along this line. Small plots were planted last year and the acidulated ground produced heavily while adjoining lands refused to produce any material crop. This experiment may prove of value for these lands when sulphuric acid returns to a normal price. Present prices would prohibit its use. Whether it will completely neutralize the acids, and for a period of years, or whether it will only accomplish temporary results remains to be seen.

Reclaiming Alkali Lands

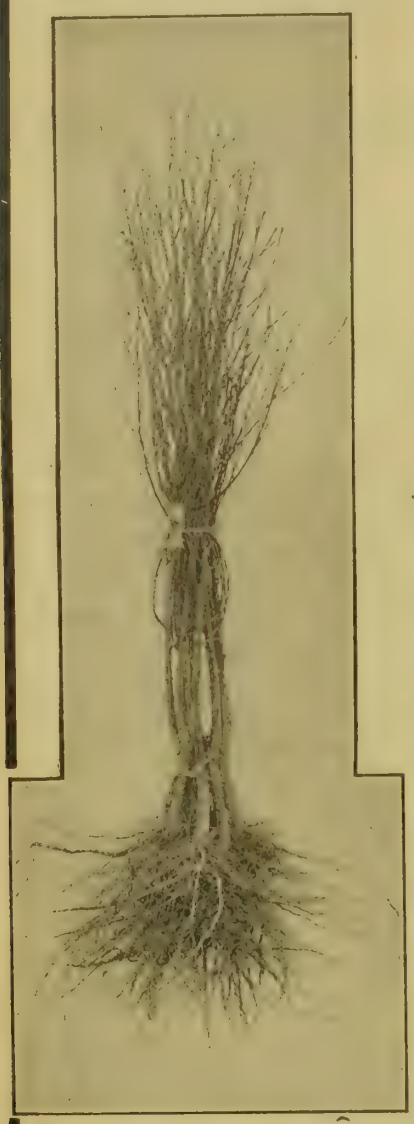
A portion of a quarter section of the Kearney Vineyard in Fresno, now the property of the University of California, which is being reclaimed by drainage. This land was once a productive vineyard, later an alkali marsh because of rising alkali. The university has tiled at an expense of $100 an acre and last year raised a good crop of hay on these lands.

Lifting Drainage Waters Into Ditch

Pumping plant on Kearney Estate, Fresno. Tile from 160 acres enter the cistern or drainage well underneath this pump house. The dikes are flooded to the depth of a foot or more and as the waters settle the alkali is carried to the lower levels. The water reaches the drains and is carried back into the ditch almost as sweet as when put upon the land, and later used to irrigate other lands.

TREES

Established 1888



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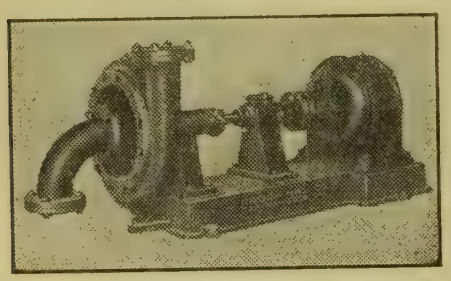

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Fitted with Ring Oiling Bearings.

Renewable Babbitted Bushings.

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We also build deep well turbines, deep well plungers, horizontal and vertical pumps for mining, irrigation, drainage.

Nitrate of Soda

Written for California Cultivator By Kenneth MacRae

AT a growers' meeting recently held at the Riverside experiment station Dr. Kelly warned against the use of nitrate of soda for fertilizing purposes, said it was a soil poison, either alone or in combination.

My experience does not agree with Dr. Kelly's conclusions. I have used only nitrate of soda and cover crops on some 100 acres of groves for the past nine years, quantity, quality and condition of both fruit and trees being above the average. In fact, during the nine years I have grown banner crops. I reason that an application of five or six pounds per tree in early spring rushes a strong flow of sap to the tip ends. This enlarges the sap cells, the circulation. Result, strong bloom, strong stems, good color. In fact it sets the crop.

The European nations use nitrogen freely. They claim to average 100 per cent more wheat, oats, barley, rye and potatoes per acre than the United States. Germany alone uses over 2,000,000 tons of nitrates, which it is estimated increases the crops over 63,000,000 tons. According to the Country Gentleman, the concensus of opinion in the South was that peach trees required an abundance of lime, phosphates and potash, but no nitrogen. The Virginia experiment station conducted experiments on three orchards some miles apart. The lime, phosphoric and potash plots showed no beneficial results, while the plots treated with 150 pounds per acre of nitrate of soda increased both tree growth and fruit practically 100 per cent. Certain Oregon apple growers duplicate the Virginia experiment.

A Cultivator article headed "Nitrogen, the Indispensable", reads as follows:

"A long list of experiments, says the author of The Saline Deposits of California, carried out in many places, shows that nitrate of soda is the best source of nitrogen for the orange. Nitrate of soda plays a double role in the soil, besides furnishing the best as well as the cheapest nitrogen for the farmer. The claim long made that it renders the native supplies of potash in the soil available has been proven. A soil containing 0.37 per cent of potash yielded to solution of nitrate of soda 0.11 per cent, or nearly one-third of that potash. When it is remembered how much potash some soils contain, e. g. 1.14 per cent in certain soils in the San Gabriel Valley, the importance of this property of nitrate can hardly be overestimated".

Another Cultivator article gives the following interesting table of values, compiled by the eminent German chemist, Dr. Wagner:

"One hundred pounds of nitrate of soda equals 114 pounds of sulphate of ammonia, 145 dried blood, 149 cotton-seed meal, 156 fish scrap, 164 bone meal, 185 tankage or 312 pounds of barnyard manure." It is regrettable that there is no absolutely proven fertilizing method. Dr. Kelly condemns the use of nitrate of soda. Another scientist states "that it is the best source of nitrogen for the orange." Again, Dr. Wagner's table shows its comparative value as against other sources of nitrogen. The orange grower is at a loss what to do or which to follow.

The late J. J. Hill, the empire builder, conducted experiment farms at central points along the lines of his different railways. He furnished the farmer with seed and land, also paid him for his work. He however demanded results. When some farmer grew more and better crops than the expert the farmer was promoted to the head of the class. He had no use for failures.

To my mind the good work of the Riverside experiment station can be materially improved. It is at present centralized, confined to one town, to one soil. This mitigates against general knowledge. I would suggest that the members of the faculty each take charge of a ten-acre grove in three or four towns. This would diffuse knowledge and enlighten growers. Object lessons is what we should have, and this too in 20 or 30 different localities. This would arouse competition among the members of the faculty, as well as quicken the ambition of the growers.

Humidifiers for Curing Lemons

A SIMPLE apparatus for regulating the humidity in lemon curing rooms has been devised by experts of the United States department of agriculture. The cost of this apparatus, as stated in a new bulletin, No. 494, need not exceed $25, exclusive of an ordinary 16-inch electric fan used in its operation. This small expense would be more than offset by the improved appearance and quality of one carload of lemons cured under uniform conditions of humidity. Furthermore the usefulness of the device in improving atmospheric conditions in dwelling houses in the arid sections has been demonstrated.

The apparatus consists primarily of two water pans placed one above the other, with strips of cloth extending through slots in the bottom of the upper pan to the lower pan. These slots are raised above the water level in the upper pan and the edges of the cloth hang down from them into the water. Capillarity raises the water on the cloths to the top of the slots. From there gravity and capillarity combine to drop it down through the cloths to the lower pan. An electric fan generates a current of air which is driven between the cloths, carrying the moisture from the saturated cloth out into the room.

Founded in 1889 by R. M. Teague

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Teague Trees are Quality Productive Trees

Because properly grown and budded from selected trees producing abundantly only quality fruit. Buds cut from carefully selected fruiting bud-wood only. In addition we give quality service in the way of digging, packing and delivery that insures success to the planter. Correspondence and inspection invited; our treatise on "Citrus Culture" and annual Price List sent on application.

R. M. TEAGUE, Manager
San Dimas, California

Experiments in a packing house in Southern California showed that by the use of this apparatus the humidity in the well insulated curing rooms could be raised about ten per cent an hour in the range from 70 to 90 per cent of relative humidity. When the relative humidity was below 50 per cent the action of the humidifier was more rapid. On the other hand, with a relative humidity of about 90 per cent, the humidifier worked very slowly, and above 95 per cent the effect of the apparatus was scarcely noticeable.

As designed by the government expert the humidifier consists of two shallow, galvanized steel pans 36 inches long, 24 inches wide and six inches deep. The slots for the cloths are raised four inches above the water level of the upper pan. The cloths themselves are made of Russian crash, a very coarse linen which is used for towels and for decorative purposes. Such a humidifier, it is said, should be sufficient for five curing rooms, each of which is about 20 feet long by 20 feet wide and ten feet high, although the insulation of these rooms will, in a great measure, determine the amount of humidification necessary. For use in private dwellings a much smaller apparatus would be satisfactory.

IRRIGATION INCREASES FOOD SUPPLY

"In these days of high prices, projects for reclaiming desert land and thus increasing the supply of food deserve special consideration," comments Editor Anderson of Irrigation Age. "The area under irrigation in our arid region is now about 15,000,000 acres. In 17 years it has been doubled. This watered land yields $200,000,000 worth of products every year. Water is available for the irrigation of 40,000,000 acres more. Since the passage of the reclamation act 14 years ago the federal government has expended more than $100,000,000 in irrigation work. The money has come from sales of public lands, and those who use the water pay eventually the estimated cost of construction.

"The results of an inquiry about irrigation were published recently by a committee of the United States Chamber of Commerce. All agricultual products, the committee says, can be grown more successfully on irrigated land than elsewhere, the average yield per acre exceeding that of non-irrigated farm areas by from 10 to 50 per cent. There is scarcely any risk of loss. Crops are not exposed to drouth or destructive rainfall. They are not attacked by insects, for the surrounding desert does not breed these enemies. The committee points to the Salt River project in Arizona as a typical example of the excellent work which the federal government has done. There, what was a desert, is now a garden whose products are sold for about $4,000,000 a year.

"It would be profitable for the nation to add to the 15,000,000 now irrigated the 40,000,000 which can in the same way be made equally productive."

In marketing your produce, pack and grade efficiently and honestly in the package that the market demands, and let your name on the package be a guarantee of its contents. Remember that a slovenly package, carelessly and improperly graded and packed, will always bring a price in proportion. Goods put up attractively and carefully and honestly p cked and graded always command top prices.

Care of the Farm Auto

"I have given the workings of the car a good deal of study and will tell you how I care for the machine while it is in use," saye a writer in the Fruit Grower and Farmer, and he adds:,

"First, I am careful to keep the carburetor properly adjusted. This is a very important matter. When I bought the car the carburetor was a great mystery to me until one day the machine stopped with me when 12 miles from a garage. The trouble was traced to the carburetor. I 'dug into the thing,' located the trouble, and remedied it. Since then the carburetor has not been such a mystery. I mention this to illustrate that the best way to get the needed knowledge is to tackle it when anything goes wrong. Be sure to save all the pieces so if you cannot get them back together properly, they will be there for some one else to assemble.

"During changeable weather, that is when one day is somewhat cold and the next warm, it is not an easy matter to keep the carburetor perfectly adjusted; and it is best not to do too much changing, unless one knows his carburetor so well that he knows, without testing, about how much of a change to make. When making a change I keep in mind the number of half turns given the thumb adjustment. Then I know the kind of a change needed for cold and warm weather.

"I watch the oiling system carefully, always using the best grade of oil obtainable. I use only one make of oil, never changing to another. I once changed to a different make, thinking it would make no difference, but soon found the oiling system not working right.

"The cooling system comes in for a good deal of attention. When the weather is warm the engine must be kept cool enough so that everything works well. The water in a water-cooled engine is supposed to be al-

$1150 F. o. b. Racine
For Mitchell Junior—120-inch Wheelbase

Mitchell SIXES

$1460 F. o. b. Racine
For 7-Pass. Mitchell—127-inch Wheelbase

$1150 Model Also Now On Show

See the New Mitchell Junior With Hundreds of Mitchell Extras

Now we invite you to see Mitchell Junior. A somewhat smaller Mitchell—a $310 lower price than the 7-passenger Mitchell. But with generous size and ample power for a 5-passenger car. And with all the exclusive Mitchell attractions, due to John W. Bate.

Another step in Mitchell efficiency appears in the new Mitchell Junior. We urge you to come and see it.

A 7-passenger car, to have ample power and ample room, can't be smaller than the $1460 Mitchell, which has won for itself one of the envied places in the motor world. But 40 horsepower is enough for a 5-passenger car. And a 120-inch wheelbase gives room enough—more than most cars give.

So the Mitchell factory this year also brings out Mitchell Junior. Not a new type—simply a size reduction. So a man who buys a Mitchell can get the size he wants.

Thousands of these new cars have been run for months, on every sort of road. And they have proved themselves as perfect as the 7-passenger Mitchell car itself.

See the New Extras

In both Mitchell models there are hundreds of extra features. They give you at least 20 per cent extra value over any other car in this class.

These extras—most of them exclusive to Mitchells—are paid for by factory savings. They are the result of efficiency methods, applied by John W. Bate.

This great efficiency engineer built and equipped this whole plant. Every method and machine is adapted to producing this car economically. These methods have cut our factory cost in two. Nowhere else is a car of this class built anywhere near so low.

You will be amazed to see how many extras these new-day methods pay for.

Double-Strong Parts

One result is the Mitchell standard of 100 per cent over-strength. That is, every vital part is twice as strong as need be.

The Mitchell standard used to be 50 per cent over-strength. That itself was extreme. The Mitchell car has always been a marvel of endurance.

But, in the past two years, we have doubled this standard to give you a lifetime car. That fact is announced for the first time in the models now on show.

Over 440 parts are built of toughened steel. All parts which get a major strain are built of Chrome-Vanadium, and built oversize. We pay for steels in the Mitchell as high as 15 cents per pound.

31 Unique Features

There are also 31 extra features in Mitchells. That is, features which nearly all cars omit. Things like a power tire pump, reversible headlights, ball-bearing steering gear and never-broken springs.

These extras alone, on this year's output, will cost over $4,000,000. But all are paid for by these factory savings.

Many New Luxuries

Our new body plant gives us for this year another enormous saving. All Mitchell bodies, open and enclosed, will be built in our own shops.

This saving enables us to add 24 per cent to the cost of finish, upholstery and trimmings. The finish coats are now heat-fixed. A rare-grade leather is employed. A hundred new touches make today's Mitchell the handsomest car in its class.

Every Mitchell extra is something that you want. Nearly all are things you don't find in other like-class cars. They are things which can't be given without added price, save under Mitchell methods. Go and see them. Judge for yourself what they mean to you. And see which size you like best.

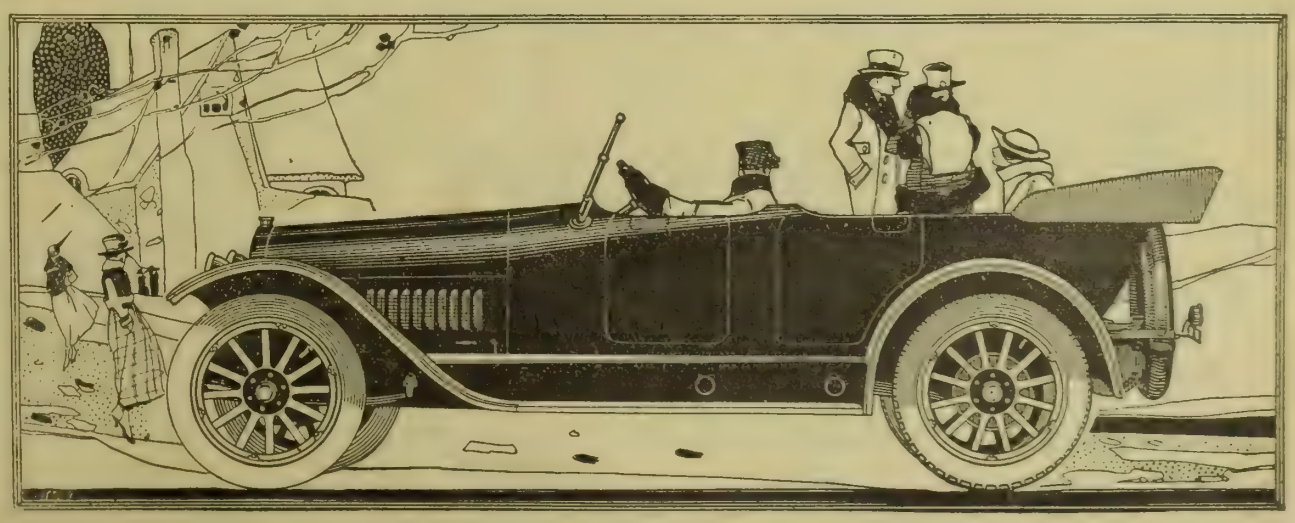
MITCHELL MOTORS COMPANY, Inc.
Racine, Wis., U. S. A.

TWO SIZES

Mitchell —a roomy, 7-passenger Six, with 127-inch wheelbase. A high-speed, economical, 48-horsepower motor. Disappearing extra seats and 31 extra features included.
Price $1460, f. o. b. Racine

Mitchell Junior a 5-passenger Six on similar lines, with 120-inch wheelbase. A 40-horsepower motor—¼-inch smaller bore than larger Mitchell.
Price $1150, f. o. b. Racine

Also all styles of enclosed and convertible bodies. Also demountable tops.



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MELON—
—SEEDS
Best for planting on account of freedom from Blight. Our stock is from carefully selected melons and not from culls. Send for our free Catalog of Seeds and Plants and see description of our new Black Seeded Angeleno Watermelon, the Honey Dew Casaba and other moneymakers.
MARKET GARDENERS
buying in quantity, mail us a list of your requirements and we will quote special prices.
Morris & Snow Seed Co.
439 S. Main St., Los Angeles, Cal.

ways at the boiling point around the cylinder to be certain of best results. It is not supposted to boil in the radiator, but no damage is done if it does, providing the radiator is kept reasonably full, and enough lubricating oil is being used to prevent the pistons from sticking. I use nothing but soft water in the radiator, as scale will not form from soft water. Change the water quite often and thoroughly flush out the water system when changing the water. Exercise care to see that the circulation is not obstructed.

"Of course all gear cases are kept as full as they should be with transmission grease. Besides keeping the oiling and cooling systems working right and the engine up in trim, there is always the tires to look after.

"Tires should be kept fully inflated at all times, but the fact that heat produces a greater pressure must not be lost sight of. I find that a tire that registers a pressure of seventy pounds when starting out, will easily register a pressure of eighty after an eight-mile run over a hot road on a hot day. When the weather is hot and the road is hot, I cut down from five to eight pounds on air carried in the tires, as the heat will soon put that much in a tube. If a tube is patched, there is almost certain to be trouble, for the simple reason that the heat will burn the patches off. For use during warm weather a thorough job of vulcanizing makes the only permanent repair on a tube. Small vulcanizers will do this at very little expense and their operation can be quickly learned. Those who do not care to do this should by all means let a cement patch on a tube be only a temporary repair, having the puncture vulcanized as soon as possible. That is the only way to be free from tires going flat in hot weather, causing delay and disgust with the whole tire proposition.

"Dust and dirt should be kept off an auto as much as possible, as the cleaner it is kept the better it will look, the easier it will run, and the longer it will last. My car receives a good brushing and rubbing with a woolen cloth after coming home from a drive. All worn grease and oil is removed. I have a full equipment of tools, and an especially built garage in which the machine is kept when not in use. My auto is yet in excellent condition, and the expense of upkeep during the three years I have owned it has not been more than half what I expected it to be when I purchased the machine."

WALLACE NURSERIES
(Established 1871)
TREES
ORANGES—LEMONS—GRAPEFRUIT—OLIVES
You want reliable trees. We want your business.
Real Estate exchanges considered. ORDER NOW.
SALES OFFICE: 504 I. W. Hellman Bldg., Los Angeles, Cal.

TREES
ALL KINDS FRUIT, SHADE AND ORNAMENTAL TREES. ORANGE LEMON AND POMELO. OUR SPECIALTY—EULATA AND MAYFLOWER PEACH, BEAUTY PLUM.
TREE YARD NOW OPEN at the old Stand, N. E. Cor. 11th and J Streets, Sacramento, Cal.
Write for Price List NORTH SACRAMENTO NURSERIES R. F. D. No. 3—Box 44

Sulphuring Pears

ONE of the addresses at the last state fruit growers' convention at Napa was that of Fred G. Stokes, horticultural commissioner of Lake County. In that address, as quoted in the Cultivator, was the statement that Mr. Stokes, or rather the fruit growers of Lake County, sulphur their fruit for 48 hours, renewing the sulphur three or four times. A pear grower in the southern end of the state wrote inquiring if this were correct, and if so, how the pear growers of Lake County "get by" the pure food commission. The matter was referred to Mr. Stokes and he answers:

"Regarding the sulphuring of pears for drying I affirm the figures given at the Napa Fruit Growers' Convention that we use four or five pounds of sulphur repeated four times during 48 hours of sulphuring. Should the pears be extra ripe we only sulphur 31 hours, when it would be necessary to renew the sulphur at least three times. We have no trouble with pure food experts and ship out several hundred tons of what are acknowledged to be the best dried pears the state produces. We get from two and a half to three cents a pound preferential rates for these pears, and many orchardists dry the entire crop. The sulphuring alone is not what produces this result, but we raise an A1 close grained Bartlett, rich in sugar and exceptionally free from blemish, such as scab, frost ring, etc., and our climate is peculiarly adapted for the curing process, neither too hot nor too cool and with fogless nights. As to the sulphuring having any injurious effect to the fruit consumer, I much doubt it, as from personal observations and experience in dry yards I have noted yearly the same bunch of men working during a season of six and eight weeks continually chewing on pears, the same being in all stages of drying and heavily sulphured. None of these men to my knowledge have been affected by the sulphured fruit and the same gangs show up serenely year after year and repeat the operations."

We may say that a box of these cured pears was exhibited at the Napa convention, and a more beautiful, waxy and tasty product we never saw, but we believe one feature which pear growers must consider is the matter of locality. Every section of the state is not fitted for growing pears for drying purposes, as is Lake County. However for all who would dry pears there is much valuable information in Mr. Stokes' address.

EASTERN FRUIT GROWERS

The annual meeting of the Eastern Fruit Growers' Association will be held at Washington, D. C., February 14-15. National apple grading and packing law, laws to regulate commission merchants, increase in consumption by advertising, marketing problems, United States bureau of markets, farm loan banks and other practical questions will be discussed.

Grow
Large Olives
Plant Trees of the
Ascolano
Variety
The Ascolano (Queen Olive) is THE BEST for ripe pickling: Ripens early and escapes probable early frosts; attains a large size—often equalling a French Prune; is of excellent quality, and on account of its fine large size, attractive appearance, etc., demands fancy prices. The present supply of "Fancy" ripe pickled Olives is thousands of cases short of the demand, hence it is highly advisable to plant trees of the Ascolano variety NOW, and plant them liberally. It will prove one of your best investments.
Can supply FIRST CLASS trees, true-to-variety, at most reasonable prices, trees that are propagated from the best producing "strain" of Ascolanos in the country.
Can also supply high grade
Mission and Manzanillo Olive Trees
propagated from bearing trees having a record for the greatest quantity of highest quality of fruit. In planting an Olive orchard great care should be exercised in securing trees of known origin. You can not afford to "guess" at it. Be SURE. Plant the BEST. Write for present prices on any number of Olive trees wanted in any variety desired.

ASCOLANO (Queen) OLIVES
Free Catalog A Post Card Will Bring It
Can Supply Trees of All Best Varieties of
Peach, Plum, Prune, Pear, Apricot, Cherry, Quince, Nectarine, Fig, Almond, Walnut, Orange, Lemon, Pomelo, Lime, Kumquat, Avocado, Loquat, and all other California fruits. Plant ARMSTRONG trees—the BEST to be had—they cost no more than the ordinary sorts—and will soon prove to be a good investment.
Armstrong Nurseries
ESTABLISHED 1889
John S. Armstrong, Proprietor
California 404 Euclid Ave. Ontario
Ornamentals
EUCALYPTUS AND CYPRESS
for wind breaks.
Can supply all varieties in any quantity desired.
SHADE AND ORNAMENTAL TREES
Every desirable variety adapted to the different climatic and soil conditions.
EVERGREEN SHRUBS
Finest assortment of Evergreen Shrubs and small Ornamentals in Southern California.
ROSES—250 VARIETIES
New and scarce varieties: Latest introductions, and all the desirable "Standard" sorts.
You Can Beautify Your Home Grounds at a Very Low Cost. By request, we will make special prices on large lots for private or public plantings.
Ask for our 1917 Ornamental and Rose Catalog, from which to make your selections. It is FREE.

HONEY BEES AND PRUNES

The College of Agriculture has issued Bulletin 274, "The Common Honey Bee as an Agent in Prune Pollination." From its conclusions we note: "That the French prune may be aided in setting a satisfactory crop by the presence of a large number of bees in the orchard during the blossoming period. Without the aid of bees or other insects, the set of fruit on the French prune is often light. The Imperial prune does not seem to be able to set fruit unless pollinated by insects with pollen from other trees.

"It should be stated that, although the crop of prunes on the tree which was under the tent with the bees was much heavier than that on the tree under the tent from which bees were excluded, the size of the prunes was smaller. The prunes were also smaller than the average on the trees not in the experiment. This smaller size was due, no doubt, to the exceptionally heavy crop that the tree was compelled to mature. The introduction of a number of hives of bees into an orchard would not necessarily mean that as heavy a crop of prunes would be produced as resulted with the tree in the experiment under the tent. It is only reasonable to suppose that the bees flying some distance from the hives would have less effect on the setting of fruit in the orchard as a whole, than did those whose efforts were confined to but two trees.

"Since the results of the experiment have become known, considerable discussion has arisen as to the best method of testing out the work of bees in the various sections. Some growers are preparing to purchase a number of swarms of bees to have them permanently in their orchards; others expect to try to keep the bees in the foothill sections for most of the year, bringing them into the orchards during the blossoming period only; while others expect to try the plan adopted in parts of Southern California, where bee-men having large numbers of swarms are hired to place their bees for a certain length of time in the orange groves. It seems to be the consensus of opinion that the best work would result if the bees were brought in from some outside district and scattered about the orchards, about one hive to the acre, during the blossoming period, and then removed. Some of the growers are at present giving the latter plan serious consideration.

"The results of this experiment, while interesting, do not necessarily solve all of the problems involved in pollination, but serve to throw some light on this one side of the question. It is the purpose of this division to repeat this experiment in whole or in part and in connection with other experiments now in progress, the station may be able to give further light on the question from time to time."

AFRICAN FRUIT GROWERS ADOPT MARKETING PLAN

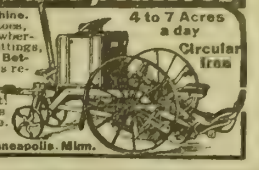
By Consul John P. Bray, Johannesburg, South Africa

A description of the manner in which the United Fruit Growers' Association of Johannesburg intends in the future to dispose of its products is given in the Johannesburg Star. The subject is of interest to the fruit growers of the United States. On account of unsatisfactory conditions under which fruit has been marketed in Johannesburg during the past few years the association obtained quarters for its own use, and those who desire to purchase direct from the producers will have an opportunity to do so. In discussing the plans the newspaper states:

The company intends to cater to the wholesale buyer, and there will naturally be a lower price to the man who buys in wholesale quantities for the purpose of selling again than is charged to the purchaser of a single box or basket. The company will probably sell by auction every morning from about 7 to 9 o'clock, and much the same system will be adopted as is in force on the local market. Buyers of single boxes or baskets will be given an opportunity to obtain what they require, and the wholesale buyers will naturally be able to obtain their supplies at lower prices. During the remainder of the day fruit will be sold out of hand. Bulk will not be broken; that is to say, not less than a box or basket will be sold to any purchaser. Later on the company hopes to establish a system of delivery to the suburbs.

In order to share in the distribution of profits consignors must be members of the Transvaal Fruit Growers' Association. The company has been formed solely for the purpose of securing the whole of the profit to the grower, provided such a grower is a shareholder in the company and a member of the Transvaal Fruit Growers' Association. There are no vendors or underwriters; no shares will be issued at a discount; nor will any commission or brokerage be paid to anyone. No director has any interest in the promotion or formation of the company. The directors will not be entitled to any directors' fees, except such as may be voted by the shareholders at the annual general meeting. In so far, therefore, as it has been possible to secure the formation of a company which will be solely for the benefit of its members and customers this has been done.

—QUINCES—
"THE OVERLOOKED FRUIT"
Bear early and regularly. Splendid shippers. Long keeping. Hold for the right market. Fine for intersetting.
Van Dieman and Smyrna better varieties than pineapple and orange.
Dept. 5 PIONEER NURSERY Monrovia, Cal.

Owens Transplanter
Only Self-Setting machine. Transplants sweet potatoes, tomatoes, tobacco, strawberries, cabbage, nursery cuttings, etc. Any desired depth. Better than hand. An plant is released, water valve opens, then closer rollers press dry soil around plant. Holds moisture but leaves no wet surface soil to bake.
4 to 7 Acres a day
Circular free

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GLADIOLI BULBS
5000 No. 1 size Gladiolus Bulbs, America, 50c per dozen, $3.00 per 100, $15 per 1000. Best pink.
5000 Francis King Gladiolus Bulbs No. 1 size. Best crimson, same price as for America.
5000 No. 1 mixed. All colors. Same price.
2000 one-year-old Giant Bonvallets Asparagus plants, at one cent each.
2000 Giant Himalya Blackberry plants (tips) at five cents each.
1000 Crimson Canna roots at 2½ cents each.
1000 Perennial Phlox plants at 2½ cents. All colors mixed.
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Wilmar Station, on P. E. R. R.
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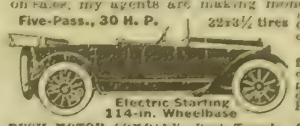
Satisfaction guaranteed.

Driver Agents Wanted
Ride in a Bush Car. Pay for it out of your commissions on sales, my agents are making money. Shipments are prompt. Bush Cars guaranteed or money back.
Five-Pass., 30 H. P. 32x3½ tires

Electric Starting 114-in. Wheelbase
Write at once for my 48-page catalog and all particulars. Address H. Bush, Pres. Dept. 21 N
BUSH MOTOR COMPANY, Bush Temple, Chicago, Illinois

Every time you buy an article, advertised in the California Cultivator, at the local store you do your town some good.

Plant Roeding's

WALNUT TREES

For Profit

Walnut growers have prospered in California. The owner of a good walnut orchard has been the envy of his less fortunate neighbor. There are thousands of acres in our great valleys and along the coast that are suitable to walnut culture.

We have a splendid stock of young, thrifty, grafted walnut trees of the best types, and urge prospective planters to place their orders at once as the quantities on hand of some varieties are getting limited.

The Pecan
Another Valuable Nut

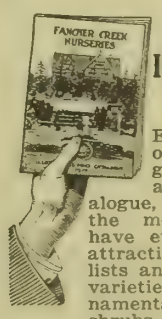
In addition to the Walnut, the Pecan is going to prove a most valuable acquisition to our list of nuts.

Nectarines

We recently called attention to the growing demand for Nectarines, and we want to again emphasize the importance of planting Nectarines. Write to us for prices and best varieties to plant.

Persimmons

More and more importance is being attached to the Persimmon as to its value commercially. It is a fine fruit, and should be planted more extensively. No garden or orchard is complete without persimmons, so be sure and include them in your order for trees.



Get Our Big Illustrated Price Catalogue

Every fruit grower or prospective fruit grower should have a copy of our catalogue, which is one of the most complete we have ever issued. It is attractively illustrated; lists and prices over 2000 varieties of fruit and ornamental trees, vines, shrubs and plants. This book contains a lot of valuable information which every grower should have. If you haven't already sent for a copy, do so today.

Fancher Creek Nurseries

Geo. C. Roeding
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234 Holland Bldg.
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-the 1917 Catalog Germain Seed & Plant Co.

Send right now for this valuable big book of garden and farming information. Leading horticultural and agricultural experts depend on this complete and highly educational catalog.

It contains everything you want to know about citrus, deciduous and ornamental trees, shrubbery, vegetable and flowering plants, berry bushes, flower, vegetable and field seeds, garden tools, lawn mowers, lawn rollers, garden hose, spray material, spray pumps and fertilizer.

Don't fail to get a copy of this highly instructive garden encyclopedia.

Germain Established 1871 Seed & Plant Co. 326 328 330 SOUTH MAIN STREET LOS ANGELES CAL.

Art in the Garden

Written for California Cultivator By E. Braunton

THE day has passed when the individual no longer cares what the world says about his home and holdings. In the old days, with almost no roads and ox teams or riding horses the only means of communication, little attention was paid to appearances for few came to view. But in this era of perfect roads and the best and quickest means of transportation thousands view one's premises where but one saw before, and the universal demand is for beauty and art.

It may be well to concede that all plant life is beautiful however placed or misplaced and that place is usually the least attractive that contains the fewest plants. But this is not always true. A hopeless, pathless jungle may be a thing of beauty in nature, but in a garden would be so useless as to constitute a nuisance and a menace. Here is where the gentle art of gardening steps in to construct the happy medium. More and more is the landscape architect being called to plan or supervise the laying out of home grounds, and while in the past his activities have been most marked in the city, in California the country homes bid fair soon to surpass the best of those in the city in point of attractiveness and real comfort and entertainment.

Caution to Amateurs

Many modest gardens of great beauty have been planned and built by amateurs. But in garden planning and planting, as in all else, the novice thinks he must produce the unusual or he has failed. But this idea carried out in the garden is fatal to beauty, art, comfort, in fact everything that a good garden should stand for. We must lose sight of effect, largely, and strive to build simply, actuated at all times by our needs. There is no dignity or art without simplicity. It is well for the amateur to know what to avoid rather than what to do. He will usually do all that is necessary and almost invariably will overdo.

Styles of Gardening

Do not be led away by any "style" in gardening. No one style can be made to harmonize with all kinds of situations or with all styles of architecture. Study your ground and its apparent needs. Then consider your personal needs and your desires and plan and plant as nearly as you may with all these allied interests in mind. You will be urprised what a satisfactory garden you may build. Stand away from your house and grounds, out in front, and see if some disposition as to plan and planting does not suggest itself as the main theme to follow. Robinson, the highest authority, says every place invites plans for itself only.

Propagating Shrubs

This is a fine time to propagate deciduous flowering shrubs from cuttings. I have seen material cut from shrubs with pruning shears, stuck in the soil in bundles to await time for making cuttings, forgotten, and nearly all grew. But lilacs, bridal wreath, deutzias, wigelias, lemon verbena, and all that class may be cut into cuttings with a good sharp knife, inserted in the soil for three or four inches, kept damp, and nearly all will grow. No need to buy such plants or to get along with but one in your garden when you may have scores. Do it now.

Acacias for Flowers

In the Eastern states acacias are grown for flowers alone, which is never the chief consideration in California. However, some attention may be paid, among those fond of a variety of plants, to this class of acacias. The best one is a dwarf species, not yet common, known as Acacia pubescens. Next comes A. podalyraefolia, not common here, but handled by nearly all dealers and a real gem. Of the sorts most common with us A. longifolia yields the finest crops. The flowers do not come in globose bales as is nearly always true but in catkins like unto the pussy willow.

Divide Perennials Now

Old clumps of golden rod, golden glow, perennial asters, sunflowers and all that class may now be divided and replanted and will yield perhaps a hundred fold over the flower crop of last season. Good crops of flowers are seldom borne on old matted clumps. A little later division should be made of cyperus, papyrus, elephant's ears and those plants which luxuriate only in hot weather. It is still a little cold for such plants and for dahlias, 'mums and a few others. But early in March all should come to the slaughter and be torn to pieces for the new and better life that awaits them in the coming summer.

FIGHTING MILDEW ON ROSES

Very general complaint has been made of roses mildewing through the past summer. This mildew has resisted copious and frequent applications of flowers of sulphur. The United States department of agriculture recommends for this trouble fall spraying with lime-sulphur or potassium sulphid. After cutting back in the fall, the plants should be sprayed with lime-sulphur or strong Bordeaux mixture. The control sprayings for rusts should be ammoniacal copper carbonate. The fall spraying should be with a strong Bordeaux mixture. For leaf-spot, leaf-blight and anthracnose, the control sprays may be either Bordeaux mixture or ammoniacal copper carbonate, and the fall spraying should be with the former.

THE SILVA-BERGTHOLDT CO.
CALIFORNIA FRUITS
NEWCASTLE, CAL.
Foot-hill grown trees are immune from crown-gall and root-knot
Roots such as are grown only on our foothill soil and location.
THEY ARE TREE INSURANCE

We Insure You Trees Free From Disease

Don't Gamble on the Future of Your Orchard

Don't risk the loss of several years of your time and the waste of your money by getting nursery stock that may be infected with crown-gall or root-knot.

If You Buy Our Foothill Grown Trees

they will come to you clean. The foothill lands on which we grow our trees are immune from crown-gall, root-knot and diseases common to other localities.

PRUNES	ALMONDS	PLUMS
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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at this office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Perhaps Chicken-pox

I have some chickens hatched last March and also some a year last November. They laid well up to September and November ones even through the molt. Since then neither lot has laid any eggs to amount to anything. Feed is dwarf milo (evenings), dry mash, milk and all the free range they want in orchard planted with barley. They have small black blotches on their combs like fur and lobes very yellow, otherwise seem healthy, and droppings natural. Neighbors complain of same trouble.—Subscriber, Klink.

Is it possible that your flock and those of your neighbors have been suffering from a mild form of chicken-pox? The sores and scabs in chicken-pox are usually yellow or grayish-yellow and cover the head as well as the comb, but a mild attack of this disease does not affect the health, and it should run its course in two or three weeks. If I were you I think I should treat for chicken-pox. Anoint the combs with carbolated vaseline and give a dose of calcium sulphide all around daily for a week. The dose is one grain for each full grown fowl. Mix it in a wet mash and see that the drug is thoroughly distributed through the mash so that each bird gets its share.

It may be that some of your hens have molted late. March hatched pullets often do molt in the fall. This would account for part of the falling off in egg production. A variety of grains is better than one single kind at all meals. Why not try sprouting seed barley for the morning meal? Soak overnight, then spread out on the bottom of a box or tray and cover with burlap. It will sprout in four or five days, and when fed as soon as the green sprouts show serves as both grain and green feed. The dry mash also should contain a variety of ground grains with about 15 per cent good beef scrap unless the birds have all the milk they will eat, when the beef scrap may be considerably reduced. See that they have all the green feed they will eat every day. Green feed is one of the best encouragers of egg production. Of course they may get enough in the orchard, but then again they may not. Leghorns would, but some of the heavy breeds are too lazy to forage for their green feed when it is right before them. That is where the sprouted grain is so useful.—J. A. K.

Peas for Glenn County

Answering inquiry as to best variety of peas for growing in Glenn County A. R. Gould says:

"If it is proposed to grow peas very extensively and to supply the canners, Alaska is the most popular and is exactly suited to severe weather and will even stand a very wet season. However a comparatively new variety known as Little Marvel, is a heavier cropper and when better known will become popular we think with the canners and would also be the leader in the market and if grown in a fairly warm location would come in early. The most vital point to consider when growing peas commercially is to sow early and select a warm location, say a hillside, as peas put on the market by the first or second week in March command the highest price. Personally the writer would have no fear of being able to secure large prices for any of the varieties mentioned in the monthly notes if he were able to get them into the market early enough, and this should be the main object if they are grown as a commercial crop as there would also be less risk of having them destroyed by aphis, which is a chance all large growers take."

Budding Peach Trees

What is the best method of budding peach trees and when is the best time?—Subscriber.

We take it the subscriber is inquiring as to nursery stock for bearing peach trees are seldom budded or grafted over into other varieties. For nursery stock fall budding is more common. If done in the spring it should be any time after growth has begun and the young plant is filled with sap, or perhaps more common is the grafting of the stock while dormant just before starting spring growth.

Dip for Goats

Kindly give formula for making a dip where tank is used for dipping goats for lice. How long should the goats remain in the liquid in order to be effectual in killing all the lice?—Subscriber, Pasadena.

Perhaps the simplest is one of the commercial coal tar dips. They are mixed in water, and a two or three per cent solution is considered effective. Tobacco dip, lime-sulphur and arsenic dips are also used. Where the tobacco dip is used it should not be in strength over .05 nicotine. Specific instructions are given on wrap of tobacco extract container. Where one has the tobacco stems or leaves a nicotine dip may be made by taking 21 pounds of good prepared tobacco leaves for each 100 gallons of dip required. Soak the leaves in cold or lukewarm water for 24 hours in a covered pot or kettle; then bring water to near boiling point for a moment, and, if in the morning allow the infusion to draw for an hour; if in the evening, allow it to draw overnight; the liquid is next strained (pressure being used to extract as much nicotine as possible from the wet leaves) and diluted to 100 gallons. This dip should be used as fresh as possible as it contains a large amount of organic material which will soon decompose. The animal should be kept in any of these dips only long enough for liquid to penetrate to the skin.

Wax for Tree Wounds

Please give best wax for using where large limbs are cut or bark has been bruised.—Subscriber, Fresno.

There are several different forms of tree wax, some requiring heat to fit them for use; others in the form of a

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Sixes have come into renewed popularity since the Super-Six won the top place. But the Super-Six invention—controlled by our patents—added 80 per cent to the six-type efficiency. And that 80 per cent is what gave it supremacy, when the V-types threatened to displace the Six.

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It was the Super-Six invention, remember, which then saved the day for the Six.

Hudson engineers discovered the shortcoming. By a basic invention they corrected the fault. They ended nearly all the vibration. They doubled the motor's endurance. Thus they created a motor which has since won all the worth-while records.

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That vibration, which wasted power, was the great fault of the Six. It is that which led to the Eight and Twelve as a possible solution. Any motor in which that fault remains can't compare with the Super-Six.

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varnish or shellac to be applied cold. Those more generally used are made of tallow, rosin, beeswax and possibly linseed soil. This formula is given in Bailey's Cyclopedia of Horticulture: "Melt together one part of rendered tallow, two parts of beeswax and four parts of resin. The melted liquid is poured into a pail or tub of water, when it immediately hardens. It is then pulled until it is light colored and develops a grain. It may be put away for future use as it will keep indefinitely. When used the warmth of the hands will cause it to soften. The hands should be greased to prevent it from sticking."

Grape for Arbor

What is the best grape for arbor? Does the Mission do well?—Subscriber, Pasadena.

The Mission is as a rule not satisfactory; it is not long-lived, at least not in some sections. Where the grapevine is desired merely for ornament and not quality of grape the Le Noir is perhaps the best. The Concord, the old-time Eastern grape, does well as a rule, and a more luscious grape it would be hard to find.

Fumigating Beans

Will you please tell me through the Cultivator what gas to burn to destroy parasities in dried beans and in what proportion?—Subscriber, Los Angeles.

Insects in beans are controlled by the use of carbon bisulphide, but keep fire away from it. The carbon bisulphide comes in liquid form and vaporizes when exposed. It is highly inflammable and should not be approached with lighted lantern, cigar, etc. Beans should be placed in air tight bins and the carbon bisulphide poured into shallow dishes and placed on top. As the gas vaporizes it sinks through the beans till it reaches the bottom of the bins as it is heavier than air. It should be used at the rate of three pounds to 1000 cubic feet of air space and beans should be left with the gas in the closed container for 24 to 48 hours to destroy the insects.

Cutting Alfalfa

Have any of your readers had any experience in cutting well cured alfalfa with an ensilage cutter and blowing it into a barn? What kind of feed would this be for horses, cows, calves, etc. Would hay, cut fine this way, keep all right if well cured and be all right for stock fed on it?—Subscriber, Tulare.

It is thought by many to well cover cost of cutting alfalfa hay which is often mowed away as suggested by the inquirer with the pneumatic blower. We ask any subscribers who have had experience to give as to their methods of handling. Stock will eat this feed much cleaner than uncut hay.

Relinquishing and Maintaining Filing Right

May one who has filed on desert land relinquish this land when it is shown that he is unable to secure water with which to prove up and in so doing maintain his right of making another filing? Also may he file homestead claim?—Subscriber.

Alex. Mitchell, receiver of the Los Angeles land office, writes: "Relinquishment of a desert entry places the claimant in position to file a second desert land entry, providing he receives no consideration for his relinquishment above the filing fees and improvements that he may have caused to be placed on the land." One may also file a homestead claim under certain restrictions. For full information on this point write to your nearest land office or to General Land Office, Department of the Interior, Washington, D. C., for Circular No. 354, "Second Homestead and Desert Land Entries."

Fine Coat on Horse

How can I maintain glossy coat and best appearance of driving horse?—Subscriber, Pennsylvania.

Thorough grooming of a horse is essential to its health and appearance and calls for almost constant or at least regular attention. The work may vary from simply using the bare hand and arm to the use of the vacuum cleaner and brush. There is always more or less dust picked up in ordinary work, also there are cast-off par-

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ticles of skin which should be removed. In warm weather, especially with white horses, a water bath is sometimes advisable. We have seen light-colored horses thoroughly sudsed with good castile or a standard white soap, then rinsed with hose and allowed to stand in sun for a short time, when coat is rubbed down with dry cloths while still moist. Some object to the use of sharp metal currycomb, especially in the case of a sensitive horse. With such horses the currycomb should be dulled with a file, and great care used in loosening the dandruff. Besides the currycomb, if it is used, there is necessary a bristle body brush, rub rag, sponge, wisp, etc. Where the currycomb is used it may be used "the reverse way" of the hair, following with brush and finally the cloth. Some go so far as to clean and polish and finally shellac or varnish the hoofs. This is really objectionable for a well cleaned hoof is far more beautiful. Never use the currycomb below the knees and hocks. Only the brush or a soft rag should be used. Of course the trimming shears should be used around the feet and sometimes on forehead. Of course some especially long coated animals may be clipped. The use of the vacuum cleaner is not so generally adopted but it enables very rapid and very satisfactory work. Of course the first essential of a good coat on any animal is thoroughly healthy physical condition. A plentiful feed of oats with light feed of oil cake meal is thought by some to aid in glossing a coat.

Spraying Apples

How should I spray my apples to keep them from being wormy?—Subscriber, Tulare.

Use a good neutral lead arsenate, six pounds to 100 gallons of water. As soon as the blossoms fall spray again at intervals of ten days to two weeks through the early part of the season. Use right angle delivery of nozzle so as to throw spray into blossom end of the fruit as much as possible. There will be more regarding this in the columns of the Cultivator near the spraying season.

Grain Mixtures for Brood Sows

Could you please tell me in what proportions to mix the following feed stuffs for brood sows carrying pigs: Alfalfa meal, beet pulp and shorts, mixed together and soaked in water, or can you suggest a better and more economical combination that will answer the same purpose?—Subscriber, Laguna Beach.

This query was referred to Prof. F. W. Woll who answers: "I would suggest two parts of shorts to one each of alfalfa meal and beet pulp, all by weight. If shorts are considerably higher in price than the two other feeds, as they are likely to be, somewhat more beet pulp will make a cheaper grain ration, say two parts each of shorts and beet pulp and one of alfalfa meal. In feeding brood sows it may be that a mixture of equal parts of the three feeds will give as good results as either of the grain rations given, and this latter will very likely be the most economical combination in which the three feeds can be given this season. The objection to feeding a large proportion of alfalfa meal to pigs or brood sows is that it contains nearly 30 per cent of fiber, against about 17 per cent in beet pulp and six per cent in shorts, and the digestive apparatus of swine is not as well adapted to getting the full nutritive effect of feeds high in fiber as is that of the ruminants, like cattle or sheep."

Sand Over Soil

Have rich, damp adobe soil covered three feet deep with sand from floods of three years ago. Will rye grass do well planted on this sand?—Subscriber, Arroyo Grande.

Presumably not, that is, grass roots would not penetrate below three feet of sand.

Drowning Out Bermuda

Touching upon the drowning out of Bermuda grass where it has become a pest, a subscriber at Thermal, Riverside County, Mr. L. D. Mallory, writes: "When the Salton sea filled up it covered a field of Bermuda grass which remained under water for four

Continued on Page 175

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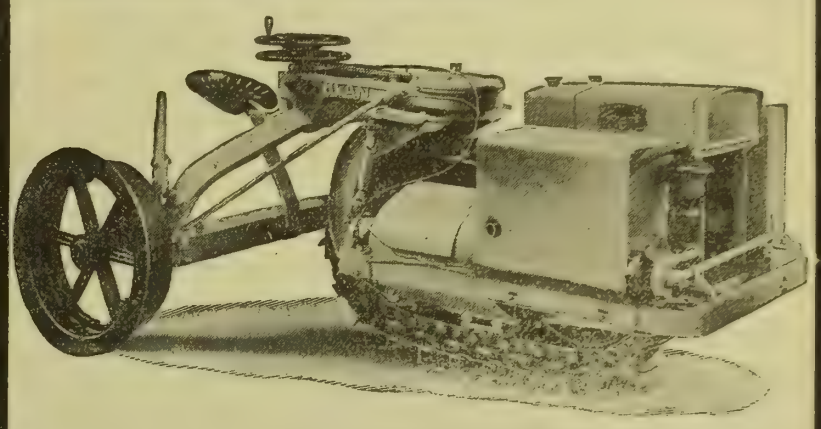

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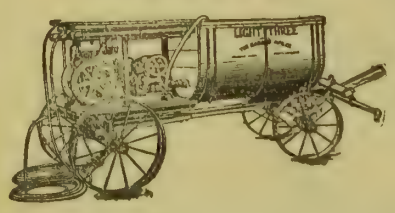

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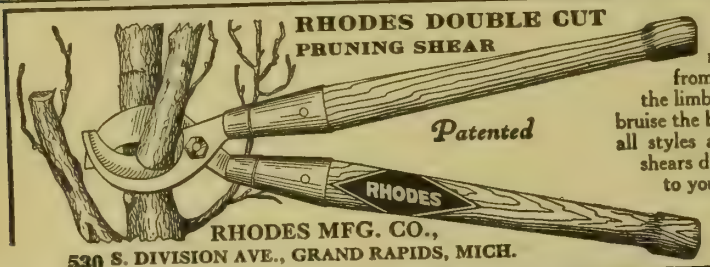

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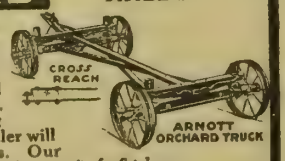

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Growing Milo and Egyptian Corn

THE good results which have come from feeding various sorghum grains to live stock, and especially in the making of beef, pork and eggs, are attracting so much attention that we have asked the division of agronomy of the agricultural college for the latest information regarding planting and growing of these grains. B. A. Madson of the university farm gives an outline of the best methods. Unfortunately the state has no bulletin or other publication on this subject.

B. A. Madson

"These crops should be planted from about the middle of April to the first of May. The usual method of planting is to drill them in rows three and a half feet apart with the plants from four to eight inches apart in the row, depending upon the character of the soil and the amount of moisture available. These rates of planting will require from five to seven pounds of seed per acre. The depth of planting varies with the character of the soil and with the condition of the seed bed. If the seed bed has been well prepared with a shallow mulch on the surface, planting to the depth of two inches will usually be sufficient to bring the seed in contact with moist soil. If the seed bed is rough and the surface dry to a considerable depth, deeper planting will be necessary, but it is probably never advisable to place the seed at a greater depth than four inches.

"After the crop is planted if the soil tends to crust before the plants appear, the field may be cultivated either with a harrow or Dunham roller in order to break this crust. When the plants attain sufficient size so that the rows can be plainly seen they should be given a rather deep cultivation, using an ordinary corn cultivator. This implement will stir the soil to a considerable depth, providing a deep mulch and at the same time destroying the young weeds. Two or three similar cultivations during the growing season, or until the plants head, is usually sufficient.

"These crops are grown in a great many sections of the state without irrigation, although where the rainfall is less than 12 inches and irrigation water can be provided, it is usually much better to irrigate. Two irrigations during the growing season are usually sufficient, the first application of water may be put on at any time when the plants exhibit a particular need for it. The second application, however, should be given about the time the plants start to head in order to maintain rapid growth during the fruiting period.

"Milo and Egyptian corn should not be pastured early in the growing season as in this process the plants are apt to be totally destroyed. In growing a grain crop it is a much better practice to force the plants to full maturity as rapidly as possible.

"Harvesting is usually done by cutting the heads by hand when they are fully ripe and spreading them out on the ground or on a layer of straw to cure. This curing process will require about ten days and is absolutely necessary as green or damp seed when placed in a bin will heat and spoil very quickly.

"When the heads are cured threshing is done with the ordinary grain thresher, the only modification necessary is a reduction in the speed of the cylinder to prevent the cracking of the grain."

Soil Requirements of Sugar Beets

By Prof. G. E. Bensel, Consulting Agriculturist in Sugar

IN the early days of sugar beet culture it was generally accepted that sugar beet crops required a soil of heavy nature and that no successful crop could be raised on land of light texture.

The area cultivated to sugar beets was originally limited to heavy loams, but on account of the rapid growth of the industry and the fact that farmers learned more and more of the indirect benefits derived from its culture, it extended its limits far beyond the class of heavy soils, and at the present time, I dare say, beet crops are raised on rich sandy loams and that even very sandy soils are growing good, profitable crops of sugar beets, providing these lands are in a high state of cultivation.

Lands of high producing power, regardless of their physical nature, are adapted for sugar beet culture. Profitable sugar beet crops are grown on all types of soil, from the heaviest loams to the lightest of soil, as well as all the intermediate types.

By land of high-producing power is meant soils of a high fertility. The word "fertility" means in the broad sense the presence in the soil of those conditions which are necessary to the growth and development of plant roots. A fertile soil is one supplied with moisture, with humus and plant food; a soil which is well ventilated; which is sanitary and well supplied with germ life—these five requirements are essential, and if one of these factors be deficient, the yield and quality of the sugar beet crop will be considerably reduced.

Water-Holding Power

Considering the fact that a sugar beet crop of average composition contains only about 20 per cent of its total weight in dry matter, scientific data show that a ton of dry substance requires about 300 to 600 tons of water, which, calculated on a 20-ton crop, means from 1200 to 2400 tons of water per acre. As one inch of rainfall, or one acre-inch of irrigation water, represents 100 tons of water, we must realize that a full crop of sugar beets will require from 12 to 24 inches of rainfall, depending greatly on the nature of the soil and its distribution over the period of vegetation.

Soils of a heavy nature have a greater water retaining power than the light soil, but this missing quality can easily be overcome by increasing the humus content; a light soil rich in humus will retain the moisture providing its texture is not too coarse and does not contain any gravel. The most important point to consider is the internal surface of the soil; the more of this total area it is possible for bee roots to grow upon the more wate and food they will obtain and the larger and more vigorous will the root system become. The great problem confronting the sugar beet growers is no only to fill the soil with water bu having a moderate amount of water, t conserve that water. There should b more cultivation and surface mulchin and less irrigation; there should b

more organic matter furnished the soil, either from barnyard manure, green fertilizer, beet tops, or other forms, thus giving the soil a larger water-holding power.

The water-holding capacity is one of the most vital points to be considered in the selection of sugar beet land.

Humus or Organic Matter

In the past not enough stress has been laid on the humus content of beet land—if a soil is deficient in this element it is very advisable to have organic matter incorporated into the soil before the land is cropped to sugar beets.

Humus (which is decaying vegetable matter, sponge-like and porous) has the power of absorbing and holding large quantities of water. If a soil is supplied with vegetable matter it will grow a much better crop of sugar beets than soils deficient in this ingredient.

A soil well supplied with humus is a soil rich in nitrogen; humus forms acids which will liberate large quantities of dormant plant food. It is the humus of the soil in which the bacteria (which make up the important germ life, an essential factor of fertility) live. By keeping the sugar beet land well supplied with humus we are, to a certain degree, controlling the moisture factor, the plant food factor, the ventilation factor and the germ life factor of the soil. I consider the moisture factor the most important to the beet grower, for it is the one most difficult to control. The water retention power of the soil varies with its physical composition. Experiments have shown that 100 pounds of sand will hold 25 pounds of water after having been filled until it would hold no more; 100 pounds of clay will hold 40 pounds of water; good sugar beet land will hold about 50 per cent of its weight; 100 pounds of humus will retain 190 pounds of water.

If raw land is deficient in humus, green fertilizing crops or beans (or even cover crops) should be raised before a sugar beet crop is attempted.

To sum up, I will say that the most powerful agent at our command controlling fertility is decaying vegetable matter or humus. The source of this decaying matter for the average beet grower is a leguminous crop that takes nitrogen out of the air and thus enables us to put new nitrogen into the soil.

Plant Food

The third important factor, considerably influencing the producing power, is the amount of available plant food. There are about ten different and absolutely essential elements of plant food, and if one of these is withheld not even a pound of sugar beets can be grown to the acre. Every one of these ten elements is positively necessary to the growth and maturity of the sugar beet. Two of the ten elements come from the air—carbon and oxygen—they are taken through the leaves in the form of carbon dioxide. One of the ten elements comes from water— hydrogen. But seven of them come from the soil—these are: sulphur, iron, calcium, magnesium, potash, nitrogen and phosphoric acid. The first two do not need to be given special consideration. Iron is contained in all soils in such abundance, and sugar beets require so little that it has never been found necessary to supply it to the soil. The first element (sulphur in the beet juice) has been detected, but how much is absolutely necessary we do not know as yet. The next two elements are calcium and magnesium. Calcium is an important element but magnesium can be considered of secondary importance. The three last elements which are the most essential are potash, nitrogen, and phosphoric acid.

Drainage and Ventilation

In order to secure these conditions, the soil must either have a good drainage, natural or artificial, secured by open ditches or tile drains. Through drainage the soil warms up sooner and to a greater depth, on account of the removal of the water. As the surplus of water is drawn out of the soil, air enters and ventilates the soil. As soon as the water level is lowered the roots grow deeper. Drainage not only removes the excess water from the soil but also increases the available moisture because it enables plant roots to penetrate deeper.

Sugar beet soil should be sanitary; by this is meant it should have the proper amount of moisture, and no more, and should have a good air supply as a sugar beet breathes in the same manner as human beings.

Beneficial Bacteria

Last, the soil should be well supplied with beneficial bacteria as the crop producing power of a given soil increases with the activity of the germ life.

If we want to get the highest yield of sugar beets we must see that the above requirements are fulfilled. If any of these conditions are lacking the yield and quality will be considerably affected. Undoubtedly all the land cultivated to sugar beets at present does not have the qualities described but should be, at least, of such a character that the missing quality can be easily supplemented either by direct application of manure or by the proper soil improvement, as drainage.

History of Patrons of Husbandry

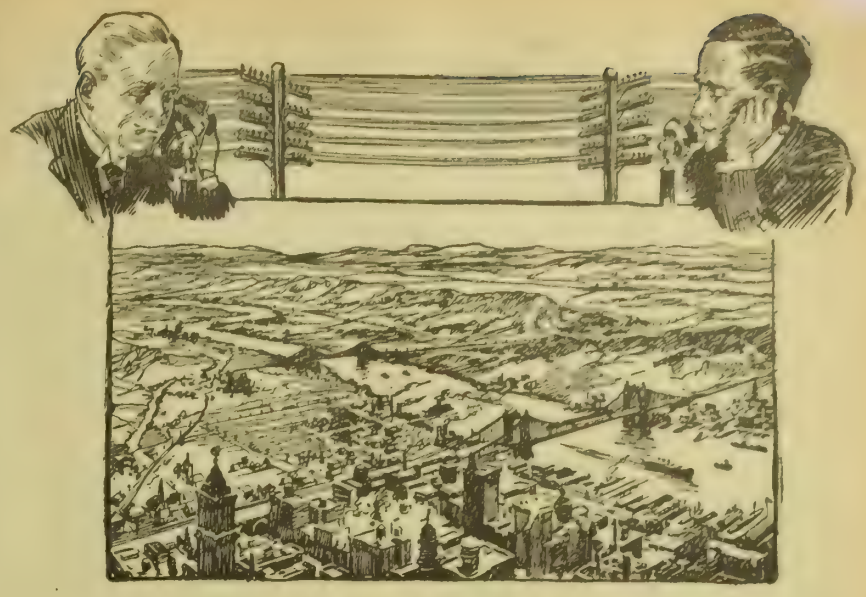
The Semi-Centennial History of the Patrons of Husbandry, by Thomas Clark Atkeson, master of West Virginia State Grange and past overseer of the National Grange, published by Orange-Judd Company, New York.

"At the close of the first half century of the existence of the Order of Patrons of Husbandry, it seems entirely appropriate that someone should write a Semi-Centennial History of the Order. The author has but little inclination to undertake such an important and responsible task, but having collected a mass of material bearing upon the history of the Grange, and having been urged by many members of the Order to do so, I decided to go through this material and arrange it for publication.

"First and last, much has been written about the Patrons of Husbandry, the Grange, and the 'Granger Movement'; but, aside from what has appeared in the newspapers and magazines and in the state and national Journals of Proceedings, nearly all this writing has been confined to the formative period and the decade from 1870 to 1880, and many of these writers seem to have reached the conclusion that the Patrons of Husbandry disappeared about 1880."

There are 28 chapters in the book, reviewing the accomplishment of this great organization and giving sketches of many of those responsible for its great work.

There is also an appendix containing a list of all the officers of the national association from time of founding to the present.



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Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday Feb. 10, 1917

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

We believe that practically every intelligent orchardist is an intelligent pruner. We say practically everyone, for we realize there is an occasional fruit grower who believes there is no more need of cutting a branch from a tree than of cutting a limb from a human being. But if such growers live and care for fruit long and keep their eyes open, they usually determine that there is a difference. On the cover of this week's paper is a photograph of an almost perfect walnut tree. English walnut, we almost said, but California walnut is better. This latter term would doubtless be used more were it not for the fact that the California black seedling is used as a stock for the softshell, or ordinarily called English, walnut, or perhaps Madeira nut, but in any case English it is not and California it is, so let us adopt the name.

As to the shaping of this particular tree or as to the shaping of a walnut tree so as to bear best crops read Mr. Neff's article on third page of this issue. It will take but a moment; it is short, but it says things.

MORE CONSERVATION

Of all the sections of California abundantly supplied with water Fresno claims an advantage. Her waters are abundant and are delivered by the aid of gravity so that the cost is practically nothing, but with all the abundance and cheapness there is more to be desired. Some lands are without water and practically all the districts are less effectively managed than they might be if the various systems could be coordinated. Hence the seers of larger possibilities for Central California are suggesting a $15,000,000 combination which will not only conserve and use more effectively the resources now at hand, but will build great impounding reservoirs to hold back the floods which destroy, making them instead a blessing to the land.

George C. Roeding has been made chairman of the committee which is making preliminary investigations. It is one of the big movements which will take years to bring to completion, but trust Central California to bring it about.

WAR

Just as we are going to press we have a letter from a subscriber in San Diego County. The subscriber is a widow, a mother. She writes:

"If the United States should become involved in war and find it necessary to draft men, would a young man of 23, his mother being a widow past 50 with two daughters in school, be drafted?"

Most assuredly the young man is eligible and might be called to his country's colors. In time of war the welfare of the mothers of the land and the welfare of the children of the land cut but little figure. War is brutalizing, as has been shown by events in Europe. Three years ago had we charged Christian nations with acts which have been done since the beginning of this awful war it would have caused a riot had friends of those particular countries heard the charge. Now the United States is apparently being drawn into the same whirlpool.

America is today earnestly praying for peace and perparing for war.

May the prayer be answered. Meantime the sons are ready for the supreme sacrifice if need be, and if it is made it will not be as great as the mothers of the land will make.

HOLD 'EM TO IT

The California Lima Bean Growers' Association, like other cooperative organizations, has its troubles. It is having them now because some members have considered their contracts mere "scraps of paper". Their word, given apparently in good faith, was violated at their convenience. When their beans were needed to fill orders received they were sold to outsiders to be used in competition and weaken and unsettle the market. Now the association has placed its violated contracts in the hands of attorneys, and action will be taken to secure damages. Another year a different contract will be signed, carrying with it a clause by which the grower will agree to pay a certain penalty for every sack of beans he markets outside the association.

We sincerely hope that the association will win this fight to secure justice from those who violated their word last year. The association sold short because of these violations and loss was thrown upon the members who stood true.

ORANGE DAY

March 10 is California Orange Day. A California Orange Day committee has been appointed with headquarters at Los Angeles, and appeal is made to all the world to eat one or more oranges and in various other ways honor one of the most healthful of foods.

One ambition of the committee in charge is to make the orange crop of California bring into the state this year the $50,000,000 which will be sent out of the state to buy automobiles. However, we think the greater reward to the world will come from giving attention to this luscious fruit. Thirty railroads are helping in the campaign. Dining cars in all parts of the United States will observe the day. Remember the day, March 10.

CITRUS CONVENTION

State Commissioner of Horticulture Hecke informs us that arrangements are in the making for a great citrus convention to be held in Riverside June 4-9. There are so many sections in California producing citrus fruits that Commissioner Hecke has deemed it wise to call all horticultural commissioners of the state together. Even where they are from counties not interested in citrus he wishes them to come and see cultural methods as practiced in the citrus sections. So, preceding the convention, commissioners will gather and discuss not only mealy bug and other citrus topics, but all cultural methods.

The new commissioner proposes to keep in touch with every nook of California which has to do with fruit culture, and frankly says that successful methods which have been practiced in his own orchards in Yolo County are, many of them, due to inspiration received from methods practiced by citrus orchardists.

MEALY BUGS

On Tuesday there was held in Riverside a conference of horticultural commissioners of the citrus districts of Southern California to discuss the eradication, or rather the control, of the citrus mealy bug. This pest seems to be held in check by natural enemies until at times there is a combination of circumstances which enables it to develop beyond normal, and trees are seriously injured. Part of its life is spent in the ground, and its control offers many difficulties. Sections which are comparatively immune have proposed to take drastic measures to eradicate the first showing of the pest. We go to press too early to give recommendations of the commissioners, but this conference was under direction of State Horticultural Commissioner Hecke who went with Secretary Maddox to Southern California to aid in control work and to receive suggestions of the county commissioners. Mr. Hecke gives assurance that every effort possible will be made by the state board of horticulture. Prof. H. J. Quayle of the University of California and R. S. Woglum of the federal department of agriculture are making investigations. The state insectary, under direction of the state horticultural commission, will also join in this campaign. Within a few weeks a definite campaign will be outlined.

COW TESTING

THE Cultivator is receiving assurances from dairymen who are members of cow testing associations that they are entering the contest for the Cultivator's $300 offered in the University of California Dairy Cow Competition. The dairyman who has been wise in choosing and who will be wise in feeding and in caring for his dairy will have a reward to justify his wisdom and care. In addition the Cultivator would encourage greater effort along this line and offers one prize of $100 to the dairyman with herd of from ten to 25 cows, $100 to the dairyman with herd of from 26 to 50 cows, and another $100 to the dairyman owning herd of over 50 cows, who shall make the greatest butterfat showing in the state dairy cow competition now under way. March 1 is the last day on which entries may be made. Every dairyman, member of a cow testing association, should write at once to Prof. F. W. Woll for entry blanks.

Agricultural Notes

The Chinese government has been experimenting for some time with sugar beet culture.

The coming year's appropriation of federal funds for rural post roads gives to California $302,127.

Over a million and a half people use the national forests as playgrounds is the report of the forest service.

Citrus growers of Sicily are backing a citric acid factory at Messina which will utilize much of the cull fruit.

The 1916 salmon pack of British Columbia amounted to 1,000,000 cases. The run of sockeye was unusually small.

Experiments are being made in England in manufacture of milk from peanuts, soya beans, sugar, water and the mineral salts found in milk.

Over $6000 in fines has been collected the past year from violators of the pure food and drugs act by the California state board of health.

The highest prices ever were realized for South African wool this season, the record price being 54 cents per pound for super hoggets.

The Japanese produce a "vegetable milk" from the soy bean. This milk is used fresh, in a condensed form, and as the basis for vegetable cheese.

The total value of crops and animal products in the United States in 1916 was $13,449,000,000 according to estimates of the department of agriculture.

A gain of 3½ per cent in the commercial sugar crop of the Hawaiians is said to be assured by the invention of a new process for recovering sucrose from final molasses.

Oil mills on the Pacific Coast have been operating for several years with soy beans imported from Manchuria and have found a ready sale for the oil, cake, and other products.

The Swiss state railways, owing to the insufficiency of coal which previously has been imported from Germany, recently announced that they would be forced to reduce railroad traffic by one-third, beginning February 15.

A cooperative fruit growers' association of South Africa maintains selling quarters in Johannesburg for direct disposal of fruit to wholesalers, no quantity less than box or basket being sold. An auction is maintained from seven to nine o'clock for disposal of the larger lots.

Uruguay suffered terrible losses last season through drouth and locust plague. The department of industries recently called a national congress of live stock men and farmers to consider relief measures and investigate means of preventing a recurrence of such losses.

The English food controller has fixed the following prices to growers for the 1917 crops: Wheat, 60 shillings per 504 pounds; oats 38s. 6d. per 336 pounds; potatoes, in not less than six-ton lots f. o. b., 115 shillings per ton, from September 15 to January 31; 120 shillings for delivery in February and March, and 130 shillings other times.

At a recent conference of the Australasian fruit growers in Melbourne a motion asking for increased duty on fruit entering Australia was defeated. (American apples, oranges, lemons, etc., are now being imported into Australia in large quantities.) Another motion was passed urging that California admit Australian fruits generally from districts free from fruit fly or other diseases."

Agricultural News Notes of the Pacific Coast

Northern California

The Napa schools have inaugurated a pork producing contest.

Rice growers of Yuba County estimate their output at about 50,000 sacks.

Some 7000 acres will be planted to almonds in the Arbuckle section of Colusa County.

Farm advisers of the state will gather at Berkeley on the 11th for their annual contest.

Forest rangers of California met at Berkeley January 3-12 to discuss problems of forestry.

Prunes lead in heavy planting this season in Butte County. Olives and oranges come next.

The university farm at Davis has opened for the spring term with an enrollment of over 300.

The output of potatoes from the Fruit Ridge district of Eldorado County is expected to be 75 carloads.

Colusa County's grain fields in the Arbuckle section are being changed into vineyards and almond orchards.

Boys of the grammar school of Gridley, Butte County, have entered into a pig growing contest, which will close May 25.

Woodland, Yolo County, has a municipal work yard where all men out of employment can break rock at $1.10 a cubic yard.

The farm center at Orangevale, Sacramento County, has elected Samuel Thompson, president. The next meeting will be held February 19.

Butte County rice mills are attempting to establish a price of $1.75 per hundred on rice. The farmers are holding out for $1.85 and $1.90.

Cattlemen of the north are relieved at the change to warmer weather which means they will save the cattle which are dependent on range feed.

According to report of County Horticultural Commissioner Boedefeld of Colusa 1000 acres will be added to present prune plantings the next season.

Central California

Fig buyers are reported in the fields trying to buy up the 1917 crop.

The Raisin Association reports that the crop this year brought in over $8,000,000.

Announcement of the erection of the sugar refinery at Manteca has started something of a boom.

The Central Stockmen's Association reports a large increase of membership in Fresno County.

A large force of men are employed on the construction of the Spreckels sugar factory at Manteca.

The series of meetings held in Merced County for organization of farm bureaus has come to a close.

A bill providing for a standard of maturity for oranges has been introduced in the legislature by Senator Ashley.

An electrical display and floral parade are planned as part of the celebration of raisin day at Fresno on April 30.

Pay checks amounting to over $1,000,000 have just been mailed from the office of the California Associated Raisin Company.

The Santa Clara County Farmers' Union has elected E. A. Colby of Moreland, president, and W. S. Breton county marketing agent.

The Dinuba Grange will hold its regular meetings on the second Saturday evening of each month, instead of afternoons as heretofore.

The California Peach Growers' Association is receiving many letters commending the peeled peach which is now being offered to the trade.

Directors of the Madera County Fair Live Stock Association are negotiating for 100 acres of land near Chowchilla, to be used for fair purposes.

J. W. McCauley of Visalia and Arthur Swall of Tulare have been elected trustees from the seventh district of the Prune and Apricot Growers' Association.

Southern California

Lettuce is bringing a dollar a crate f.o.b. Brawley.

Beaumont has had a season precipitation of 9.93 inches.

The National Orange Show will be held at San Bernardino February 20-28.

There is talk of removing the pathological laboratory from Whittier to Riverside.

A new geological map of the state of California has just been published by the state mining bureau.

The Wells Fargo Express Company is encouraging the raising of truck crops in the Palo Verde Valley.

The Arlington chamber of commerce is making investigation with a view of establishing a cannery at that point.

The Timken Ranch Company near Brawley is arranging to plant 1400 acres to cotton and 1400 acres to alfalfa.

It is anticipated that large plantings will be made of apricots this year as a result of good prices received for last year's output.

A bill has been introduced into the legislature providing funds for the establishment of a university farm in Southern California.

Imperial will hold its second annual horticultural assembly February 10. Dr. Elwood Mead will talk on land colonization and rural credits.

The Hemet-San Jacinto Growers' Association held a largely attended meeting last week at Hemet at which report was made of the year's work.

Manager Harlow of the Queen Colony Fruit Exchange writes regarding an item appearing in this column last week in effect that "practically all orange packing houses of Riverside County have installed water separators", and he adds: "The Corona district happens to be in Riverside County, but out of the 12 houses located in this district we know of none that will install water separators this year, as there is absolutely no need for it in the Corona section."

The Coast

Jersey breeders of the Boise Valley of Idaho have organized an association.

Union County, Oregon, reports the building of several silos during the last year.

Grant County, Oregon, paid out over $12,000 in bounties on wolves and coyotes during 1916.

Farmers of Bannock County, Idaho, are working to secure the appointment of a farm adviser.

It is reported that there is some demand from hat manufacturers for jack rabbit fur for making felt.

Latah County, Idaho, reports an unusually severe winter with three feet of snow on the ground at present.

Over 1600 attended the farmer's week at the Oregon agricultural college at Corvallis the first of January.

The state of Washington will receive $90,000 from the federal allotment for building of roads within national forests.

The potato crop of Kelso, Washington, last year brought in $35,000. This year's shipments so far total 50 carloads.

Prune crops of Yamhill and Washington Counties of Oregon have been very satisfactory, the biggest ever harvested in that section.

Dairymen of Snohomish County have formed an association and bought land in Eastern Washington on which they will raise their own hay.

Hop growers of the North Yakima district in Washington have decided to stop hop growing and devote their fields to raising sugar beets.

At the recent convention of the Oregon Butter and Cheese Makers' Association at Salem the raising of standards of quality was the main subject discussed.

Records of the Puyallup Valley Association of Washington for last month show the average production per cow to be 26.1 pounds fat. The record holder produced 83 pounds.

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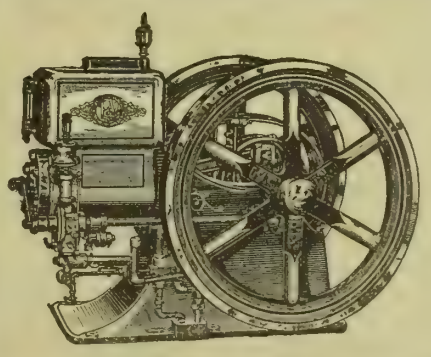

Mr. Farmer—

the time of year has come when you must arrange for that pumping plant at once. Don't put it off until you need the water. Likely your crops will dry up before you can get it installed. Better do it now. Now, remember Gregory sells the machinery to do this work. All kinds of Pumping Machinery. Little outfits complete for $65.00—big outfits in proportion.

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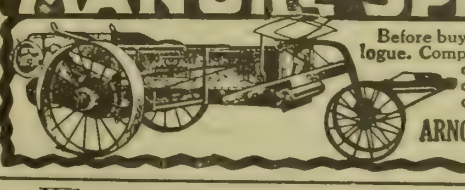

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Breeding Tonic makes sure breeding. Prepares organs for breeding. Use regularly and you will have fewer accidents and better, healthier calves.

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Get Dr. Roberts' Live Stock Prescriptions at your drug store—nearly 4000 dealers in U. S. Look for and insist on getting the package bearing Dr. Roberts' picture. If you do not already have the 184-page "Practical Home Veterinarian," treating all diseases of all live stock, send $1.00 and receive by mail, postpaid. Address

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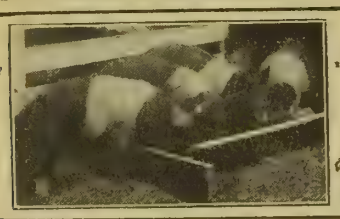

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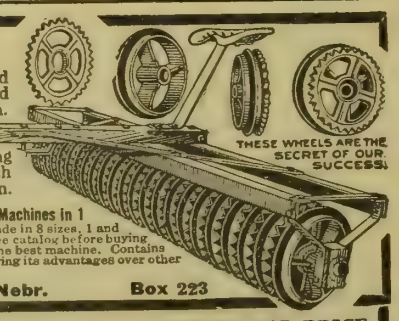

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There are many reasons why you should always buy advertised goods. They are guaranteed.

Feeding the Dairy Cow for High Production

Written for California Cultivator by J. M. Bomberger

I KNOW of no other feed that will stimulate milk production like fresh green alfalfa leaves. If there be such a thing as milk stimulant in feeds, I believe it is more abundant in the leaves of the fresh green alfalfa than in any other feed.

We dairymen in California are very fortunate in having an abundant supply of alfalfa to use as the base of our dairy rations, and we have besides a number of very excellent supplementary feeds.

Of course, it is not practical to feed all alfalfa leaves; but we should be very careful to save all the leaves when making hay so as to have the hay as leafy as possible, and when working for especially high records with very high producing cows it will pay to cut the alfalfa extra young so as to have the hay very soft and leafy.

Soiling

Alfalfa cut fresh and green as a soiling crop and fed as fresh as possible is even more efficient than the best of alfalfa hay for milk production, and when it is fed regularly there is little or no danger from bloat. I have fed alfalfa as a soiling crop for six years and have never had one case of bloat. I think one reason that cows are less apt to bloat when fed alfalfa as a soiling crop than when pasturing is because when soiling the cows are forced to eat the stems as well as the leaves, which necessitates more chewing than when only the tops and leaves are stripped off as in pasturing.

For soiling the alfalfa should be cut fresh every day, preferably when there is no dew, and it should be raked up and fed as fresh as possible and not be allowed to lie in a large pile and heat or sour. For a herd of 50 or more cows soiling is really less expensive for labor than making hay and feeding it. While green alfalfa is heavier to handle, the hay must be handled so many more times before it reaches the cows that are in my herd. After keeping careful expense accounts the soiling system has been found less expensive for labor, and very much more efficient for milk production.

Pasturing Alfalfa

A bountiful alfalfa pasture is more efficient for milk production than soiling or feeding hay; but from the standpoint of the welfare of the alfalfa land pasturing is, as a rule, not practical, and where pasturing is not practical soiling is the next best way of feeding alfalfa during the growing season and soft leafy hay during the winter.

Corn Silage

Those who are fortunate enough to have good corn silage to feed with alfalfa hay during the winter have one of the best possible supplements. The succulence and appetizing effect of the silage are a great help to maintenance of milk flow.

Concentrates

When choosing concentrates to be fed with alfalfa to high producing cows, use such mixtures as have been found by actual trial to fit in well with alfalfa rather than to depend upon theoretically balancing a ration and using an untried mixture. High producing cows, on test, are not suitable subjects for experiments.

When a certain mixture has been found very good with a certain cow or cows, do not change. If for any unavoidable reason you must make a change, make the change so gradually that the cow will notice the change as little as possible.

A few mixtures that I have found good are as follows:

Mixture No. 1. Equal parts of rolled barley and wheat bran.

Mixture No. 2. Equal parts of rolled barley, wheat bran, dried beet pulp and cocoanut meal.

Mixture No. 3. Equal parts of rolled barley, dried beet pulp and cocoanut meal, the mixture soaked in molasses water or where cane molasses is not available as such, molasses alfalfa meal may be used in the mixture.

Other tried mixures suitable for feeding with alfalfa may be had by writing to the state farm at Davis.

While it is important that proper feeds be fed, it is fully as important that the feeds be fresh, sweet and clean, so that the cows will relish the feeds to the fullest possible extent; because relish helps digestion quite directly and induces the cow to consume more feed and produce more milk.

All feed that has been left by the cow and nosed over and breathed over should be carefully removed before the fresh feed is put before the cows.

Be kind to the cows. Make friends of them. Hob-nob with them and you will be alert in noticing their needs and you will feel well repaid at the end of the ten months' test.

California and Arizona Cattle Interests Mutual

By A. L. Spellmeyer

California has been dominated by vast cattle interests which have dwarfed into insignificance the owner of a few hundred cattle. California has no brand inspection and lacks the protective laws afforded stock owners in Texas or in Arizona. The stockmen have had no associations, heretofore, worthy of the name, no cooperation, and have had until recently no stock papers which attempted to give range conditions and cattle news and correct prices of beef and feeders and yearling steers. The daily newspapers carry price quotations on both beef on the hoof and beef dressed, which are a great part of the time different from those actually exisiting. California is not stocked to capacity, and thousands of owners of good grass ranches would secure cattle if they knew where to get them and where to get the loans to carry them after they got them.

Arizona is a great export state for yearling steers as well as a limited number of twos and threes, steers and stock cattle. Arizona today has many full blood Hereford cattle eligible to registration, or registered, but California is the logical supply point, if Cali

fornia growers with their climate and fenced ranges ever wake up to the fact that a market is right at their doors for all full blood Hereford bulls and heifers they can possibly raise.

California today purchases over 100,000 Arizona-born cattle yearly; Arizona is interested in seeing the California man do well, as it means a market for the yearlings and stock cattle, feeders and beef, and a source of supply for bulls and full blood heifers which Arizona wants to improve its herds. Arizona is in the period of transition from open range to fenced range. Many ranges are being fenced, land bought and the greater expense is forcing a higher type of cattle.

One cannot blame the large oufits nor the packers, as California packers have, considering the opportunity afforded by the split up stock raisers, paid very good prices and have been most reasonable. The large outfits would welcome more stable prices, better quality and better marketing methods. At the present time hundreds of California ranches are being leased at from two dollars to five dollars per head per year for grass range, subject of course to sale, and these California ranches are not doing much more than paying taxes and expense, not figuring a reasonable interest rate of return. Lack of knowledge or inclination causes such California owners of grass ranches to lease instead of own their own cattle, although it is sometimes the lack of money to buy the cattle. There are many Arizona ranches which can supply stock cattle and would consider some arrangement much more satisfactory than the present lease system, or would lease at considerably more than present prices, if they knew the ranches and the parties owning them.

Wool Clip Commandeered

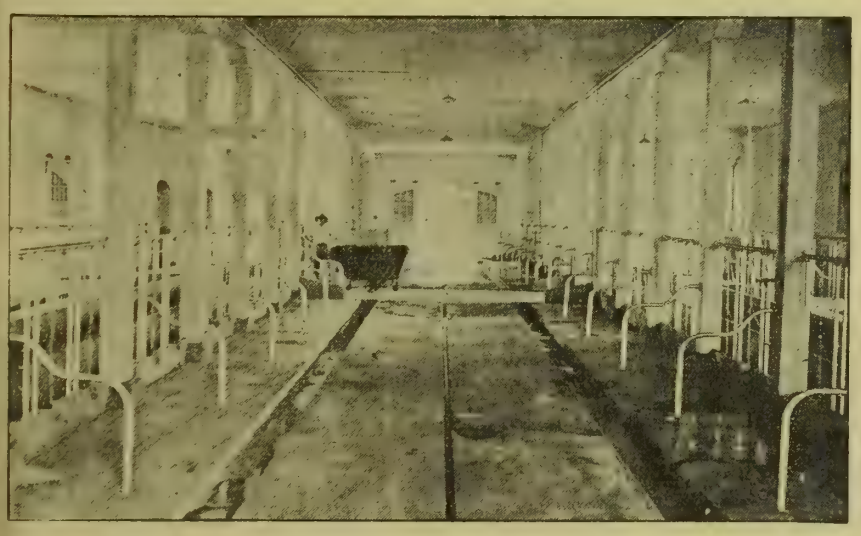
Word has just been received by Live Stock Specialist G. W Barnes of the Arizona state university, that the British government in addition to commandeering the entire wool clip of New Zealand as was decided two weeks ago, has now commandeered the entire cross-bred clip of Australia. Australia being chiefly a merino coun try the amount of cross-bred wool produced there is considerably less than in New Zealand, yet it is a very substantial quantity and will have a tremendous influence on the market.

During the next few months fine cross-breds will run up to astonishing prices. The sheepmen who continue to sack their wool will not get much benefit from the still greater advance to follow in a few weeks, but those who class and bale their wool will get the full benefit.

It seems the chief reason for commandeering this extra large quantity of cross-bred wool is on account of the great shortage in Russia. Most of the wool produced in Russia is inferior merino and carpet wool with a comparatively small quantity of wools suitable for army clothing.

This naturally leads one to believe that the decrease in the sheep population of many European countries is much greater than any one imagines, and, when the exact figures are known eventually, they will completely dwarf the great decrease in Australian and South American last year.

Unfortunately some of the sheep men in Arizona seem to stand aloof from the more progressive movement of properly preparing their wool for market. The sheep men of the Northwest seem to be more alert. The sheep men in Wyoming, Montana, Idaho, etc., who have the modern demonstration shearing sheds are realizing the importance of rapidly baling their wool and getting it on the market immediately after shearing, are now commencing to "scrap" their hand balers and introduce power presses. These power presses have been ordered shipped over and are to be installed immediately upon their arrival. Two of the modern shearing sheds in the Northwest are drawing plans for the alteration of the engine room so that power baling could supercede hand baling. Three of the sheds built last year handled 80,000 sheep. This season, nowever, they intend to handle 150,000 sheep and they have given instructions to engage the employes for two weeks longer than last season. Sheep men, where the modern shearing sheds are erected, seem to be awake and keen to go ahead, and the big problem is the securing of skilled help and the training of help to satisfy this progressiveness.



A Modern Milking Barn

The Trend of Beef Cattle Values

By Frank D. Tomson

The records show that public sales of beef cattle in the fall usually result in somewhat lower prices than in the spring and late winter season. Yet it would appear from the public sales held so far this season that Shorthorn values will hold to a higher level than during the spring sale season. The fact that the present season is an exception so far as the breed is con-

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For dairymen, farmers, feeders in all sizes and proportions.

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ARABIAN-THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned Imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent Santa Anita, Cal.

Another Shipment of Shorthorns Just Arrived

35 Registered Scotch-Topped Bulls
15 Registered Scotch and Scotch-Topped Cows and Heifers

All This Stock is Tuberculin Tested.
They are Large, Rugged Individuals with Excellent Bone and Quality

A Few Choice Berkshire Boars and Gilts For Sale

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First and Reserve Grand Champion
California State Fair 1916

The Type We Are Breeding For

Hardy, prolific sows of best blood lines and breeding. Strong, upstanding, prepotent boars. In short the best possible specimens of the Berkshire breed. We plan to do this by breeding large numbers and from them making a rigid selection.

James Mills Orchard Corporation
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There are many reasons why you should always buy advertised goods. They are guaranteed.

cerned indicates an increasing demand.

The sale of imported Shorthorns, held at Chicago November 1st by Carpenter & Ross of Ohio, resulted in an average of $911 on 72 head, all of the calves with two exceptions being sold separate from their dams. Had they been sold together, as is the prevailing custom, the average would have been considerably higher. The cattle were widely distributed, going into 11 Central states.

It was in the Anoka Farms sale in Wisconsin that the most positive evidence of demand for Shorthorn seed stock was manifested. The year's half crop, 40 odd head in number, sold for an average of $1016. At the opening of the sale ten of the most desirable were displayed in the ring, and when sold the average on these ten stood at $1900 per head. The Anoka Farms' exhibit in the get-of-sire class in the leading shows was included in this sale, and the quartet sold for an average of approximately $2400 each.

At the joint McDermott, Weaver & Garden sale at Chicago an average of $677 was made.

It is a significant fact that in these sales, no efforts were made to create unusual enthusiasm. The bidding represented the sober judgment of the farmers and breeders, and the settlements were practically all made in cash. The purchases were made for foundation breeding material and the discrimination in these selections clearly indicates the broad purpose of breeders in all sections to improve the standards of their herds in keeping with the general tendency toward higher achievement in American live stock husbandry.

Many farmers of Custer County, Montana, have built pit silos.

Advantages of Silos

IT will soon be time for planting silage crops. Why silage in California? A good answer is given in "The Silo in California Agriculture" by Prof. F. W. Woll of the University of California, published something over a year ago and from which we quote:

Advantages of Silos

"The system of making and feeding silage, often called the siloing system, must have some very important advantages over hay making or field curing of forage crops, for it can be truthfully said that it has largely revolutionized the methods of feeding farm animals in this country during the last quarter of a century. Some of these advantages are readily seen; others are more difficult to discern and can only be studied and their importance determined through careful experiments. The dairy farmer or stockman who adopts the siloing process may not be aware of the special advantages of this system but is doubtless often guided in his decision by the enthusiasm or favorable opinion of neighbors or agricultural writers or speakers with regard to the merits of the silo. It may be well, however, to consider briefly some of the main points of the superiority of the siloing system under the special conditions of farming in this and other Western states.

Silage furnishes a succulent, readily available feed of uniform quality which is greatly relished by all classes of farm animals and especially adapted for feeding dairy cows, beef cattle and sheep.

Generally speaking, the silo enables the farmer to secure the largest possible amounts of feed materials from a certain area of land for feeding farm animals, in the most convenient and cheapest manner.

The silo will preserve green feeds, like Indian corn, sorghum, grain forage, alfalfa, clover, pea vines, etc., in a succulent condition for feeding at any time during the year; it furnishes valuable supplementary feeds for late summer and early fall feeding, when pastures are likely to be short, as well as for winter feeding when green feed is either scarce or lacking.

The silo makes farmers less dependent on weather conditions than when hay is made, and enables them to get along with smaller barns or sheds than otherwise, since less room is required for storing feed in this form than in the form of hay, or other dry forage.

The value of succulent feeds in feeding milk-producing animals is well understood; silage also forms a valuable palatable feed for growing or fattening cattle or sheep, keeping them in a thrifty condition throughout the winter and doing away with the check in production that always occurs with changes from succulent to dry feed.

The acidity of the silage, which comes largely from the lactic acid formed in the fermentation of the feed, has an important dietetic value, regulating the bowels and checking undesirable putrefactive processes in the intestines. The favorable influence of silage on the health of animals that has been commonly observed is, in all probability, due partly to the silage acids and partly to the succulence of the silage.

A Jersey cow owned by W. C. Whitsett of Orland heads the list of butterfat producers in Glenn County with 75.3 pounds of fat for the month.

STATE JERSEY BREEDERS

The California Jersey Breeders' Association recently convened in Stockton and the members exchanged congratulations on the fact that new life is being instilled into the Jersey industry. The Jersey futurity stake was arranged and time of closing of entries extended to March 1, 1917. This will be a regular event at the California state fair each year.

LIVE STOCK SALES

Kings County Third Semi-Annual Poland-China Breeders' Assn. Sale., Hanford, March 7, 1917.

Stephenson Holstein Herd, Lake Mills, Wisconsin, May 1, 2, 1917.

D. O. Lively Stock Farm Sale, Hereford Cattle, Mayfield, May 3.

Pure Bred Duroc-Jersey Hogs, Brawley, California, Monday, February 25, J. P. Williams, Mgr.

The date was set for the regular annual meeting during the state fair on Wednesday evening of fair week. It was urged that a dairyman be appointed on the board of directors of the state agricultural society. Field Agent Robertson recommended the organization of local breeders' associations.

The next meeting is to be held at the time of the university farm picnic at Davis, April 20.

The Silver Birch Farms of Washington are issuing a private sale list of bred Berkshire sows and gilts. Over 30 fine youngsters are listed, with items showing breeding and winnings of the youngsters. The Silver Birch Farms also announce that orders are now being received for spring pigs.

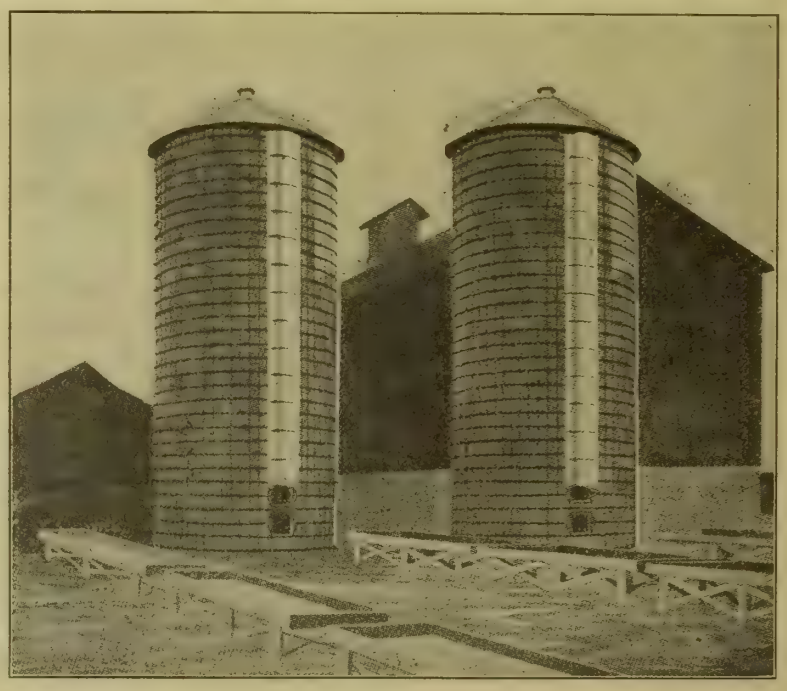
THE PLAYFORD CEMENT STAVE SILO

Is Now Being Presented to California and the Pacific Coast

The successful operation of the silo in the East gives assurances that it will meet with even greater success in the West where conditions are more favorable to keeping silage.

Mr. William Galloway, well known manufacturer of Iowa, says: "I have seen a great many silos made from every kind of material, but I think you people have a silo that beats them all."

We have a big book full of statements from satisfied users.



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Air and water proof.

No air spaces to serve as juice boxes.

ACID PROOF

It is permanent and grows stronger with age.

It cannot split or warp.

Guaranteed to keep perfect silage.

Made of the best material.

BEAR IN MIND

that this silo is not susceptible to atmospheric conditions. It will not rot or burn—it will not split, crack or warp. Once up it is up to stay and to give perfect satisfaction under all conditions.

It requires no side braces to hold it from blowing over. It never changes position, and the strongest wind will not disturb it. You cannot have anything on the farm that has the permanency, durability and satisfaction that the **Playford Cement Silo** has.

Write for our circular, together with pictures of the Silo in operation on some of the best known farms and estates in the East. We will also send you statements of our many satisfied users. YOU CAN JUDGE FOR YOURSELF as to the permanent value of the PLAYFORD CEMENT STAVE SILO.

501 NEW CALL BUILDING **Cement Stave Silo Company** SAN FRANCISCO, CAL.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Parturient Apoplexy or Paralysis

I had a cow that came fresh a short time ago and next day could not get up. The calf came in a short time and the afterbirth passed in good time. I called a veterinary at once and he treated her for what he called milk fever by pumping air into the udder and giving her a hpyodermic to bring her vitality back. After four days' treatment her left hind leg began swelling and continued until the skin cracked. The doctor said the leg was broken and advised destroying her. Not wishing to do so I made her as comfortable as possible and fed her on scalded bran and green barley hay. She lived about four weeks, when she bloated badly and died that night. I milked the cow and gave the milk to the calf which is five weeks old now. The calf eats well but is not right now. All around the rectum and under the tail the hair is coming off and there are some small scabs on the skin. Please tell me what is wrong with the calf and what was wrong with the cow.—Subscriber.

There are two distinct diseases that sometimes follow calving. The true milk fever (parturient apoplexy) seems to originate from a ptomaine in the udder which stops the secretion of milk; and being absorbed stops the action of most of the secreting glands, also causing paralysis and coma. The other form (parturient paralysis) simply manifests itself by paralysis of the limbs while most of the organs continue acting normally while there is no coma or inclination to sleep. The latter trouble is usually said to be due to pressure on the nerves by too large a calf and usually follows difficult parturition but does sometimes occur when the calving is easy and ordinary. The doctor's treatment for milk fever was all right and up-to-date, but in cases where the milk is not suppressed and the brain clear the inflating of the udder is unnecessary. When paralysis continues too long after either disease it is hard to cure.

As to the calf the trouble indicates the presence of a germ of some kind in the bowels. Put two or three drops of zenoleum in the feed morning and evening and bathe the parts where the hair is coming off with a warm solution of zenoleum, using a teaspoon to the pint of water.

AYRSHIRE BREEDERS' ANNUAL

The 42nd annual meeting of the Ayrshire Breeders' Association was held at Hotel McAlpin, New York, January 11. The report of the secretary showed an increase in the number of members over any year since the organization of the association, 108 members having been added, coming from all parts of the United States and Canada, but particularly from the West and Southwest.

Officers for the ensuing year are: Percival Roberts, Jr., Narberth, Pennsylvania, president; vice presidents, Hugh J. Chisholm, Port Chester, New York; J. W. Clise, Redmond, Washington; Adam Seitz, Waukesha, Wisconsin, and Wilson H. Lee, Orange, Connecticut; secretary-treasurer, C. M. Winslow, Brandon, Vermont.

Duroc-Jerseys are to have a publicity agent. The National Duroc-Jersey Record Association has appointed a field secretary to visit stock breeders meetings, attend fairs, extend newspaper publicity and generally increase acquaintance with the breed. R. L. Hill of Columbia, Missouri, is the new appointee.

Alpha Automatic High Pressure Power Sprayers

Drive the Solution into the Trees Under a Uniform Heavy Pressure

The satisfactory results obtained with either the Alpha Triplex or Alpha Duplex outfits are due primarily to the following unquestionable superior features of the Alpha Sprayers:

The Automatic Pressure Governor

which insures safety, secures uniform pressure, and eliminates unnecessary wear and strain on both pump and engine. No troublesome relief valves or diaphram pressure regulators are required on Alpha Sprayers. No liqui is pumped except it is forced through the nozzles.

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The Alpha Gasoline and Distillate Engine which is directly geared to the pump is a thoroughly first class machine. Built to stand up under continuous full load. Equipped with built-in, gear-driven magneto. No batteries required. Starts on the magneto without cranking.

You can equip the power sprayer you now have with an up-to-date reliable Alpha Engine. Write us for Special Engine catalog.

The Alpha Re-filler; the Flexible Suction Pipe connection between Supply Tank and Pump; the sturdy steel frame construction and accessibility of Alpha Sprayers are details which would be decidedly to your interest to investigate before buying any spraying equipment.

For full particulars and name of nearest dealer, fill in and mail the coupon.

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Such as

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TAXPAYER SOW (with litter by Orion Cherry King, Jr.)
PATHFINDER-PROUD COL. GILTS.
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SEVEN OF ABOVE PATHFINDERS bred to our KING THE COL. BOARS, together with other pure bred Durocs, 32 grade Poland-China sows (many bred, some with litters), over 400 feeding hogs, complete equipment of farming implements, tools, wagons, live stock, hog wire, pipe, lumber, galvanized tank, gas engine, etc., etc., at Houck Ranch, 2 miles east of Grape (formerly Keystone), between Brawley and Imperial, on

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A Free Trial Package is Mailed to Everyone Who Writes

A. L. Rice, a prominent manufacturer of Adams, N. Y., has discovered a process of making a new kind of paint without the use of oil. He calls it Powdrpaint. It comes in the form of a dry powder and all that is required is cold water to make a paint weather proof, fire proof, sanitary and durable for outside or inside painting. It is the cement principle applied to paint. It adheres to any surface, wood, stone or brick, spreads and looks like oil paint and costs about one-fourth as much.

Write to Mr. A. L. Rice, Manufacturer, 129 North Street, Adams, N. Y., and he will send you a free trial package, also color card and full information showing you how you can save a good many dollars. Write today.

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A properly constituted Calf Meal is equal to and better than cow's milk for raising calves, because it takes the place of milk, thus saving 50% of your feed bills.

LILLY'S Calf Meal

is thoroughly cooked under 60-lb. steam pressure. It is all food, easily digested, fresh and sweet with that nutty flavor so relished by calves.

Most Dealers sell it. If yours does not, write

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PIPE

New and second hand water pipe, screw casing, well casing, riveted and irrigation pipe, wrought iron fence posts.

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Write, phone or wire for quotations.

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Sows, gilts and a few boars of the best breeding FOR SALE
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When writing advertisers, mention the Cultivator.

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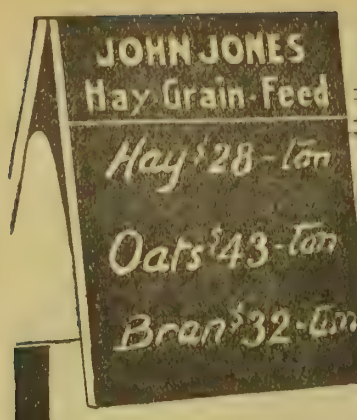

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With hay mows dwindling—feed bills going *higher* and cream checks *smaller* don't you wish that Indiana had been erected last Summer?

Now is the time to investigate the

INDIANA SILO

Get our *free* Silo Book. Read how hundreds of Indiana owners on the Coast have *cut* their feed bills about *half* and *doubled* the size of their *cream checks.*

Sign and Mail this Coupon Now!

The Chas. K. Spaulding Logging Co.
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Tell me how I can *cut* my feeding costs half and *double* the size of my cream checks.
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Sign and mail the Coupon—or send a postal—for the free Book. *Learn all about our Easy Payment Plan and special Early Buyer's Discount. Write today.*

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And everything else for the Dairyman
WRITE FOR PRICES
Western Dairy Machinery & Supply Co.
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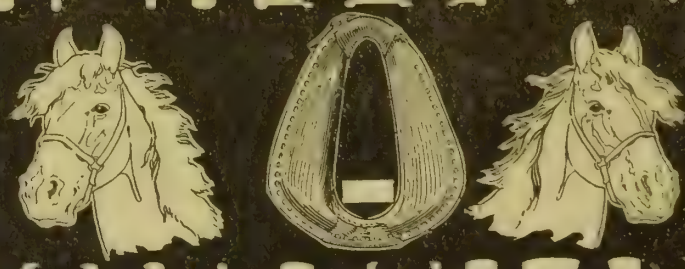
HERCULES



HORSE COLLARS

three words of comfort to the horse that pulls. Those three words stand for the proper materials, scientific design, skillful workmanship, and fidelity to the horse.

If a horse could express his preference, he'd ask for a *Hercules* Collar.

When a dealer offers you a *Hercules* Harness, Horse Collar or Saddle, he is offering you *THE BEST THERE IS.*

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333 MARKET STREET
SAN FRANCISCO
THREE BLOCKS FROM THE FERRY

W. DAVIS & SONS, Dept. **B-9**
333 Market Street, San Francisco
Please send me, free, a copy of your road map.
Name.....
Address.....

$81.86 PROFIT PER COW PER YEAR
over a period of 7 YEARS is the average of
A GRADE GUERNSEY HERD
IN WISCONSIN

IT WAS THE GUERNSEY BULL THAT DID IT

Write for our free booklets about GUERNSEYS
THE AMERICAN GUERNSEY CATTLE CLUB
BOX P.C. PETERBORO, N. H.

Veterinary Notes

By Dr. F. A. Orme, San Francisco Veterinary College

All sick animals should be immediately removed from contact with healthy ones, at least until the nature of the disease is known. They should be fed and watered from separate vessels.

The outside wall of a horse hoof should never be touched with a rasp or file, as the covering (periople) provided by nature is removed, thus permitting the penetration and absorption of filth that causes the hoof to become contracted and brittle, producing a predisposition to quartercracks.

Overfeeding and irregular feeding is the cause of more sickness among horses than any other known cause. The stomach of the horse is so exceedingly small compared to his size that he should be fed and watered at least three times per day, the capacity of the horse's stomach being 18 pints. The capacity of a cow's stomach is 52 gallons.

The old familiar saying: "If a horse has a broken leg, remove the shoe and examine the foot anyhow," should certainly be acted on to the extent that every lame horse should have the shoe removed and the foot thoroughly examined.

Manure should not be allowed to accumulate inside the stable, as the inhalation of noxious odors in many instances causes an irritation of the air passages and renders them liable to coughs and colds.

A mixture of equal parts of tincture of iodine, turpentine and sulphuric ether, applied once daily for several days, will stop the growth of new splints.

The horse should be shod at least once every 40 days whether the shoes are worn or not, as the hoofs overgrow the shoes, this being the cause of inflammation of the feet and corns.

Some of the causes of colic are overloading the stomach, dirty alimentary matters, retention and hardening of excrementatious matters, calculi and concretions, intestinal worms, prolonged fast, unusual movements (rolling on the back when cast), retention of urine and bolting the whole grain from gluttony or hunger, etc.

Lime-Sulphur Animal Dips

A convenient formula for preparing lime-sulphur animal dips, termed the 8-18-10 formula, is suggested, as a result of extensive experiments, in professional paper No. 451, "The Chemical Composition of Lime-Sulphur Animal Dips," recently published by the United States department of agriculture. The experimental work was undertaken with the object of improving existing formulas so as to simplify the preparation and, if possible, lessen the cost of these dips. To accomplish these purposes the author recommends—but solely for use as an animal dip—the 8-18-10 formula; that is, eight pounds of high-grade commercial quicklime, 18 pounds fine sulphur (either flowers or flour), with somewhat more than 10 gallons of water, boiled to a volume of 10 gallons at the finish. The time of actual boiling should be one hour. The theoretical ratio between lime and sulphur will be met by this formula if the lime is 98.3 per cent pure; therefore the formula as given is appropriate for preparing a solution for dipping sheep where any chance of an excess of lime must be avoided. If commercial hydrated (not air-slaked) lime is used the amount should be increased nearly one-third, say to 10.5 pounds. For dipping cattle the formula may be used on the basis of available calcium oxid if the analysis of the lime is known, or if not known the lime may safely be raised to 8.5 pounds, corresponding to 92.5 per cent available calcium oxid, possibly even to 9 pounds.

The finished solution, drawn off from the sediment, should theoretically contain 18 per cent (grams per 100 c. c.) of sulphid sulphur, but probably will contain somewhat less. It is, therefore, appropriate for dipping sheep at a dilution of one volume of concentrate to nine or 10 volumes of water, and for cattle at a dilution of one volume of concentrate to seven or eight volumes of water. But in any event, since baths lose strength during dipping, it is very desirable to keep them at all times under control by means of a "field test."

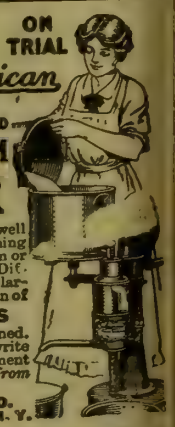
It is pointed out that this formula does not necessarily apply to the making of highly concentrated proprietary solutions.

The bulletin, which is highly technical, contains in its 16 pages the results of a number of experiments on the effect of storing, and of varying the concentration and ingredients, which should be of interest to chemists and veterinarians.

REPORT OF STATE DAIRY BUREAU

The 11th biennial report of the state dairy bureau for 1915-16 contains proof of the growth of the dairy industry. It shows that the butter production has increased during the last ten years from 44,000,000 pounds in 1915, to 70,000,000 pounds in 1916. In cheese the increase has not been so pronounced, in fact, it has but little more than held its own. Condensed milk production has increased from 134,000 cases to 379,000 cases. The value of

$16.95 Upward ON TRIAL
American
FULLY GUARANTEED
CREAM
SEPARATOR



A Solid Proposition to send new, well made, easy running, perfect skimming separator for $16.95. Skims warm or cold milk; heavy or light cream. Different from picture, which shows larger capacity machines. See our plan of
MONTHLY PAYMENTS
Bowl a *sanitary marvel* easily cleaned. Whether dairy is large or small, write for free catalog and monthly payment plan. *Western orders filled from western points.*
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I am especially prepared to make loans on California, Arizona and Nevada live stock in amounts of $5000 or more at reasonable rates. Prompt service. Can also make loans of from $100,000 to $1,000,000 on large improved California ranches
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Yearling Steers and Stock Cattle
Northern Arizona, mountain bred, heavy bone cattle. Fenced range.
A. L. SPELLMEYER
Apache Cattle Ranch, Cibecue, Ariz
Until Mar. 1st address care 320 American Bank Bldg Los Angeles, Cal.

Hardy Northern Grown **Berkshires**
Are Making Good in Southern California
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Silver Birch Farms, Box C. C., Newport, Wash

$3,000 Net Profit
From Jerseys in a Single Year

A Jersey herd of 43 milch cows netted an Ohio dairyman that amount last year above the cost of feed and labor from the sale of milk alone. The sale of surplus stock also brought a tidy sum—additional profit. You can do as well or better.

Jersey milk, because of its high percentage of butterfat and milk solids, will often bring several cents a quart more than ordinary milk equally clean.

Our book, "The Story of the Jersey" points the way to dairy profits. A postal brings it. Write today.

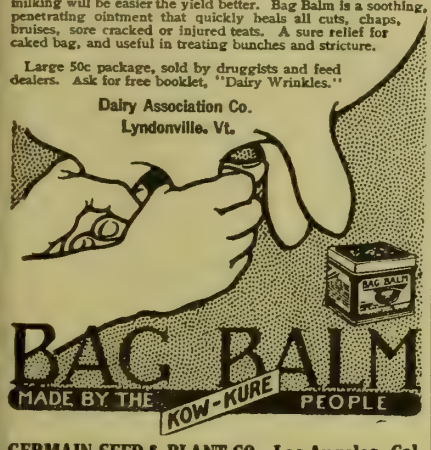
The American Jersey Cattle Club
356 West 23rd Street New York City

Comfort for Cows

Keep the cow's udder free from irritating conditions and the milking will be easier the yield better. Bag Balm is a soothing, penetrating ointment that quickly heals all cuts, chaps, bruises, sore cracked or injured teats. A sure relief for caked bag, and useful in treating bunches and stricture.

Large 50c package, sold by druggists and feed dealers. Ask for free booklet, "Dairy Wrinkles."

Dairy Association Co.
Lyndonville, Vt.



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PORTLAND SEED CO., Portland, Ore.
SPOKANE SEED CO., Spokane, Wash.

ARE YOU GOING TO BUY A SILO?

Hinged Doors *More Anchorage*

Don't make a deal without getting full information about our better fixtures and money-saving prices.

SILOS—Concrete or Wooden
Write or Call on
Artesia Lumber & Cement Co.
Artesia, Calif.

HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families. Some of serviceable age.

REGISTERED BERKSHIRE PIGS

Masterpiece, Longfellow and Robin Hood Strains. Fine individuals of both sexes—we pay registration fee.

Careful attention given to mail orders.

Whittier State School
Whittier, Calif.

CALIFORNIA BREEDERS' SALES AND PEDIGREE COMPANY — PUBLIC SALES

Dependable Sales Service

¶ We offer an unexcelled service for the conduct of dispersal and consignment sales of registered livestock. Sales conducted anywhere. Write for terms and dates.

California Breeders' Sales and Pedigree Co.
C. L. HUGHES, Sales Mgr., SACRAMENTO, CAL.

dairy products of California during all 1916 was $40,310,105.

A list of the creameries of California is one feature of the report and a list of various court proceedings instituted by the bureau during the two years is also given. One feature out of the ordinary for reports of this kind is a series of plans and drawings for milking sheds, milk houses, sewer systems, etc.

Efficient Use of Milking Machines

That milking by machinery, compared with hand milking, is less expensive in general in herds of more than 15 cows, and more so in smaller herds, is indicated in recent studies made by farm management specialists of the department of agriculture. Herds that normally required three men for milking by hand, only two of whom were needed to feed and care for the animals, required only two men to milk by machine.

It was found that in herds of 15 cows or less the average time required to milk a cow by hand was a fraction over seven minutes, and by machine a fraction under five minutes. In herds of over 50 cows, the time required to milk by hand was a fraction under seven minutes and by machine 4.15 minutes. In milking by hand the average cost per cow in herds of 15 cows or less was $10.91 a year as against $10.45 in herds of 50 or more. When machines were used the cost was $11.77 a year in the smaller herds and $7.34 in herds of 50 or more.

The value of the labor replaced by the milking machines was found to vary from $2.63 per cow in herds of 15 cows or less to $8.33 per cow in herds of more than 50 cows. The addition to the time available for field work due to use of the machines was found to vary from 1.5 to 5.1 hours according to the size of the herds.

Attention is called to the fact that milking machines must be operated by competent operators and that stripping by hand after the machine is essential if satisfactory results are to be obtained. The majority of the farmers visited during the studies believe that the milking machine has no effect one way or the other on the general welfare of the herd.

Studies of the comparative efficiency of various combinations of milking units and operators indicate that the greatest speed is made when one man operates and strips after two units, each of which milks two cows.

Cotton Seed Meal for Cattle

"The value of cotton seed meal as a food for dairy and beef cattle has long passed the experimental stage," writes G. W. Barnes, University of Arizona. He adds; "it may also be used to advantage as a supplemental grain ration for horses and mules.

"The highly concentrated character of cottonseed meal makes it necessary that it be incorporated with other feeding stuff of a more bulky nature. If cotton seed meal is the only meal or grain fed, and the roughage contains no green feed of any kind, about four pounds of cotton seed meal a day can be fed without injury. Cotton seed meal and corn silage make a good combination for dairy cattle, and when cotton seed meal is fed with corn silage the animals remain in a healthy condition and consume the ration with much relish.

"Quoting from farmers' bulletin 743: Cotton Seed Meal (Choice) Digestible nutriments—Protein 37 per cent, carbohydrates and fat 41.2 per cent. Cotton seed meal is the richest in protein of all the common cow feeds on the market. It is usually the cheapest source of protein available, but it does not have the best physiological effect upon the cow, often causing digestive troubles if fed in large quantities for long periods. At first it is advisable to start with one or two pounds a day, gradually increasing the quantity if no bad results are observed. In some herds in the north as high as five to six pounds a day are fed without bad results. In the south there seems to be no limit in this direction."

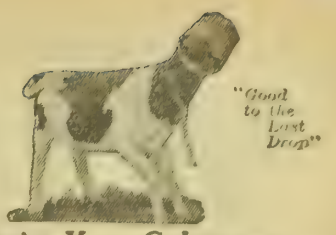
More and Better Hogs

Oleomargarine Situation in Congress

The oleomargarine interests are getting very busy starting a propaganda to permit them to sell colored oleomargarine. A bill has been introduced in congress and referred to the committee on agriculture, to tax oleomargarine one cent a pound, and the same to be put up in cartons. This bill strikes out the present 10 cent tax.

The great bulk of oleomargarine sold today is paying one-fourth of a cent a pound tax and is uncolored. The oleo people are stating in their literature that the tax on oleomargarine is 10 cents a pound and that they want to have it reduced to one cent. It is surprising to see how this propaganda is being used by city papers, whose editors should know the law—that the tax on uncolored oleomargarine is one-fourth of a cent a pound, instead of 10 cents a pound.

The National Dairy Union appeals to farmers and dairymen of this country to get in touch at once by letter or otherwise with their members of congress and state that under no condition will farmers submit to having oleomargarine colored and thereby permit unfair competition with butter.



Raise Your Calves on
Blatchford's Calf Meal
and Sell the Milk

More calves have been raised on Blatchford's Calf Meal than on all other milk substitutes combined.

100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk. Prevents scouring and insures the early maturity of sleek, handsome calves.

It is steam-cooked and no trouble to prepare or use.

Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or
Blatchford Calf Meal Factory, Dept. 5 Waukegan, Ill.

AGENTS FOR
Blatchford's Calf Meal

Germain Established 1871
SEED & PLANT CO.
326-328-330 SO MAIN ST
LOS ANGELES. CALIFORNIA

Purebred Registered
HOLSTEIN CATTLE

The undeniable facts that the Holstein-Friesian Association of America is the largest and most prosperous dairy cattle association in America, that its membership is over 7000 more than the combined memberships of the other dairy cattle associations, and that it increased its membership by 1,260 during the fiscal year ending April 30, 1916, are primarily a fitting testimonial to the superior merits of the purebred Holstein-Friesian cow, that yields more milk for a day, for a year, for a life-time and for profit than any other cow. There is big money in the big "Black and White" Holsteins.

Send for FREE Illustrated Descriptive Booklets
The Holstein-Friesian Association of America,
F. L. Houghton, Sec'y, Box 120, Brattleboro, Vt.

Large Type Poland Chinas

W. H. Browning
Woodland, Yolo County, Calif.

HOOD FARM
BREEDING POWDER

Makes barren cows and mares breed readily; destroys germs of abortion; causes cows to come in season; makes cows clean without force; stops unhealthy discharges; has been used with marvelous success by thousands of breeders. Guaranteed to cure barrenness if a cure is possible. We want you to try it. Advice free.

Prices prepaid $1.15, $2.75 and $5.00. Flexible Injection Tube 90c., or with $5.00 order 75c. Order now, mentioning this paper.

C. I. HOOD CO., Lowell, Mass.

AUCTIONEER

Will conduct sales anywhere in California. Pure bred live stock sales given special attention. For dates and terms address

T. J. Gilkerson
Phone, Farmers 394 **Lemoore, Cal.**

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Rhoades & Rhoades
Expert Live Stock Auctioneers
Pure Bred Stock Sales a Specialty
Sales conducted in all parts of California and Adjoining States. 25 Years' Experience.
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THE CORRUGATED CREAM SEPARATOR

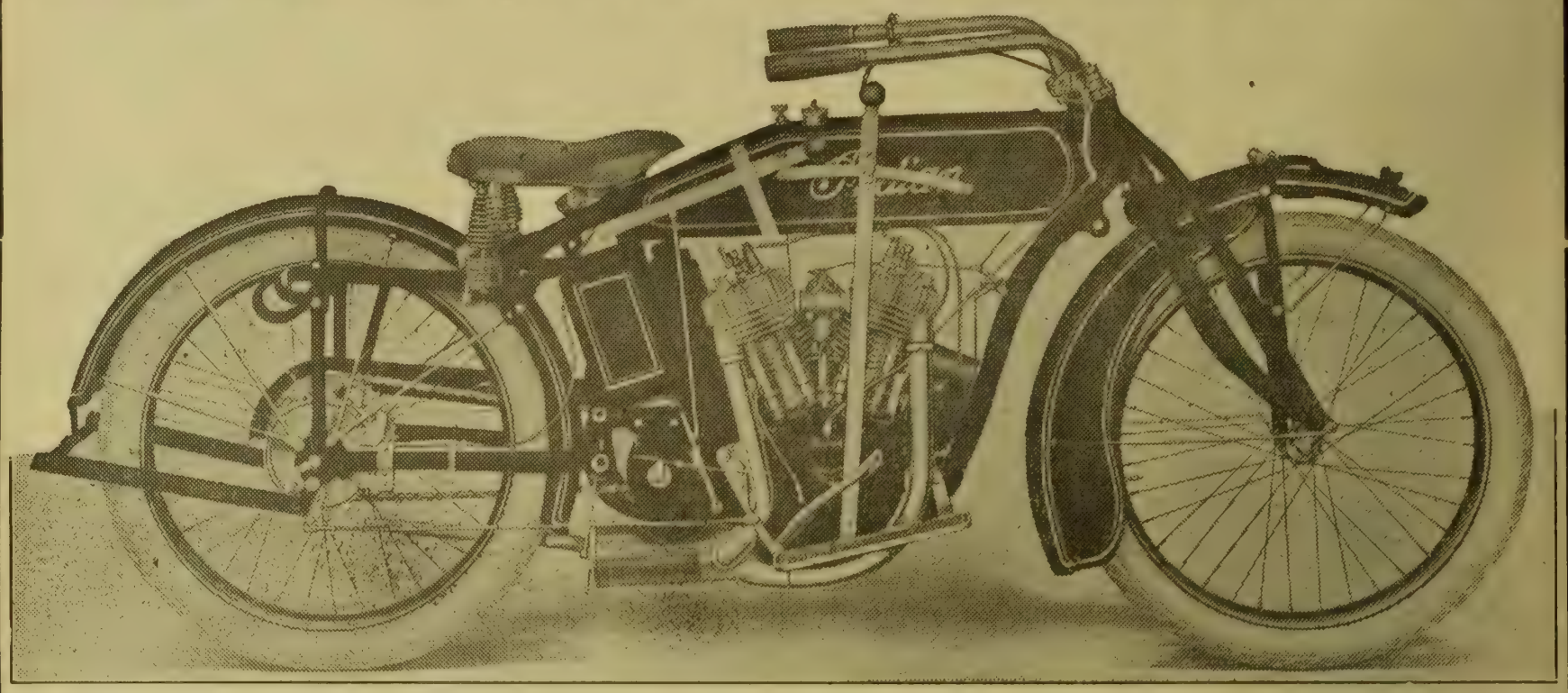
The Standard for years. Has greatest cream gathering power. Operates itself, saving your time and labor. More cream and more and better butter. Greatest labor saver ever used on the farm. GUARANTEED. Write for catalog.

Ed S. Cushman Co., Dept. 14, Centerville, Iowa, U. S. A.

Berkshire Hogs—Milking Shorthorns
Breeding Stock For Sale
G. A. Murphy, - Perkins, Cal.

Motorcycle Given Away

Turn Your Spare Time into a Fine Prize. This is the Easiest Way to Get One



Many have already secured machines by this easy plan. We pay for the work you do and you can work just during spare time. Write us today about it. It costs you nothing to enter the Campaign.

Do You Want a Motorcycle?

Wouldn't you like to have one of the new 1917 $290 Indian motorcycles without its costing you a cent? You can have one. California Cultivator is going to give away over $500 in prizes in return for doing a little work that you can easily do just during your spare time, including this Indian motorcycle. The Campaign Manager has already given away ten motorcycles that were secured with far less dollars in subscriptions than the same machines would have cost in dollars of a dealer. This is the easiest way to get one. Send us your name and address at once on the blank below so we can write and tell you all about it. This places you under no obligation to us whatever. You do not even have to be a subscriber to California Cultivator.

Here is an opportunity that you can make worth a good many dollars to you, if you will only take advantage of it. Someone is going to get this motorcycle—why not you? It might just as well be you as anybody and no harm will be done in trying. We are ready to turn over to you in Cash and Prizes what we would pay others for doing this work for us and you can do this work easily during your spare time.

This motorcycle will give you more pleasure than anything of equal value that you could own. Many others have already been given away, that were easily and quickly won, and the winners were very glad they saw the announcement like this and sent in their names. We had never heard of anyone of them before and none of the winners had ever taken a subscription before or done anything of this kind. You have just as good an opportunity as anyone else to win this $290 motorcycle, the latest model new 1917 machine—the very best you could get. Will you try? It costs you nothing to enter this campaign. You do not even have to be a subscriber to California Cultivator.

Arthur Allston of Whittier won the motorcycle given away December 31 with far less dollars in subscriptions secured than the motorcycle would cost of a dealer. Here is what he says:

Whittier, Cal., Jan. 30, 1917.

Cultivator Publishing Co.

Gentlemen: I entered the campaign which has just been completed by the Cultivator Company and was successful in winning the $290 Indian Motorcycle. The campaign was fair and square in every way and I was very much pleased with the way it was carried on. I would advise anyone that has little spare time to enter the next one which is soon to start, as I won the first prize with 140 subscriptions. It is a valuable prize for a small amount of work.

Yours truly
ARTHUR W. ALLISON.

Don't wait—send in your name and address at once on the blank below. The sooner you start the easier and better it will be for you.

Fill out this Free Entry Coupon and Mail Today

Manager California Cultivator Motorcycle Campaign, 115 North Broadway, Los Angeles.

Dear Sir—Please send me free of cost full information about the $290 Indian Motorcycle and other prizes you are going to give away.

My Name .....

My Address .....

In Care of .....

Street or R. F. D. ..... State .....

YOU WON'T KNOW HOW EASY IT IS UNTIL YOU START

You never will know how easy it is to win one of our motorcycles or how much **money you can make** until you enter and get started, which requires that you send your name and address for full information about the prizes and campaign. You might just as well become the owner of this motorcycle as anybody. You can have just as much fun with it as with an automobile and the cost of operating it is much less, and it will be given away absolutely free, freight charges prepaid. Sign and send the **blank at once to** Manager Motorcycle Campaign, California Cultivator, 115 North Broadway, Los Angeles, Cal.

THIS IS THE BIGGEST PRIZE LIST WE HAVE OFFERED

This is the biggest prize list we have offered and everyone taking part not winning one of the big prizes will be paid in cash for the subscriptions they secure. The campaign will start soon. A certain number of points will be given for each subscription you secure and the boy or man having the highest number of points by 6 P. M. Saturday, April 7, will be awarded this $290 Indian Motorcycle. The Second highest will receive $75 in cash, third highest will receive a $30 talking machine outfit, fourth highest will receive a $30 gold watch, fifth and sixth highest will each receive $45 college scholarships, seventh highest will receive a $15 gold watch. In case of a tie for any prize, prizes of equal value will be awarded to those in the tie. The $290 Indian '17 Motorcycle is guaranteed to be new and in absolutely first class condition by California Cultivator.

Highly Pleased With Their Machines.

WON HIS MACHINE EASILY

Harvey Ferril was the winner of a motorcycle given away February 13. He secured only 141 subscriptions and was the highest, winning a $275 machine. Here is what he wrote:

Manager Motorcycle Campaign.

Dear Sir: I received my motor today and like it fine. It is just like you said it would be and I think if any person wants to deal with honest men, deal with you. I will send you a picture of my motor and me before long.—Harvey Ferril.

TOOK ONLY 110 SUBSCRIPTIONS

E. B. Preedy won the motorcycle in the campaign which closed February 28, by securing only 110 subscriptions, nearly all for only one dollar. He was the highest, with only $106.50. Think of it! He got a machine that sold then for $260, but he had the most subscriptions and the most points, and won. Here is what he says:

Manager Motorcycle Campaign:

Dear Sir: I received the motorcycle, and it is sure a dandy. It is easy to handle. I have not found a place it won't pull. I would advise every boy to get busy on the next campaign, for it is easy to win and everything is straight. —E. B. Preedy.

HE LIKES HIS MACHINE

Manager Motorcycle Campaign.

Dear Sir: I am writing to let you know I received the first prize motorcycle and sure am pleased with it. It sure is a dandy. It was worth working for, and I also say the way you managed the campaign was sure on the square, and I think others who may enter one of your campaigns will say the same, and I hope those who enter will win out as easily as I did.—C. S. Kelley, March 29.

MORE THAN PLEASED WITH HIS MACHINE

Manager Motorcycle Campaign.

Dear Sir: I received the motorcycle yesterday and I am more than pleased with it. I have ridden it about fifty miles. I want to thank you and the company for the machine and the promptness in sending it to me. The campaign was carried on absolutely fair and you did everything that you said you would do. My winning has caused great enthusiasm here among the young folks, and everyone thinks my machine is great. I am going to get my picture taken with the machine soon and I will send you one. Again thanking you for your honesty and kindness to me, I am, yours truly—Perle Tilley, May 12.

Your Copy is ready

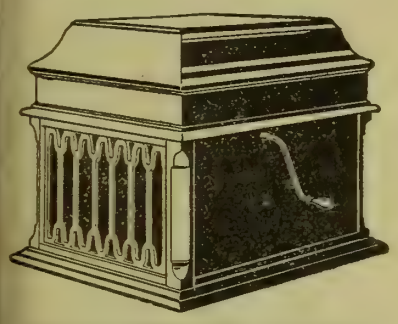
ONE of the most interesting booklets ever written. It describes in detail the wonderful

New Edison

Diamond Amberola

—the phonograph that Re-Creates Music.

Write us today for your copy of the Free Booklet and let us tell you about our Easy Payment Plan of Purchase—a postal will do.

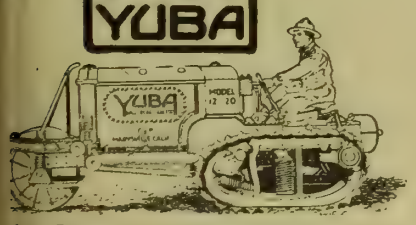


Prices $30, $50 and $75

FRANK J. HART
SOUTHERN CALIFORNIA MUSIC COMPANY
332-334 SOUTH BROADWAY, LOS ANGELES

Please mention California Cultivator when writing

BUY A YUBA



The Model 12-20 and the Yuba low form a one-man outfit—ven in the orchard.

n all around machine though it as designed especially for the rchard.

: plows 10 acres, cultivates 25 cres, and hauls 12 tons per shift. : will operate a 6-inch pump.

is narrow enough to go in 7-ft. op rows, or 7-ft. vineyards.

Write for catalogue.

Yuba Manufacturing Co.
Department B 2
33 California St., San Francisco

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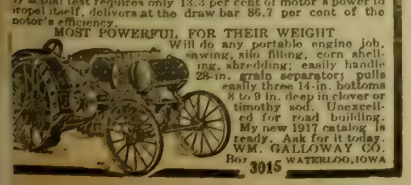
...quare pulling, easily started, four wheels. 12 full h. p. on draw bar, with surplus of 4 h.p. by actual dynamometer test. 20 horse power on belt. Four cylinder, water cooled, ...me stroke, modern motor. Transmission a unit with motor. ...y actual test requires only 13.3 per cent of motor's power to ...ropel itself, delivers at the draw bar 86.7 per cent of the ...notor's efficiency.

MOST POWERFUL FOR THEIR WEIGHT



Will do any portable engine job, sawing, silo filling, corn shelling, shredding; easily handle 28-in. grain separator; pulls easily three 14-in. bottoms 8 to 9 in. deep in clover or timothy sod. Unexcelled for road building. My new 1917 catalog is ready. Ask for it today.

WM. GALLOWAY CO.
Box 3015 WATERLOO, IOWA

QUESTIONS AND ANSWERS

Continued from Page 163

years. And when the water receded it came on and grew as well as ever, so I could not recommend drowning for Bermuda grass. But it can be killed readily in the months of July and August by irrigating and letting it start to grow (or in other words, getting the tops full of sap); then plowing under deep and covering and then rotting down. This will cause the sap to ferment and rot the sod. If the work is well done it will make a clean job. Bermuda grass can not be killed in any way when it is dormant."

Salting Butter

How much salt is required for a pound of butter for commercial purposes?—Subscriber, Placerville.

This query was submitted to E. H. Hagemann, manager of creamery at Newman, and he answers:

"As a general rule one ounce of salt per pound of butter is required for commercial purposes. A little more or less can be used, depending somewhat upon the amount of moisture or water in the butter. If the butter comes hard and dry or is thoroughly drained of all water, a little less than one ounce per pound should be used, but if the butter seems to hold a good deal of moisture one ounce of salt per pound of butter should be used. It is best to use a little water with the salt when working the butter, as the water acts as a distributer of the salt and avoids mottled and streaky butter, which is invariably caused by uneven distribution of the salt. If 16 pounds of butter are to be worked one pound of salt can be used and one-half pound of water should be used with the salt. If a small quantity of butter is to be salted and worked by ladle it should be put into a wooden bowl where the water cannot run off easily until the salt is thoroughly and evenly incorporated. It can thereafter be drained off. If worked in a churn or butter worker, it should be so done and the drains closed for the first half of the working until the salt is evenly distributed, which results in an even color of the finished product."

Brush Cutters

Is it possible to secure a cutter for reducing prunings fine enough so that they may be plowed under the soil and ultimately aid in giving back to the soil fertility?—Subscriber, Lodi.

Such cutters are manufactured and offered for sale by Cultivator advertisers. The cost of brush cutter with two and a half horse power engine mounted on truck with four-inch tires complete is about $275.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Unsigned communications receive no attention.

Title to Mortgaged Property

A loans B $3000. B has allowed interest payment to lapse and is unable to make further payments. B is willing to relinquish all his interest in the property in consideration of $100 being paid to him by A. How should A proceed to secure clear title?—Subscriber.

Care should be taken to bring down the certificate of title to the date of the deed, as upon satisfying the mortgage any lien or judgment subsequent to the date of the mortgage would take precedence over the deed, and, in fact, a deed issued subsequent to the date of the mortgage by the mortgagor would convey title to the property in opposition to the deed to the mortgagee.

ASSEMBLY FARMERS

The second annual assembly of the farmers of the Imperial Valley is in session in Imperial Saturday of this week. Dr. Forbes of the University of Arizona, Mr. Packard, Dr. Mead and others of the University of California will make addresses. This assembly is under the direction of the farm bureaus of Imperial County and is another manifestation of the live work being done by the farm bureaus and farm adviser.

BEAN POWER SPRAYERS

The Last Word

Wherever fruit is grown Bean Sprayers are known for their day in and day out efficiency—for their downright dependability—ease and economy of operation—low cost of maintenance—strength—durability—and all around satisfaction.

Thirty years experience in the building of Spray Pumps has firmly established Bean Spraying Outfits as the world's standard. The Bean is in a class by itself. Hundreds of testimonial letters from satisfied and enthusiastic users attest this fact.

This preference for Bean Outfits is not a mere chance. It is because growers the world over know that Bean Sprayers deliver and get results—that they are the last word in power sprayers.

Bean Exclusive Features

BEAN PATENTED AUTOMATIC PRESSURE REGULATOR—which ends all safety-valve troubles. Absolutely safe and certain. When nozzles are shut off the liquid is simply pumped back into the tank, without being put under pressure. Saves fuel and much wear and tear on engine and pump.

BEAN PATENTED THREADLESS BALL VALVES WITH REVERSIBLE SEATS—Simply bell metal balls which cannot stick, corrode or give trouble. Reached in two minutes without stopping engine and withdrawing liquid.

PORCELAIN-LINED CYLINDERS—Cannot be injured by any liquid.

NO STUFFING BOX—hence the source of much sprayer trouble is entirely eliminated.

UNDERNEATH SUCTION—which greatly increases capacity; never requires priming; and makes it possible to empty tank in a few seconds.

BEAN REFILLER—Fills 200-gallon tank in five minutes.

ECCENTRICS INSTEAD OF CRANKS—More durable than cranks and wear can be easily taken up.

BEAN ROCKING BOLSTER—Wheel on either axle can be in rut without tipping tank or springing frame.

DIRECT CONNECTED ENGINE AND PUMP—Saves power. Pump and engine are bolted direct to steel frame, giving perfect rigidity. Frame is bolted direct to axle, saving 6 inches in height and 150 pounds in weight.

INTERCHANGEABLE PARTS—All parts can be quickly and economically substituted for those that become worn.

NOVO ENGINE—The simplest, sturdiest, most efficient little engine on the market, and unsurpassed for sprayer use.

Bean Sprayers Made in All Sizes

We make a complete line of Power Sprayers at from $100.00 up—as well as Hand and Barrel Pumps, Nozzles, Hose and all Pump Accessories.

Our catalog describes the entire line and explains fully the new 1917 outfits. Send the Coupon.

BEAN SPRAY PUMP CO.

212 West Julian Street - - - San Jose, Cal.

SEND THIS COUPON.

Bean Spray Pump Co.,
212 West Julian St., San Jose, California.

Gentlemen: Please send me your Catalog of Hand and Power Sprayers.

I have.....acres of.....trees, and am interested in Hand Pumps.....Power Sprayers.....Accessories.....

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Choice breeding stock, both sexes, from Panama-Pacific International Exposition prize winning strain. 12 firsts, Junior Champion and Reserve Grand Champion Boar., Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to

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The Pride of Petaluma Fresh Air Brooder Stove

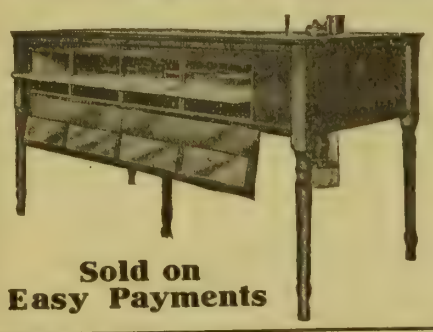
Well, here we are again, and our No. 20 catalogue is now ready for you. It's a HUMDINGER, and if you are interested in poultry you should have it. It's full of splendid information about brooding in bunches from 300 chicks on up with the brooder stove system. If you are satisfied with your present brooding system, get our catalogue and learn how you can BEAT IT. If not satisfied, GET OUR CATALOGUE No. 20, it will put you RIGHT. We also have a splendid HOT WATER SYSTEM, but we can't tell it here, so

Get our CATALOGUE No. 20. IT'S FREE FOR ASKING.

Pride of Petaluma Fresh Air Brooder Stove Factory

Petaluma **J. E. KRESKY** **California**

The "Pioneer" Incubator Shipped on Approval



Sold on Easy Payments

Don't pay a cent for any incubator until you have seen and examined the Pioneer Incubator. Send today for BIG FREE ILLUSTRATED CATALOGUE, showing large hatcheries that use these Incubators. Freight allowances. Sold on Easy Payments. Write today.

The Pioneer Hatchery
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LOS ANGELES, CAL.

CALIFORNIA CULTIVATOR'S

Thornless Blackberry Offer

Make Money Propagating This Valuable Plant

BE SURE to obtain at least one rooted tip of Cory's Mammoth Thornless Blackberry, the most highly prized of all the recently propagated California plants, and grow the plant yourself. The demand is widespread.

This wonderful plant has thoroughly proven its thornlessness and what is more it is the earliest berry to ripen and a prolific bearer of very large, luscious fruit, insuring quantity and excellence.

Affidavit is made by W. H. Squires, under sheriff Tuolumne County, that Cory's Thornless Mammoth Blackberry is not only thornless but he says is "far better in every way than the best you can claim for it".

How This Plant Was Propagated

Occasionally plant nature produces what botanists and horticulturists call a "sport"—an unusual specimen. That is what Cory's Mammoth Thornless Blackberry is. One thornless plant of unusual variety appeared without thorns in a stock of other varieties. It was carefully propagated and proved to be thornless and the rooted tips for seven years have reproduced thornless stock. Affidavits are furnished that the variety is thornless and several investigators have had it proven to their satisfaction that the variety is not only thornless but is a prolific bearer of very large fruit of a most delicious flavor. It is almost seedless. This berry is without doubt a most desirable plant to secure and propagate. The demand is very great.

In order to make it possible for more readers of this paper to secure rooted tips of this valuable variety, California Cultivator has made arrangements to distribute these plants while they last among its readers on the following offer:

Our Offer For each new subscription secured to California Cultivator at $1.00 per year we will send two (2) strong, hardy rooted tips of Cory's Mammoth Thornless Blackberry carefully packed in damp moss and specially made water proof paper.

Plant these the same as you would any other berry plant roots and with proper care many more will grow. By replanting you can soon have a patch of berries of unusual value both as to the sale of rooted tips and fruit. The supply now is small as compared to the demand.

Mr. Cory, propagator, makes affidavit to the following facts: Average product per hill is 15 three-quarter-pound baskets—shipping and keeping qualities superior to the well known Mammoth—has distinct flavor unsurpassed—is nearly seedless—canning qualities are of the best—CANES ARE AS FREE FROM THORNS AS THE GRAPE VINE.

Get your friends to subscribe for California Cultivator. Send us their subscriptions and we will send the rooted tips of Mammoth Cory Thornless Blackberries to you at the rate of two for each $1.00 in New subscriptions sent, or send $1.00 for your own renewal subscription, and 25 cents extra for postage and packing for one rooted tip.

Address all orders to **CALIFORNIA CULTIVATOR, 115-117 N. Broadway,** Los Angeles

Letters to a Beginner

Written for California Cultivator By Jean A. Koethen

NURSERY FEEDS

DEAR GEORGE: Do you remember Sue McComas, she that married Bob Jones the sawmill man's son? Well, she lived near us for a while, and one morning she came running to my back door, all out of breath and in great distress. Her baby chicks were dying, all had diarrhoea. Whatever could the matter be? I went over, of course, and there were her chicks, about 20 of them, out in the foggy morning, running about on the damp ground, and with absolutely no protection but that hen's wings. Not a box or barrel or even an old rug hung up between them and the chilly fog! "What are you feeding them?" I asked though there was certainly reason enough for a high rate of mortality aside from the feeding. Feeding? Why, they got scratch feed, the same the hen ate. Wasn't that all right for chicks? Now, honest, George, wasn't that just the limit? To think of that woman and she the mother of four, imagining baby chicks could thrive on the food the old hen ate! Would she give her three months' old baby beefsteak? There are a good many things baby chicks can eat, but scratch feed, or whole grain of any sort, except the very small ones, like millet, are not for them. I don't suppose Sue's chicks had eaten enough of that scratch feed to hurt them. I doubt if they could eat it. They were not getting anything except such tiny seeds or bugs as they could pick up in their excursions away from the hen.

There are plenty of wholesome nursery feeds. Mr. Philo says there is nothing equal to stale bread moistened with sweet milk. The Cornell station gives quite an elaborate mixture of grains and soft feed from the start. Eight pounds of rolled oats, eight pounds bread crumbs, two pounds sifted beefscrap and one pound of bone meal are mixed, and a small amount of this, moistened with sour milk, is fed five times a day to begin with, the number of feedings per day being gradually reduced to one at the end of four weeks. With this is fed a grain mixture made of three pounds cracked wheat, two pounds cracked corn, and one pound steel-cut oats, which is kept before the chicks in a little tray. In order that the chicks may learn to eat not only soft food and grain, but dry mash, a little of the dry mash which they are to have after the fifth day is mixed with the grain. This mash consists of three pounds each of bran, corn meal, middlings and beefscrap, and one pound of bonemeal, and is known as the Cornell mash.

The time-honored nursery feed—hard-boiled eggs (those tested out of the incubator) chopped shell and all, and mixed with an equal amount of stale bread—is hard to beat. Ii fact, the only objection to it is the expense, and if incubator eggs are used that is not great. I confess the Cornell way seems a little too elaborate to me. I like to use bread-and-egg for two or three days, meanwhile working the chicks gradually onto a ration of commercial chick feed, bran and rolled breakfast oats, the rolled oats being dropped when the bran is changed, at about the end of the first week, to the Cornell mash.

Rolled oats are a splendid "first feed," but they, like the bread and egg, are expensive. You can buy them in small quantities at five cents a pound, which is considerably cheaper than the price in boxes, and it seems worth while, when the number of chicks is not too large, to feed them for a few days. Steel-cut or pinhead oats are even better and are especially useful just at first when they can be scattered in the sand on the brooder floor. Being lighter in color than the sand they attract the attention of the chicks and keep them busy the first day in the brooder before other feed is given them.

But don't think, because I have mentioned these expensive feeds and elaborate rations that they are necessary Men who raise chicks on a large scale can't bother with bread and milk or bread and egg. They feed mainly, as far as I have been able to gather, some mixture of fine grains, usually one of the commercial chick feeds, and a chick mash such as is prepared by a good many concerns.

While the moistening of the mash with sour milk is highly recommended by more than one experiment station I don't believe many poultrymen practice anything but dry feeding. The use of the moist mash, while it does hasten growth, is attended with some dangers, and mixing it is a good deal of work. Most poultrymen keep the dry mash constantly before the chicks after three or four days and feed the dry grain in litter. Scratching in the litter keeps the chicks busy, and when the mash is always before them the weakest chick has the same chance as the strongest.

I am glad to know that your second hatch is doing so much better than the first.

Affectionately,

Aunt Jenny

TO OPERATE AN INCUBATOR

Prof. J. E. Dougherty of the University Farm at Davis is the author of Circular 156, of the agricultural experiment station, "How to Operate an Incubator." It will be of interest to every incubator operator. To secure it write to the Agricultural Experiment Station, University of California Berkeley.

GLENN COUNTY FARM BUREAU

The farm adviser conference will be held at Berkeley February 11 and 12. The dates between February 18 and 24 will be given to visiting various counties having farm bureau organizations. On Thursday, February 22, arrangements are being made for the entertainment of the farm advisers of the state, together with representatives from each of the farm bureaus of the state. On the night of Thursday, February 22, a special farm bureau meeting will be held at Orland. The meeting will be attended by visitors from over the state. All Glenn County members are invited to be present.

SELECT POULTRY BREEDERS NOW

Now is the time to select poultry breeding stock for next year. Select hens rather than pullets for breeders. Hens' eggs are larger, hatch a higher percentage, and the chicks are larger, more thrifty and stronger. In addition it is possible to know the egg laying record. Indications of a good layer are late molting, a bright red comb and faded beaks and shanks

Wonderful Egg Producer

Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and make hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs" and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this year's production of eggs, so if you wish to try this great profit maker, write E. J. Reefer, poultry expert, 4262 Reefer Bldg., Kansas City, Mo., who will send you a season's supply of "More Eggs" Tonic for $1.00 (prepaid). So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied your dollar will be returned on request and the "More Eggs" costs you nothing. Send a dollar today or ask Mr. Reefer for his Free poultry book that tells the experience of a man who has made a fortune out of poultry.—Adv.

A Great Feed Saver

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Assists assimilation. Prevents disease. Shortens the moult. Makes hens lay when eggs are high.

A 25-lb. pail enough for 500 lbs. of feed.

100-lb. drums
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Milk Fed Poultry

Baby Chicks fed on Milk Diet don't have bowel trouble.

Laying hens lay more eggs on Milk Diet.

We would like to tell you about Milkoline, which is a condensed buttermilk product from one of America's largest creameries. Write for particulars and prices.

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BARGAINS - BARGAINS

Mandy Lee Incubators

We are selling out our line of Mandy Lee Incubators. While they last we will offer 140-egg Mandy Lee Incubator for $15.00 f.o.b., Los Angeles. This is less than we paid for them. Absolutely guaranteed. Other sizes for sale. Send for catalog.

GLOBE MILLS Los Angeles, Cal.

Egg-o-hatch applied to eggs during incubation strengthens the chick and weakens the shell. It supplies free oxygen, absorbs carbon dioxide and makes brittle and porous the animal matter of the shell. The biggest thing ever offered to poultrymen. 50 test hatches show average of 96 per cent for Egg-o-hatch eggs and 81 per cent for eggs not treated, **right in same machine.** Send 10 cents for sample, for 50 to 100 eggs. Full size package, for 600 eggs, 50 cents postpaid. Booklet free.
GEO. H. LEE CO., 251 Lee Bldg., Omaha, Neb.

"ROUGH ON RATS" ends RATS, MICE, Bugs. Don't Die in the House. Unbeatable Exterminator. *Ends* Prairie Dogs, Gophers, Ground Hogs, Chipmunks, Weasels, Squirrels, Crows, Hawks, etc. The Recognized Standard Exterminator at Drug & Country Stores. Economy Sizes 25c. 50c. Small 15c. Used the World Over. Used by U. S. Gov't. Rough on Rats Never Fails. *Refuse ALL Substitutes.*

The White Diarrhea Germ

White Diarrhea is caused by a germ, transmitted through the yolk, which multiplies rapidly after chick is hatched. There is scarcely a hatch without some infected chicks, and before you learn which ones are affected, they have infected the whole brood. The germs can be killed by the use of preventives and they should be given as soon as chicks are out of the shell. The only practical, common-sense method is prevention.

How to Prevent White Diarrhea

Dear Sir: I have raised poultry for years and have lost my share of little chicks from White Diarrhea. Finally I learned of Walker's Walko Remedy for this disease, so sent for two 50c packages to the Walker Remedy Co., Dr. 6, Waterloo, Iowa, (formerly located at Lamoni, Ia.). I raised over 500 chicks and never lost a single one from White Diarrhea. Walko not only prevents White Diarrhea, but it gives the chicks strength and vigor—they develop quicker and feather earlier. I have found this company thoroughly reliable and always get the remedy by return mail. Mrs. L. L. Tam, Burnetts Creek, Indiana.

Don't Wait

Don't wait until White Diarrhea gets half or two-thirds your chicks. Don't let it get started. Be prepared. Write today. Let us prove to you that Walko will prevent White Diarrhea. Send for 50c box on our guarantee—your money back if not satisfied. **Walker Remedy Co., Dr. 6, Waterloo, Iowa.**

Proper Use of Valuable Male Birds

By T. E. Quisenberry

MOST serious thought should be given by the poultryman to breeding pens. By this time the most careful breeders have planned their matings for the coming season. Take a long last look to make certain that you make no mistake. Your success for next season, and perhaps for several seasons, depends upon your matings for your 1917 hatches.

We would rather have one good male at a fair price than a half dozen males of questionable quality at a low price. A lot of surplus male birds of questionable quality kept around the poultry yard are a nuisance and a great expense. We believe that the average poultryman keeps too many roosters. If he has an exceptionally good male he should cross him on all the females possible. We would rather have one good male to breed from than a half dozen males of medium quality. The more hens you can cross on your best male the larger percent of high quality chicks you will have. It is a mistaken idea that a male has to mate with a hen for every egg which is fertile.

I made some tests along this line and found in the case of one hen, No. 896, that she was treaded by a male only once and the male removed from the pen and no other male allowed to mate with her. She laid eight eggs in the following 18 days and the last laid on the 18th day, everyone of them being fertile at the one treading. If it was not for the fact that a greater portion of male germs are destroyed by various causes and for various reasons after being deposited, a single copulation by the male would deposit enough germs to fertilize all the eggs laid by an ordinary hen in a year's time. The reason these eggs are fertilized in some cases for three weeks after a male has been removed from the pen is simply because some of the germs remain alive and active for that length of time in the oviduct or body cavity surrounding the ovary.

In this same test: Hen No. 115. The last fertile egg was laid on the 17th day after the male was removed. Hen No. 116 fertilized her eggs for 11 days after the male was removed. Hen No. 117 the last fertile egg which hatched was laid 19 days after the male was removed. Two of her eggs were fertilized on the 25th and 26th days, but the germs were weak and died. One egg was fertilized on the fourth day, and she laid seven eggs in the following 14 days, all of which were infertile; then fertilized another egg on the 19th day and again on the 25th and 26th. Hen No. 19, last egg fertilized was laid on the 13th day after the male was removed. Hen No. 121, last egg fertilized on 12th day after removing the male. Most of these hens were treaded only once and the male then removed. This indicates that if you have an exceptionally good male you could mate him to 20 or 25 females, give them all the range possible, feed and handle them as breeding stock should be handled, and you can expect reasonably good results. If a male has the right amount of vitality to fertilize a reasonable per cent of the eggs in a pen of ten females, he will take care of 20 just about as satisfactory.

Pound of Eggs for Pound of Feed

By C. T. Patterson, Director Missouri Experiment Station

FROM records of previous contests at this place the average hen weighs five pounds, consumes 75 pounds of feed, and produces 150 eggs per year.

The indications are that she uses three-fourths of the feed to supply her body and one-fourth to make eggs, and from each one-fourth pound of feed above maintenance, she makes two eggs, which weigh one-fourth pound, thus producing a pound of eggs for each pound of feed above maintenance, taking the year as a basis for averages.

The hens had feed before them at all times, and as the average hen consumes 75 pounds of feed, which is 1200 ounces, it will be seen that the hen's digestive capacity is 100 ounces per month, and that she averaged using 75 ounces for her body and for the other 25 ounces she made 12½ eggs which weighed 25 ounces.

Although we believe the hen's digestive capacity is about the same at all times, yet she does not produce the same number of eggs each month, which is accounted for by the proportion of feed required for her body at different times. If the weather is pleasant and other conditions right, the hen may use only 50 ounces for her body and make 25 eggs from the other 50 ounces of feed, but if the weather turns cold and her house is not what it should be so that 90 ounces of feed is needed for her body, she can make only five eggs from the other ten ounces, and if the weather changes suddenly so that 110 ounces of feed is needed to support her body, she can and does arrest the eggs which are partly developed, turn the egg material back into her own system and use it as food, which explains why hens stop laying on short notice after a sudden change in the weather.

These averages were obtained by using a large enough number of hens so that the individuality of the single hen was destroyed, which makes the average more accurate. It must be remembered that while some hens have a digestive capacity of only 80 ounces per month, others have a capacity of 120 ounces, yet the same rules governing maintenance and egg production apply.

The next question naturally is, "What can we do to lessen the quantity of feed necessary for the hen's body in order that a larger part of the feed may be used for eggs?". Where hens roost out during the winter with no protection from the storms they cannot digest any more food than is necessary to support their bodies. Therefore, comfortable houses economize food and make it possible for the hens to produce eggs in winter.

Another very important point is the balancing of the feed ratio so that the digestive system is not required to do unnecessary work. To illustrate, if a hen is fed 100 ounces of feed per month, only 60 per cent of which is properly balanced, the hen will appear healthy and hungry, yet produce no eggs, for it will be seen that her digestive system is burdened with the 40 per cent of the feed which cannot be used.

The condition of the feed, time and regularity of feeding, water supply, etc., are all important points to be considered.

One of the first points to be considered in breeding for egg production is to get a good digestive system for powerful egg organs and a weak digestive system will never make a high egg producer.

We might summarize as follows:

A hen's digestive capacity is limited; the number of eggs produced is determined by the difference between body maintenance and digestive capacity; maintenance is governed largely by conditions which the poultryman can control.

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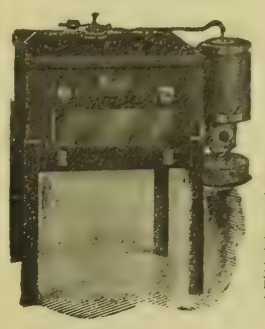

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Classified Liners

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Liner rates: Single insertions 3c per word; yearly contracts 2½c per word. 35c per issue minimum charge.

TREES

For Sale — Washington and Thomson Navels, Valencias, Seedless Grapefruit, Eureka, Lisbon, Villa Franca and Seedless Lemon, Harman Avocados. Buds were selected from the best bearing trees and will yield bumper crops. Also 40,000 Mission and Manzanillo Olives. The above stock is growing in Rialto, Whittier, Glendora and Fallbrook. Budding cloth 30c yard, post paid. No frost damage. We solicit your patronage. Prompt replies to inquiries. Cyrus W. Wilhite, P. O. Box 154, Glendora, Cal. Phone 303.

Pedigreed Nursery Stock — Buy direct from the grower and get what you order. Apple, pear, peach, cherry and apricots. Samples of the finest apples that grow, the Delicious, mailed free to prospective planters. Prices and valuable information mailed on request. Threewit & Blom, Nurserymen, Hemet, Cal.

By far the lowest priced means of reaching a buyer for what you have to sell is through classified advertisements in California Cultivator. The cost is only 3 cents per word per issue, with a minimum of 35 cents.

Placentia Perfection Walnut Trees on black root. Still have a limited supply of first class stock. Scions used in grafting taken from trees showing a high record for crop and quality after seven years of careful selection. Hugh T. Thomson, Orange, Cal. Phone 502R1.

Eureka Lemons—Healthy, nearly 5000 two years old. Buds from known heavy bearers of fancy fruit. Trees grown between young orchard and must be sold this year. Information cheerfully given. E. J. Vander Sluis, Glendora, Cal.

Citrus Trees—All leading varieties. Large line, Lisbon & Villa Franca Lemon and Washington Navel trees. All first class and clean. Special prices to dealers or in carload lots to growers. Randall Bros.' Nurseries Co., Whittier, Cal

Apricots, Peaches, Pears, Plums, Apples, etc, 5c up. Olives; Mission, Ascolano, Manzanilla. From select bearing trees 20c up. Guaranteed to grow and true. Send for quotations on all your wants. Julius Mayr, Hemet, Cal.

Prunes, Pears, thousands, trees all kinds, buy direct from the man who grows. Save 50 per cent. Write for planters' catalog and price list. 26 years in business. Carlton Nursery Co., Carlton, Oregon.

Grafted Walnut Trees—Placentia, Perfection and Eurekas. Finest selected scions on California black roots. C. W. Story, Rivera, Cal. Whittier Exchange 4721

Broad Leafed Mission and an extra early strain of Manzanillos. If you want the early ripening and early bearing kinds, we have them. Every tree guaranteed. Olives exclusively. H. Detmers & Son, Exeter, Cal.

Walnuts—Placentia and Eureka, grafted on black root. Royal Apricots on plum. Will do well on wet land. A general line of high grade nursery stock. Get my prices. A. R. Marshall's Nurseries, Cor. 5th and Broadway, Santa Ana, Cal.

Orange, Lemon and Grapefruit trees for sale. Splendid stock, absolutely clean. Grown from selected buds. Also fine lot of Citrus Seedbed Stock. Write James Mills Orchard Corporation, Hamilton, Cal.

For Sale Citrus Trees—Valencias, Navels, Grapefruit, Seedless Lemon, Villa Franca and Eureka; also Manzanillo olive and walnut trees. W. W. Burns, 631 Security Bldg., Los Angeles. F-3110.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

Apricots and Olives—Royal Blenheim and Tilton apricots. First class trees. Large stock of Mission, Manzanillo and Ascolano olives. Balled or open root. No scale, no defoliation. C. E. Mover, Hemet, Cal.

For Sale—300 assorted plum trees, Satsuma, Wickson and Gaviota. Price $15 per 100 at ranch or entire lot for 12c each. 1½ miles south of Rivera. Paul Jordan.

Walnut Trees—Franquette, Mayette and Mammoth on Black Root; also grafting wood and Black Seedling trees. Lowest prices. Mammoth Walnut Nurseries, Watsonville, Cal

For Sale 23,000 trees, Valencia oranges, 18,000; Eureka lemons, 5000, all two years old, extra fine this spring. Frank R. Baxter, R. F. D. 1, Fullerton, Orange County, Cal.

Mission Olive Trees—Raised from my own bearing trees. This is only sure way to get what one wants. W. A. Hayne, Box 461, Marysville, Cal.

Apricots Apricots Apricots
5c up, 5c up, 5c up, 5c up, 5c up
The largest in the state to select from. Carsten Truelsen, Nurserymen, Hemet, Cal.

Citrus Trees—Selected stock, 1, 2 and 3 years old. My prices are right. Write for information. P. E. Zug, Glendora, Cal.

Olive Trees—Mission, Manzanillo, Ascolano. Propogated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, Cal.

Walnut Trees grafted on northern black root. Placentia Perfection, El Monte, Eureka. Scions personally selected. Eureka Walnut Nursery, Montebello, Cal.

For Sale—Improved Seedless Grapefruit, Valencias and Lemons. All buds carefully selected. Low prices. Sherwood Nurseries, Fullerton, Cal.

Place Your Order for Eureka and Placentia Walnut Scions now. E. Holve, Fullerton.

TREES

For Sale—3000 trees of A1 nursery stock, half Valencias, half Navels, two years from bud. Prefer to move in bulk, but will sell part, price favorable to buyer. Please communicate with us at once. Los Angeles Ice & Cold Storage Co. Home 10053, Sunset, Main 8191. Box 643, Station C, Los Angeles.

Eureka Lemon Trees—About 2000 of the finest in the state; big thrifty buds of Oct. 1915, from heaviest producing stock. See them and judge for yourself. Ideal condition for early planting. Write for price and any other information wanted. C. B. Brown, Box 26, Fullerton, Cal.

250,000 Home Grown Fruit Trees—Apples, pears, plums, peaches, apricots, figs, ornamentals, etc.; finest ever grown. Investigate the low prices of our first class stock before ordering elsewhere and save money. Inspection of nurseries invited. Orange County Nursery & Land Co., P. O. Box 235, Anaheim, Cal.

Fifteen Thousand lemon, navel, Valencia trees. Tulare County grown which means clean stock. Budded from best orchards in Central California. Make us prove it. No frosted stock. E. A. Bennett, Ducor, Cal.

10,000 Arizona Ash (2 years old) 2 to 4 ft. up. $2 per 100 or $15 per 1000. Dave Turner, Pioneer Nurseryman, Court House Gardener, Phoenix, Ariz.

Olives and other fruit and shade trees. Write for our special low prices. Kavan Nursery Co., San Bernardino, Cal.

Budded Avocados—All leading varieties. Address Mather's Avocado Nursery, 137 N. Fair Oaks Ave., Pasadena, Cal.

For Sale—Fine two-year-old Chase Walnut trees. Magnolia Nursery, Whittier, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

HOGS

Smith's Poland-Chinas—Sows and gilts bred to Joker, first prize boar at Wisconsin State Fair 1915. These sows and gilts were sired by Iowa Wonder, who is a son of the great A Wonder, the most celebrated Poland-China boar living or dead. Litters from this mating are the best I have ever seen anywhere. Prices low, quality considered. Will sell one or a carload. As a special inducement each purchaser will be given a year's subscription to the American Swineherd, the best swine paper published, and a copy of the Handbook on the Sow, also a copy of the Pig Feeders' Manual. Geo. A. Smith, Corcoran, Cal.

Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

Send for Free Catalog—Finest ever issued. Tells of the famous Whitten Ranch money making strain of Big Type Poland-Chinas. Make greatest weight in shortest time at lowest cost, topping market at 225 lbs. in 6 months. 600 head, both sexes, all ages, reasonable prices. Satisfaction guaranteed. Ranch in Tulare County, but address owner, R. H. Whitten, 610B Security Bldg., Los Angeles.

Billiken Herd of Chester Whites—The big prize winners at the 1916 California state fair. The breed that makes money for the rancher and dairyman. Have 4 nice young service boars left and 20 young open gilts that will be bred as desired by buyer. Write for the Chester White booklet that tells all about them. C. B. Cunningham, Mills, Cal.

Poland-Chinas—Twenty good gilts and three 2-year-old sows for sale. Either sired by or bred to I. B. A. Wonder, reserve champion at P.P.I.E. A few good young boars ready for service, sired by I. B. A. Wonder. A fine lot of fall pigs. I please you or refund your money. W. A. Young, Lodi, Cal.

Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P.P.I.E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

Superba World's Grand Champion Poland-China boar and one of the greatest sires of the breed. Spring boars ready for service, also few sows bred to this noted sire, reasonably cheap. Rough's Greenfields, Arlington Sta., Riverside, Cal.

BEST WAY TO BUY AND SELL

For selling poultry, live stock, nursery stock, and making exchanges of all kinds, readers of California Cultivator will find this paper produces splendid results. A. J. Robinson of Modesto writes us as follows:

"I wish to inform you that through your valuable paper I sold four bred sows at $60 each, these to go to the Whittier Ranch at Pixley, Cal. I have never failed to make a sale when advertising in your paper and wish to thank you for same."

Whenever you have stock to sell or when you want to buy consult California Cultivator classified columns. The cost for liners is only 3 cents per word per issue, with a minimum of 35 cents.

HOGS

50 Bred Sows and Gilts, 50—Of true Berkshire type and quality; bred to grand champion boars are included in our private sale list now ready for mailing. Write for it today. Silver Birch Farms, Box C. C., Newport, Wash.

Registered Poland-Chinas, prolific, fabulous, profitable, porkers. Choice young boars now ready for service, $25 each, weanlings $15 each. Dr. J. A. Crawshaw, Hanford, Cal.

Thirty Medium Big Type Poland-China boars for sale. Shipped on approval. We will send a good one for $30 and a crackajack one for $50. Bernstein Ranch, L. C. Trewhitt, manager, Hanford, Cal.

Choice Registered Berkshires—Fine sows bred to excellent boars for spring farrow $50 and $60 each. Splendid August and September boars and gilts $20 and $25 each. W. H. Waugh, Riverside, Cal.

Rancho Rubius Durocs all sold except a few extra good July and September gilts. Write for prices. Elmer Lamb, Ceres, Cal.

Choice Boar Pigs for sale. Sired by Superba 220620 champion Poland boar at San Francisco. Prices right. C. R. Hanna, Riverside, Cal.

Durocs, Weanlings, Gilts, service boars, bred gilts and a few bred sows. E. F. Curtis, Napa, Cal.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, Cal.

Duroc-Jersey Hogs—Weanlings and gilts, open or bred. Write for prices. A. B. Johnson, Newport Beach, Orange Co., Cal.

Carruthers' Farm Berkshire Hogs. Our herd won Premier Exhibitor prize at the P. P. I. E. Exposition. Mayfield, Cal.

Durocs—Choice Sows, gilts and boars of best breeding. Ed. E. Johnson, Turlock, Cal.

Duroc Weanlings $10 each, 3 for $25.00. Wm. H. Sallmon, Chula Vista, Cal.

Durocs—A few gilts of exceptional quality. H. E. Boudier, Napa, Cal.

Big Type Durocs—Quick maturing, easy keeping. F. M. Johnson, Napa, Cal.

LIVE STOCK

Live Stock Insurance: Registered live stock and farm work horses should be insured. The Hartford Company, strongest in the world, writing live stock. No trouble to answer questions. D. O. Lively, Special Representative, 215 Hobart Bldg., San Francisco.

Butte City Shorthorns, Shropshires, Berkshires and Ponies. Stock of all ages for sale. Can supply one or a carload. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., Cal.

At Last the Perfect Silo—the Stay Round. No hoops, no bolts. No experiments. Any one can erect. Close price. Address D. O. Lively, 125 Hobart Bldg., San Francisco.

Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco, manufacturers of Calf Meal, Balanced Dairy Feed, Balanced Hog Feed. Write for samples.

Fine Young Jacks and Jennies for sale. Black with white points. Eligible to register. Geo. A. Mast, Madison, Yolo Co., Cal.

The Best By State Fair Test Percheron stallions, mares and first and second prize filly colts for sale. H. G. Learned, R. 4, Box 22, Stockton, Cal.

Registered Shires — Blackhawk Stock Ranch. Importers and Breeders. Easton & Ward, Burlingame, Cal.

Twenty-four Mules for sale cheap for cash. Nine coming two, fifteen one-year-olds. C. Hubbard, Riverside, Cal.

For Sale—Fine registered Belgian stallion. S. D., R. 1, Box 24, Buena Park, Cal.

CATTLE

For Sale—From 1 to 100 extra fine, straight, well marked, light colored, highly bred, registered Holstein heifers from 6 to 12 months old. They are rich in the blood of King of the Pontiacs, Pontiac Korndyke, Hengerveld De Kol, Rag Apple Korndyke, 8th, King Segis and other most celebrated sires of the breed. Prices very reasonable. Write Geo. A. Smith, Corcoran, Cal.

Grandsons of Hengerveld De Kol and out of A.R.O. cows for sale. Prices reasonable. Write for pedigrees. Many years of constructive breeding has made my herd one of the prominent ones of the San Joaquin Valley. R. F. Guerin, Visalia, Cal.

For Sale—Registered Holstein bulls out of officially tested dams. Installment payments. For terms and pedigrees address E. A. Clausen, 1139 Devisadero St., San Francisco, Cal.

D. O. Lively, 215 Hobart Bldg., San Francisco, offers for sale a registered Hereford bull 22 months old and a registered Shorthorn bull coming three years old. Correspondence solicited.

Registered Jerseys For Sale—Cows, heifers, calves, Oxford Lad-Majesty breeding. Rolling Meadows Farm, Silverton, Oregon.

Have a Nice Registered Holstein bull calf from dam with 18.025 lbs. record. Is 3 years old. J. W. Benoit, Route C. Modesto, Cal.

Venadera Jerseys, the herd with official yearly records. Calves of both sexes for sale. Guy H. Miller, Route 1, Modesto, Cal

J. R. Carhart, Fullerton, Orange Co., Cal. Registered Jersey bulls for sale or will trade them for heifers.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

For Sale—Young registered Jersey Bulls. J. Off, Jr., Capistrano, Cal.

HORTICULTURAL PRINTING

Catalogues — Good Printing. Specialists in preparing nursery, seed, poultry and live stock catalogues and all kinds of commercial printing. For prices and information address WOLFER PRINTING CO., 115 No. Broadway, Los Angeles.

Perfect Printing Pays. We do it. Highest class work. Letter heads, folders, catalogues, etc. Write me before placing your order. G. C. Gallagher, The Service Printer, 441 Sacramento St., San Francisco.

POULTRY

Baby Chicks, hatched from my own carefully selected and Hoganized flock of S. C. White Leghorns, $10 per 100, $95 per 1000, hatch eggs $5 per 100, $45 per 1000. I have built up a very good, purebred and vigorous flock of S. C. White Leghorns during the last 12 years, and as I use hatch eggs from my own flock exclusively and only from hens that are two and three years old, I can furnish a good, vigorous, thoroughbred chick at a reasonable price. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

Penn's Rocks and Reds: A Western bred strain that wins wherever shown. Utility and exhibition. P.P.I.E. winners. Barred Plymouth Rock and S. C. Rhode Island Red eggs for hatching. Barred Rock males $3.00 and up. Free catalogue. Golden Rule Poultry Farm, St. Helena, Cal.

East Side Poultry Yards, established 1904. Our object, egg type and size for ideal utility stock, thoroughly Hoganized, baby chicks, correctly hatched, dozen or thousand. White Leghorn 10c, R. I. Reds 15c in February. After that cheaper. Satisfaction guaranteed. 255 S. 18th St., San Jose, Cal.

Baby Chicks, reasonable prices—White Leghorns, R. I. Reds, settings, 100's-1000's. Hatched right in our $60,000.00 brick and concrete hatchery from our quality heavy layers. Stock, hatching eggs. Pebbleside Poultry Farm & Hatchery, Sunnyvale, Cal.

White Plymouth Rock, White Leghorn incubator chicks, breeding stock, eggs high class. Scientifically bred. Awarded all first prizes California State Fair 1916. Make your arrangements for 1917 delivery of chicks. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

Baby Chicks from mothers with 180 to 240 eggs each per year. S. C. White Leghorns, the best ever. $10.00 per 100, $90 per 1000; also Mammoth kale plants for sale 35c a hundred—$2.50 a thousand. Delivered free. A. P. Ward & Son, Box 100, Calistoga, Cal.

Santa Cruz Chick Headquarters. Call for folder and price list of our White, Brown and Buff Leghorns, Anconas, Minorcas, White and Barred Rocks, Reds and Orpingtons. B. W. Archibald, Soquel, Santa Cruz County, Cal.

Read the classified advertisements in this week's Cultivator. Someone may be advertising for sale just what you want to buy.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

Lynnhurst Leghorn Layers Guaranteed pure bred S. C. White Leghorn chicks $12 for 100, $100 for 1000. Hatching eggs $1.00 for 15, $6.00 for 100. Send postal for booklet. Lynnhurst Poultry Ranch, 631 Penna Ave., Riverside, Cal.

Model Poultry Farm, White Leghorn specialists. Baby chix and hatching eggs from heavy laying stock, bred by us for thirteen years. Our prices are right. W. C. Smith, Prop., Corning, Cal.

White Leghorn and Brown Leghorn day-old chicks from healthy, vigorous breeders. "Chicks well hatched are half raised". Will be pleased to send you circular. San Jose Hatchery, 371 Meridian Road, San Jose, Cal.

Baby Chicks from select free range White Leghorn stock. Place orders now for early delivery. Prices on application. Western Hatchery, Petaluma, Cal. W. S. Waldorf, Proprietor.

Rose Comb Rhode Island Whites—Have had this strain of general utility fowls for two years. Find them superior to any other strain I have ever raised. 15 eggs $2.25, 100 $10. S. Fairburn, Burbank, Cal.

Quality Single Comb White Leghorn Chicks and eggs for hatching. Utility strain. Bred to pay. Write for prices. Quality Egg Ranch, Artesia, Cal. Phone Artesia 7027.

Petaluma Hatchery, Established 1902. Capacity 16,000 chicks a week—the kind the hen hatches. Five varieties. Send for free circular. L. W. Clark, Petaluma, Cal.

Incubators—Essex Model Incubators at factory prices. Write Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco. Poultry supplies.

Rainescourt Reds—Eggs from prolific laying strain and exhibition winners from $1.50 up. Day old chicks $15 per 100. Rainescourt Poultry Ranch, Zelzah, Cal.

"Eastman's Bred-to-Lay" Barred Plymouth Rocks. Chicks and eggs. We Hoganize and trapnest. Fairmead Poultry Farm, Fairmead, Cal.

Day Old Chix—Barred Rock, R. I. Reds, White Leghorns, Black Minorcas, Light Brahmas, Buff and White Orpingtons. Enoch Crews, Seabright, Cal.

Baby Chicks, White Leghorns, from healthy, vigorous, heavy laying, two-year-old hens. Satisfaction guaranteed. John F. Forney, Kingsburg, Cal.

Baby Chicks—Now booking orders for spring delivery. White Leghorn and Anconas, also custom hatching. Wilmar Hatchery, San Gabriel, Cal.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Rural 1, Sonoma, Cal.

S. C. Rhode Island Red and Ancona Baby Chicks and eggs from bred-to-lay finely colored stock. Imwood Poultry Farm, Box 192, Folsom, Cal.

Wedgewood Poultry Plant. No better White Leghorn mountain baby chicks, as my hens are bred for vitality and productiveness. Dutch Flat, Cal.

Hatched Chicks For Sale—Barred Rocks, R. I. Reds and White Leghorns. Strong, vigorous chicks. Send for circular. G. L. Hawley, Madera, Cal.

Up-to-Date Poultry Plant—Near Laveaga Park. Write owner for particulars. No agents. Address Box 595, Santa Cruz, Cal.

Pure Bred White Rocks, White Leghorn chix, quackless White Muscovy ducklings, Embden goslings. White Star Hatchery, Kerman, Cal.

POULTRY

Extra Quality White Leghorn Chicks 12c each until March 1, then 10c. Carefully line bred from MacFarlane, Young, Cyphers and Martin strains of foundation stock. Eggs $1.50 per 15, $2.50 per 30, $5.00 per 100, $50 per 1000. Acres of free range connected with our breeding pens, 20,000 feet under roof. Only Jubilee incubators used, disinfected every hatch. Don't save 2c per chick in buying and lose a dollar per pullet in raising, get the best and succeed. Newton Poultry Farm, Dept. 3, Los Gatos, Cal. Catalogue free.

Roofden Ranch Chicks are well hatched from first class utility breeding stock; money making egg producers our aim, and the prices are right. 7 to 14c, depending on breed, month, quantity (dozen to thousands). White, Buff, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks. For Dollars and Sense. Send card for circular. Roofden Poultry Ranch and Hatchery, Campbell, Cal.

The J. K. Bigelow Poultry Ranch and Hatchery—300 acres devoted to superb vigorous selected White Leghorns. The greatest egg farm in the West. Bigelow chix are incomparably superior to the product of commercial hatcheries. Prices same as former seasons, 10c each till April 1, 9c during April and May, 8c thereafter. 10 per cent deposit required with orders. The Bigelow Poultry Ranch, R. R. No. 2, Sonoma, Sonoma Co., Cal.

Blue Andalusian and Blue Orpingtons—Finest Blues on the coast. Stock and eggs for sale. Write for prices. J. R. Huddleston, 342 Edgeware Road, Los Angeles, Cal.

Baby Chicks—Fall and winter delivery. White Minorcas and Golden Buff Leghorns. Sandridge Hatchery, Kerman, Cal.

Just "Reds". Bred to lay. Cockerels. Eggs. Send for list. E. P. Shier, Fellows, Cal.

Write for Free Catalog pertaining to Rhode Island Reds. J. M. Hacock, Fresno, Cal.

Limited Number bred-to-lay Barred Rock eggs $1.50 per 15. Order now for future delivery. T. H. Bourn, Woodland, Cal.

Turlock Hatchery—Baby chicks. A chick that will live. Turlock Hatchery, Turlock, Cal.

SEEDS AND PLANTS

Free 1917 Planting Guide and Pure Seed Book! 96 pages. Handsomely illustrated in many colors. Describes latest, best varieties vegetables, flowers, field crops, fruits, shrubbery, etc. A dictionary on gardening! Flower lover's delight! Field crop guide! An orchardist's manual! Berry grower's book! A postal gets it. Don't buy seeds until you read it. Galloway Bros. & Co., Pure Seed Specialists, Waterloo, Iowa.

Florida Sour Orange and Rough Lemon Seed.—No citrus canker, this section. Government affidavits furnished. Seed shipped in one-bushel duck sacks, prepared in charcoal (or without). Sour Orange Seed $25 per bushel, Rough Lemon Seed $5 per quart, f.o.b. Leesburg. Cash with order. J. Anderson, Jr., 11 Mote Block, Leesburg, Florida.

* * SEEDS * *

Don't You Want pure home grown seeds? Of course you do. Ours are all tested and are good enough for anybody. Prices, information, samples, etc., upon application. Write, wire or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.
* * MAKE OUR SEED YOUR SEED * *

Recleaned Alfalfa Seed, good quality, excellent color, high germination test; common variety 17c, Smooth Peruvian 24c, and the famous Hairy Peruvian 30c per pound, delivered your railroad station. Do not buy until you have compared my samples with seed others offer. E. F. Sanguinetti, Yuma, Arizona.

* * ALFALFA SEED * *

As has been our custom in the past, we are offering alfalfa seed, both retail and wholesale. This is tested stock and up to our usual high standards. Samples, prices, ec., on application. Wire, write or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.
* ALFALFA SEED OUR SPECIALTY *

Giant Winter Rhubarb Plants. Big profits. From ⅝ acre first season after planting I sold 675 boxes rhubarb, receiving $673.70. Grand prize San Diego Exposition. Big discount on plants for prompt orders. Booklet free. W. A. Lee, Covina, Cal.

Berry Plants—Loganberry, phenomenal berry, Cuthber raspberry, Lawton Mammoth and Himalaya blackberry. Now ready. Prices lowest. M. J. Moniz, Sebastopol, Cal.

Strawberry Plants, Brandywine, Klondyke and Winner. The Winner plants the finest for home markets. Plants best ever offered. 12 years in business. E. H. Learned, Route 1, Burbank, Cal.

Cory's Mammoth Thornless Blackberries. Orders are being booked now for February delivery. Prices and other information upon application. Ekstein Nursery Co., Sole Distributors, Modesto, Cal.

Florida Sour and California sweet seedling orange seed from cultivated Florida and California groves. Order early. Milo Hunt, Whittier, Cal.

Alfalfa Seed—Recleaned. Buy direct from grower. Get the best. Prices and samples on request. State quantity wanted. The Hollis Ranch, Thermal, Cal.

Mr. Alfalfa Grower—Permit me to send you samples and prices of alfalfa seed: common and Peruvian. Best seed at lowest prices. O. C. Nordahl, Bard, Cal.

Ever-blooming Choice Roses 12 for 50 cents postpaid. All will bloom this summer. Kavan Nurseries, San Bernardino, Cal.

Alfalfa Seed—The very best, guaranteed 16c. Wm. Stuthman, 1239 West Pico St., Los Angeles, Cal.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

Wagner's Giant Crimson rhubarb roots. $2.00 per 100, 5c each, small lots. Currier Bulb Co., Seabright, Cal.

Strawberry Plants—Everbearing. Northern grown, strongly rooted. Price list free. F. I. Moffet, Ellensburg, Wash.

FARM LANDS FOR SALE

10 Acres, irrigated, 4-room house and barn, chicken houses, 2 miles out, $2000. 30 acres, irrigated, checked, nearly new cottage, 40x52 barn and tankhouse, with concrete floors, other outbuildings, fenced hog tight, $6500. 80 acres, on Highway, 2 miles out, very level, for alfalfa, corn, rice, $10,000. 145 acres, on river front, nothing better anywhere for walnuts, prunes, etc., 55 acres alfalfa, complete dairy, electric light and power, subdivision 1 mile selling at $250. My price $125 per acre. 640 acres, level and rolling, house and barn, finest soil for almonds, lands nearby selling at $75 and $100. My price $30 per acre. 720 acres in foothills, 15 miles from R.R., easy auto and stage road, 150 acres has been plowed, 35 acres alfalfa, 3000 cords of wood in large trees, no brush, 7 room house, barn and other outbuildings, windmill, garden and some fruit. A pretty and very cheap place at $15 per acre. JOHN C. MOGK, Colusa, Cal.

Bigger Crops and pleasanter climate are the advantages enjoyed by farmers in Eastern Washington, Northern Idaho and Western Montana. This "Inland Empire" is noted for sure crops by ordinary farming methods—without the extreme heat or cold that injures crops and takes a lot of joy out of life. Conditions are favorable for general farming, dairying, live stock, poultry and truck farming. Write for our folder, "A Farm Home For You", and tell us what kind of a place you want. Farm lands in the Northwest are bound to increase in value. Farm Development Bureau 20, Chamber of Commerce, Spokane, Washington.

NO PAYMENT DOWN!
FARMERS ARE MAKING GOOD IN THE "PROJECT OF NO REGRETS" AT ORLAND, CAL. WATER FURNISHED BY UNCLE SAM. WE SUPPLY THE LAND AND ASK NO PAYMENT UNTIL YOU CAN MAKE SAME FROM CROPS: NO BETTER SOIL FOR ALFALFA, ALMONDS, OLIVES, ORANGES, LEMONS, ETC. WRITE US FOR U. S. GOVERNMENT REPORT AND BOOKLET "ORLAND FARMS."
F. D. BURR CO.,
253 RUSS BLDG., 235 MONTGOMERY ST.
SAN FRANCISCO.

Wanted—Farmers, orchardists, live stock men to use classified liner advertisements like this. Thousands of people read every ad, and the cost is only 3 cents per word per issue, minimum 35 cents. Extra lines of white space above and below cost only 16 cents per line.

For Sale—60 acres non-alkali, in South San Joaquin irrigation district, 25 miles southeast of Stockton, four miles from Southern Pacific and Santa Fe stations. Good improvements, fenced, family orchard, part to alfalfa, balance hay or corn land. Plenty of water, healthy country. A sacrifice at $5000 cash or part and balance 7 per cent. C. L. Sutliff, Isabella, Kern Co., Cal.

For Sale—80-acre improved foothill ranch, 12 miles east of Porterville. 30 acres citrus land now in wheat; 15 acres alfalfa land; hog fencing; pasture; timber; river; railroad adjacent. Modern new house (furnished if desired), gas plant, furnace, etc. Five outbuildings; implements; live stock. Nothing delapidated. Ideal place for country life. Sacrifice $25,000. $17,000 will handle. Address New, Box 3, California Cultivator.

Oregon & California Railroad Co. grant lands. Title to same revested in United States by act of congress dated June 9, 1916. Two million three hundred thousand acres to be opened for settlement and sale. Power site, timber and agricultural lands. Containing some of best lands left in United States. Large sectional maps showing lands and description. Price $1.00. GRANT LANDS LOCATING CO., P. O. Box 610, Portland, Oregon.

For Sale—320 acres fine sandy loam soil 5 miles northeast of Modesto, 1½ miles directly south of Riverbank in Modesto Irrigation District, average yearly water cost less than $1 per acre. Land suitable for alfalfa, grapes, deciduous fruits or farm trucking. Will sell as a whole or in 20-acre tracts. Average price $150 per acre. Will make suitable terms to parties buying for improvement. B. F. Kieruliff, 757 S. Los Angeles St., Los Angeles.

California Land $1.00 Per Acre Cash, balance 90c per month per acre. Immediate possession given. No taxes, no interest. Level San Joaquin Valley. Only four hours from San Francisco. Five acres up. Clear; ready to plow. Open ditch irrigation $1 acre per annum. Particulars, maps, photos, free. Stevinson Colony, Desk E, 785 Market St., San Francisco.

Go to Making Money the day you buy. 40 head of high grade dairy stock and 157½ acres of best equipped dairy farm in the country, also best of orange land. R. R. close, everything handy; 4 silos, labor saving machinery, etc., $8000 down, $4000 in four years at 5 per cent. Reason—I must move to apple ranch I just bought. R. 4, Box 30, Porterville, Cal.

For Sale—Finest kind cranberry peat land, 1 to 5-acre tracts at $200 per acre; similar land nearby producing 150 barrels cranberries to acre. Monthly payments if desired. Henry S. Gane, R. F. D. No. 3, Santa Barbara, Cal.

For Sale—Large alfalfa and grain farm, 30 miles from Sacramento. Can include 80 head grade Holsteins. Address C. E. Relth, Holbrook Bldg., San Francisco, Cal.

Placer Co. 20 acres land, fine for fruit, poultry, etc. Cost $1500. Sell cheap on terms or exchange for poultry, incubator, grain, live stock. Box 203, St. Helena, Cal.

Free New Blue Booklet—State, government and Indian lands. Bargains overlooked. Joseph Clark, Sacramento.

Money to Loan on Farms, city and suburban property. C. G. Paul, 407 Chamber of Commerce Bldg., Los Angeles.

Write for List of ranches and homesteads. Low Priced Lands Company, Carmel, Cal.

For Sale—40-acre dairy ranch north of Dixon. Write owner, H. H. Firchow, Dixon, Cal.

FARM LANDS FOR SALE

For Sale—1700-acre ranch near Roseburg, Ore., at $27 per acre. Half of it can be plowed with tractor. Fine sheep ranch. Similar ranches in California would cost 3 times this price. Good farm buildings. Right near railroad. Henry S. Gane, R. F. D. No. 3, Santa Barbara, Cal.

Land For Sale in Solano County, Cal. 160 acres known as Northwest Quarter, Section 28, Township 20, Range 2 West, in northwestern part of Solano County. Low price and easy terms to the right man. Address M. A. Green, 822 Mission Street, San Francisco, Cal.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit". It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

Second Hand Pipe For Sale—All sizes standard water pipe and screw casing, half inch to ten inches. Also valve and fittings. Guaranteed good as new. Cheap for cash. Write for our prices. Weissbaum Pipe Works, 169 Eleventh Street, San Francisco.

The Quickedge Sharpener abolishes the greatest household annoyance — dull knives and shears. Sharpens them in ten seconds. For particulars call or write G. Sherwood, 631 Homer Laughlin Bldg., Los Angeles.

Buy Salmon at Wholesale—Fish world's famous Puget Sound Salmon 100 lbs., net salmon in brine $6.50; 20 lbs. smoked salmon $2.50; 20 lbs. net salmon bellies in brine $2.50. T. A. Beard, 4322 Winslow Place, Seattle, Wash.

Study Telegraphy, Stenography, Bookkeeping, Law, English. Board, room and tuition may be earned. Catalogue free. Mackay Business College, 911 Main St., Los Angeles.

Nut Culture discussed by experts. Official journal. Every phase of industry. Highly endorsed. $1.25 year; 3 years $3.00. American Nut Journal, Rochester, N. Y.

To Reduce the hign cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

For Sale—300,000 four-foot redwood grape stakes; first class. Rolla Bryant, Jr., Rio Dell, Cal.

MACHINERY

FOR SALE, USED RANCH MACHINERY
No worry. Material guaranteed. Save you half. Why buy new as it is second hand after used few times, but not necessarily worn out.

WINDMILLS	TANKS	WINDMILLS
8-ft. Aermotors, other makes		$ 21.50
10-ft. mills		29.50
12-ft. mills		$45.00 to 55.00
16-ft., cost $250, for		125.00
1000-gal. new galv. tanks		29.50
2000-gal. new galv. tanks		39.50
600-gal. used galv. tank		14.00
4000-gal. fine redwood tank		32.50
1000-gal. nearly new wood tank		17.50
6000-gal. fine redwood tank		40.00
8000-gal. tank, fine shape		60.00
100,000-gal. fine 3-in. redwood		400.00
ENGINES	PUMPS	PIPE
1½-h. International gas engine		25.00
2-h. engine		39.00
4-h. Lambert, fine shape		59.00
6-h. Oriental gas engine		65.00
6-h. Western		79.00
12-h. Fairbanks, fine shape		175.00
14-h. semi-decil St. Mary's, new		350.00
34-h. Lambert, excellent shape		350.00
40-h. Western, like new		600.00

CENTRIFUGAL PUMPS—2-in., $24; 3-in., $35; 4-in., $45; 5-in. double runner, $95; all sizes in plunger pumps $5 up. New pump jacks, $12.50; large, heavy geared pump jack pumps, 15-in., $48; double-acting No. 2 Ames deep well pump, $95; No. 3 Ames pumps, 30-in., $150, cost $660; fine Means double acting deep well pump, $350, pumps 50 inches.

BRASS CYLINDERS—ALL SIZES—HALF PRICE

Plunger rods, pipe, all sizes pipe fittings.

RANCH MACHINERY SUNDRIES

Walking plows, 14-in. riding plows, $15 to $22.50; fine 2-gang large mouldboard plow, $45; 3 or 4-gang disc tractor plow, $55; Fresno, $10; spike harrows, $9.50; alfalfa renovator, $28; manure spreader, another fine BULL TRACTOR, $350; 20-40-h. gas tractor, $600; new Samson tractor, $550 on cars Thermal; steel cable 5c; cement mixer, $35; mounted sprayer, $19.50, mowers, rakes, buck rake, $25, fine horse power baler, $75; 250 feet 7-inch irrigating pipe 16½c, bone grinder, $9.

STEAM BOILERS, ENGINES AND PUMPS

8, 20 and 80-h. boilers, steam compressor, 12x12 belt driven Union air compressor, $245; 3x12 Gould compressor, $27.50. Sundries too numerous to advertise.

WANT to buy first class material. No junk wanted. Pioneers in our line. Responsible and reliable. Trade us your machinery and little cash for what you need. DEMMITT CO., UPSTAIRS, 120 N. MAIN, YARDS 816 YALE, LOS ANGELES.

For Sale—100 H. P. Westinghouse motor, vertical C.C.L. type and 10-inch Byron Jackson vertical centrifugal pump, used 60 hours. Outfit complete $2000. For particulars address Frank Cox, Westley, Stanislaus Co., Cal.

IRRIGATION ENGINEERS

Contour Tree Staking, pumping plants, pipe lines, flood control and conservation. Bennett & Duling, Engineers, 1125 Central Bldg Los Angeles, Cal.

TURKEYS

Bronze Turkeys — Panama-Pacific and 1916 California state fair winners. Guaranteed Eastern strains. Choice lot of stock toms for sale, also eggs in season. Correspondence solicited. John G. Mee, St. Helena, Cal., R. F. D. 3.

For Sale—Eight mammoth bronze turkey gobblers, weighing between 20 and 22 pounds. Each $5.50 and $6.00. Address Mrs. Chas. Wiro, Chowchilla, Cal.

For Sale—Young bronze turkey hens, 6 to 8 lbs., $2 each. E. A. McKinley, R. F. D., Ukiah, Cal.

WANTED

Wanted Information — A general plan showing best income from farming with $10,000 cash capital. Fruit, stock, crops, dairying or anything. Will give $10 for the best practical answer. Give location, where plan can be carried out. C. Painter, Box 5, Laguna Beach, Cal.

One of the most perplexing problems to farmers and ranchers is that of help. A small liner ad in California Cultivator is the quickest and easiest means of securing farm help.

Wanted—Men, with rigs preferred, in each California county to represent California's largest and most read California weekly. Good pay and permanent connection to right persons. Address Circulation Department, California Cultivator, 115 North Broadway, Los Angeles.

Wanted—Position or employment in country by young man 31 years, where one can be alone the greater part of the time. Wages is not the object of consideration in right location. Sheep herding preferred. Box F, Cultivator.

Wanted—Salesmen and Agents in every city and town on this coast to represent this company. A cracker-jack proposition for live wires. General Sales Agent, 414-424 9th St., San Francisco.

Wanted—Position superintendent or foreman on ranch. Thoroughly understands general farming and stock raising. Reference. Wolfe, 908 Main St., Vallejo, Cal.

Married Man wants position to take charge of ranch. 12 years' experience. Best of reference furnished. B. W., care Cultivator, Los Angeles.

Wanted Land to locate foreign colony Leasing proposition on sharing crop basis with buying option on easy terms. No agents. Address 1411 Cultivator.

Wanted—Lowest price on 2000 to 3000 Citrus Trifoliata Seedbed Stock. Give size, age and condition. Address Box B, Cultivator office.

Caterpillar Engineer wants job on Holt 75. Good mechanic. Married. L. Read, Eureka, Cal.

LUMBER

AAA—Lumber, New and Second-Hand; rough, $10 M; finished, $15; "A" R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St. San Francisco, Cal

PATENT ATTORNEYS

Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS"

AGRICULTURAL IMPLEMENTS

For Sale—One orchard cultivator, 1 disc harrow, 1 cross reach orchard truck, 1 walking plow, 1 drag harrow and several other implements. Also one second-hand wagon, slightly used. Cheap for cash or time. Arnott & Co., Wholesale Implements, 112 to 118 South Los Angeles St., Los Angeles.

For Sale—Panel top wagons, 3 open delivery wagons, 2 buggies. Cheap for cash or time. Arnott & Co., Wholesale Implements, 112 to 118 South Los Angeles St., Los Angeles.

FOR EXCHANGE

For Exchange—$7000 equity in a $16,000 80-acre dairy ranch, 3 miles N.W. of El Centro, Imperial County. Good land, well improved and nicely located. Want coast property. Address owner, J. R. Adam, Imperial, R. 2.

DUCKS

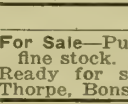
Indian Runner Ducks $5 and drake $9.50. Ducklings $18 per 100. Choice strains Leghorns, Rocks, Reds, baby chix for $10 to $15 per 100. Beaver Grove Poultry Farm, St. Helena, Cal.

DOGS

For Sale—Pure bred Ayredale pups, extra fine stock. Males $10 each. Females $5. Ready for shipment March 1. Ben F. Thorpe, Bonsall, Cal.

FARMS WANTED

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn



IDEAL GOPHER TRAP
Round steel cage; catches gopher every time. Postpaid 50c 2 for 95c, 6, $2.70. Circulars free.
E. J. CHUBBUCK CO. 731 Market St. San Francisco, Cal.

A CEMENT STAVE SILO

We are pleased to have the opportunity of being the first publication on the coast to present to its readers a silo that is made of cement blocks, so constructed that they will make a perfect joint for every size of silo. We refer to the Playford Cement Stave Silo, the silo that has been used so successfully in the East and one that is sure to meet with a warm reception in the western country, where conditions for the preservation of silage is so ideally perfect.

Farmers are coming to realize the economy and benefits of using a silo, and with the advantages of this stave silo there will be an ever increased interest taken in that valuable asset to the dairying and stock raising industry.

Those who are interested in silos should write to the Cement Stave Silo Company 501 Call building, San Francisco, for a circular and other descriptive matter pertaining to this silo.

"Young man, the best tonic for you is the right kind of food. I suggest for Breakfast

Ghirardelli's Ground Chocolate

It's easily assimilated — it's extraordinarily nutritious — and it is supremely delicious."

It comes **PROTECTED**—as all chocolate should—in ½-lb., 1-lb. and 3-lb. hermetically sealed cans.

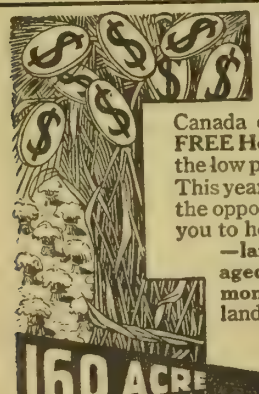
Since 1852 D. GHIRARDELLI CO. San Francisco

THROUGH the microscope, a spindle looks as rough as sand paper. That's where the rub comes. But the powdered mica in Mica Axle Grease fills up this unevenness, making a smoother, cooler bearing. That's why Mica does better work, and lasts twice as long. Get a can from your dealer today.

Lasts Twice As Long

Standard Oil Company
(California)

MICA AXLE GREASE



Raise High Priced Wheat on Fertile Canadian Soil

Canada extends to you a hearty invitation to settle on her **FREE Homestead lands of 160 acres each** or secure some of the low priced lands in **Manitoba, Saskatchewan and Alberta.** This year **wheat is higher** but **Canadian land just as cheap,** so the opportunity is more attractive than ever. Canada wants you to help **feed the world** by tilling some of her fertile soil **—land similar to that** which during many years **has averaged 20 to 45 bushels of wheat to the acre.** Think of the **money you can make** with wheat around **$2 a bushel** and land so easy to get. Wonderful yields also of **Oats, Barley and Flax. Mixed farming** in Western Canada is **as profitable an industry as grain growing.**

The Government this year is asking farmers to put increased acreage into grain. Military service is not compulsory in Canada but there is a great demand for farm labor to replace the many young men who have volunteered for service. The climate is healthful and agreeable, railway facilities excellent, good schools and churches convenient. Write for literature as to reduced railway rates to Supt. of Immigration, Ottawa, Can., or to

Gilbert Roche
Canadian Government Exhibit, San Diego, Cal.
Canadian Government Agent.

In our every issue there are new advertisers. Are you keeping in touch with them?

Household Department

TO MOPSA, AN ANGORA KITTEN

Little puss on my knee,
With your capers and glee,
Your persistence and pranks without end,
Do you know what a place,
With your songs and your grace,
You hold in my life, little friend?

You ball of soft fluff,
You are simply enough
To bewitch one, you charming wee sprite:
Like some midsummer fay's
Are your frolicksome ways,
Every movement so dainty and light!

When the stress and the strife
Of a strenuous life
Serve to ruffle my temper a bit,
Away worries fly
When to my mind's eye
Comes your innocent face, little kit,

With its crystal-clear eyes,
Big and round with surprise,
And the unruffled calm of a sphinx,
And two silk-tasseled ears,—
When your face thus appears
You banish all grouches, you minx.

You imp in gray fur,
With mellifluous purr,
When you cuddle up close to my breast,
You're a gay music-box
With a tune that unlocks
The doors of the chambers of rest,

For your soft lullabies
Seem to quite hypnotize,
And my eyelids make heavy as lead—
O such a fine nap
With you on my lap
Or on the chair-back at my head!

O who could be blue
With a madcap like you
To provoke one to laughter and mirth?
In spite of myself,
While I watch you, you elf,
I forget every trouble on earth!—Our Dumb Animals.

"L'AIGLON"

"YOU'RE L'Aiglon, are ye? An aristocrat, eh?"

The old man plunged his hands into a basin of water and suds, and bent himself vigorously to the task of washing his face, hands, and hair, an exercise, from which he presently rose dripping and rosy, but still belligerent. He breathed deeply into the folds of the kitchen towel hanging from the roller behind the door, while he rubbed his ruddy cheeks and nose until the shining roundness denied beyond possibility of question the genuine quality in the tones directed toward a tiny fluff of gray, winding between his legs.

"Got a pedigree—and was raised in a cattery, was ye?"

"What's a cattery, anyway?" he asked, raising his voice, and giving a final rumple to the low-lying and aggressively upstanding hair.

A little old woman appeared in the doorway, and stood regarding the unusual irritation plainly visible in the voice and attitude of her spouse.

"Why, pa, a cattery is a house where they raise cats—An—Ango-r-r-a cats—'cause some of 'em is awful expensive. You know what Clara said about that one that cost $500," she continued, her voice sinking to an awed whisper; "and she said L'ai—'laigg—loo—"

"What a name for a cat!" exclaimed the old man. "I hate such tomfoolery. I just naturally despise it. He can go back where he come from. The old cat's good enough for me. She's caught all the mice round here for a considerable lot o' years, an' I ain't goin' back on her for any upstart, named L'Aigloo."

"'Tain't as if we couldn't change it; you know Clara wrote what it meant, and how to pronounce it, but she said we must suit ourselves about callin' him that. She said it's French, 'cause his father and mother was French—an' his grandfather—"

"His grandfather be—" Even in his disgust, the old man paused upon the brink of this ejaculation.

"My sakes!" exclaimed ma. Picking up the kitten, she fled to her remotest "piny" bed. "My sakes!" she repeated to the fragrant globes of pink and white.

Left thus, the old man peered through the window at the fugitives. He rubbed perplexedly at the high light on his polished bald head.

He opened the door of the cupboard and took out a small plate, muttering, "Cattery—pedigree—we'll see!" and other dissatisfied fragment. A brown paper parcel came forth from one of the shelves, and he untied it with fingers that fumbled clumsily at the knots. Unrolled, it disclosed a portion of liver, fresh and inviting.

The old man cut narrow strips of liver, and placed them carefully on the plate. Then he spoke to the old cat.

"Come on!" he said, ingratiatingly "Come on an' get it." He went close to her and stroked her with his great rough hand.

"It's fresh," he declared. "Ye can smell." Thus importuned, the old cat rose slowly, stretched, yawned, sniffed once and again, arched her back under the rough caress, then turned indifferently to her cushion, from which she blinked unresponsively at him.

"Ye hain't eatin'," he said, "sence mornin', an' it's night supper time. 'Pears like ye'd be a-wantin' something."

But she did not heed him. Blind to the solicitude of the bent old shoulders, from which stretched the tremulous arm, with its offering, she turned away, and began washing her face imperturbably.

Outside the window he could see the "pinys" waving in the breeze, as the little old woman walked among them. Upon a riotous kitten, curveting in their midst, up and down the gravel walks, they sent down showers of radiant petals.

"Little rascal!" the old man muttered, with absorbed interest at the leaping antics. "Mebbe he — like enough—"

The sentence remained unfinished as he walked toward the door, and there halted, gazing ruefully downward.

"L'Aigloo—cattery! Such nonsense, an' I ain't agoin' to put up with it," he announced, but the strength and finality of purpose that had rung through former utterances were lacking now.

"Them chickens'll be hungry, anyway, I reckon," he confided to the depths of a wooden pail hanging on its peg in the wood shed.

"Ma an' me an' the old cat's gettin' a little bit rickety, but them chickens," he said, hopefully, "they're young and spry; they'll eat."

But they stood about in indolent, surfeited groups, regarding him with friendly affability, all unheeding the handful after handful of golden grains he threw among them. In dejection, the path by the currant bushes back to the house was slowly retrod—and the dejection deepened as he stood again in the kitchen.

It came to him suddenly that he himself was not hungry, and that he was tired—tired of looking at things he had seen so often, the roller towel, the dishes, the old cat. There was nothing for him to do, no one he could serve.

A plaintive quaver of sound arrested this melancholy turn of reflection. On the floor before him stood the son of flawless French pedigree, appealing like any plebian, plainly, obviously hungry.

The man opened the cupboard door. "I don't aim to have anything starvin' round me," he said to the plate of liver, lifting it from the shelf.

"Here you, L'Aigg-loo;" he pronounced the name with labor and distinctness. "Ye can have it, for the old cat don't want it. I give it to her first," he felt it necessary to explain.

L'Aiglon came to the feast; he was not particular who was invited first. In a moment, it seemed to the delighted old man, there was no vestige left, and the kitten searched industriously for more round the plate.

"Want some more, do ye? Well, if you don't beat the dickens." A few moments later, he added, with an ecstatic grin, "I don't reckon ye can hold any more, but if ye can—"

L'Aiglon had finished it, and was asking for more.

"Nigh starved, ain't ye?"

The basin stood in the sink and he poured it full of water, as if in the joy of giving he feared something empty might wish to be filled. Again he scooped great handfuls up to his face, and emerging red and chuckling, he beheld ma standing apprehensively in the doorway, viewing the still unappeased kitten.

"That there kitten," he said, impressively, striving to find words to maintain his former declarations, and to explain his too evident abandonment of them, "is the biggest little pig I ever see."

The towel hung conveniently near, and he buried his happy face in its folds.—Youth's Companion.

HOUSEHOLD QUERIES

Everlasting Yeast

Please give directions for making everlasting yeast, the kind of which you keep a little back for a starter —L. T.

One-half cup white granulated sugar and one cup of flour; stir to a batter and let stand three days in warm place to rise. On the fourth day stir up the sponge and let stand over night and rise, then take out a cup of the sponge, put into a quart jar, add four tablespoons of sugar and set in a cool place until you are ready to bake bread again. Don't put salt in the yeast that is saved for baking next time. This yeast makes fine bread.

Grapefruit Marmalade

Please give recipe for grapefruit marmalade, also other ways of serving grapefruit.—Subscriber, Buena Park.

We do not have a recipe for marmalade where simply the grapefruit is used but give the following receipe for "Amber Marmalade." One grapefruit, one orange, one lemon, seven pints cold water, five pounds sugar. Wash and wipe fruit with a soft cloth, cut each in quarters, then cut each quarter through peel and pulp into exceedingly thin slices, discarding the seeds. Pour the water over the prepared fruit and let stand overnight. Cook until the peel is very tender; it will take four or five hours. Again set aside overnight. Add the sugar and cook, stirring occasionally, until the syrup thickens slightly on a cold dish. Store in glasses, cover with paraffine when cold.

Every girl should be taught how to make and keep a home. This includes the wise purchase and manufacture of dress goods and clothing, sanitation in the home, healthful foods, and how to cook them, care of the sick, etc.

DIFFERENT WAYS OF COOKING CHICKEN

Broiled Chicken

A young chicken should be used for this dish. After cleaning, cut in two through the back, flatten out, dry well with a clean towel and place between broiler irons over a nice, clear hot fire. After the pieces have become thoroughly hot, butter them well, sprinkle with salt and pepper and continue broiling, turning often: it will take fully 20 minutes. Serve on a hot platter.

Pilau

One chicken, one large onion, two cups cooked rice, two tablespoons lard or butter, two tablespoons flour. Prepare the chicken as for frying, flouring it. Into a saucepan put the fat, when melted add the flour and allow it to brown. Add the chicken and cook until brown then fill the pan one-fourth full of water, add the onion, salt and pepper. One cup of washed rice (this will make two cups of cooked rice) should be added when the chicken is almost tender. Set on the back of the stove and simmer gently until the chicken is tender, about three hours.

Italian Style

Take a nice chicken, cut into small pieces and fry in a little olive oil, a medium brown. Chop very fine a little parsley, two cloves of garlic, half onion and quarter teaspoon of allspice. Put a little olive oil in a sauce pan, then the browned chicken and parsley, garlic and onion. Then add about a pint of tomatoes. Have ready some dried mushrooms which have been boiled about 15 minutes. Now put in mushrooms and their liquid. Salt and pepper to taste. Boil very slowly about one and a half hours, stirring constantly. A little water may be added if too thick.

Creole Chicken

Southern cooks understand chicken cookery as few others do, and this stew is one of the best chicken recipes. Singe and draw a good sized fowl and disjoint it carefully. Melt two rounded tablespoons of butter in a deep saucepan. Add three onions sliced thin, and stir until the onion is thoroughly cooked, but do not allow it to burn or even brown deeply. Add the chicken with the dark meat on the bottom and the white meat on top, a dash of celery salt and just enough of the juice from a can of tomatoes to cover the chicken. If the chicken is large, this will take an entire quart can of tomatoes pressed through a sieve. Bring to the boiling point, and then push back on the stove to simmer very gently for one hour. Season with a small teaspoon of salt and a mere dash of pepper. The Southern cook adds a sweet red pepper, with the seeds removed and the shell chopped very fine. Next add one can of corn, or if you can secure it, one pint of corn cut fresh from the cob. Heat this thoroughly. Edge a hot platter with plain boiled rice. Lay the chicken neatly inside of this border and pour over it the corn and tomato sauce.

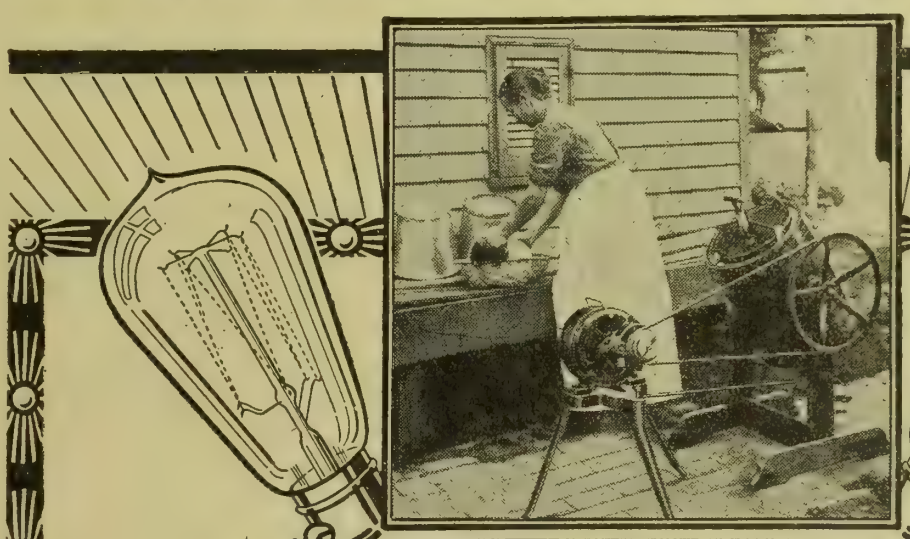
Mother's Chicken Pie

Pick a fat hen and wash and cut up, put into boiling water that has been seasoned with salt, and cook until tender. To make the dough, sift together thoroughly one quart of flour, one level teaspoon of soda, one teaspoon baking powder and salt as desired. Add enough lard to make a short crust, and sour milk to mix dough as thick as for biscuits. Roll on a well floured surface, making the dough as thin as can be handled, and place it in a bread pan, covering bottom and sides. Put chicken in the pan, adding butter, pepper and salt if necessary. Pour in the broth, which has been slightly thickened with flour. Add top crust, making perforations to allow steam to escape. Bake in quick oven. If there is any broth left, make a gravy, adding sweet milk, butter and a little onion juice. Thicken with flour and pour over top of pie.

Chicken Tamales

Meat from half of a boiled chicken; one clove garlic or half medium sized onion; quarter teaspoon cayenne; one teaspoon salt; one cup corn meal; two or three small red peppers. Chop the chicken; season with cayenne pepper, garlic, or the onion finely chopped, and salt; form the meat into little rolls about two inches long and three-fourths inch in diameter. Pour boiling water over the meat and stir; use water enough to make a thick paste. Take a heaping tablespoon of the paste, pat it out flat, and wrap a roll of chicken in it. Wrap each roll, so treated in tender corn husks that have been softened by being placed in a pan and covered with boiling water. Flatten the rolls with a pressure from the palm of the hand, tie the ends and pack in a granite pan or bucket, in which they are to be cooked. Cover the tamales with the broth in which the chicken was cooked, or with boiling salted water. Add two or three small sharp red peppers, and boil for 15 minutes. The Mexicans add a little of the pepper finely chopped to the meat filling of the tamale, which with them is often made of beef or pork, boiled tender and chopped fine.

DELCO-LIGHT

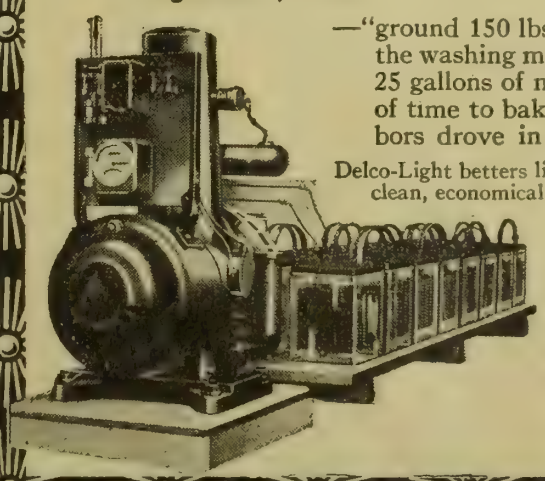


ELECTRICITY FOR EVERY FARM

All In The Day's Work

Delco-Light actually pays for itself in time and labor saved in doing the household chores.

Here is a sample day's work for Delco-Light, on the farm of A. L. Denlinger, near Engelwood, Ohio.



—"ground 150 lbs. of sausage meat—churned 90 lbs. of cream—turned the washing machine and wringer for large family wash—separated 25 gallons of milk. And after all of this work, my wife had plenty of time to bake bread. During the evening, some of the neighbors drove in and we had a pleasant time under Delco-Light."

Delco-Light betters living conditions on the farm. It furnishes an abundance of clean, economical, safe light for house and outbuildings. It makes possible a modern bath and running water in various parts of the house, and it furnishes power for small farm machines.

Delco-Light is a complete electric power plant—wonderfully compact, economical and efficient—and so simple that a child can care for it.

Be sure to write for the illustrated booklet

The Domestic Engineering Company, Dayton, Ohio

DISTRIBUTORS

E. H. Epperson, 630 Mission St., San Francisco, Cal.
E. H. Epperson, 314 E. Pike St., Seattle, Wash.

Perfect fitting, easy adjusting, —like all SLIDEWELL collars is made with the successful patented features—the Graduated Tie-Space and Tie-Protecting Shield.

Hall, Hartwell & Co., Troy, N. Y.

Makers of HALLMARK "Quality Kept Up" Shirts

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For Everyone Out of Town Who Wants a More Livable, BETTER Furnished Home!

We maintain a Personal Service Shopping Bureau especially for the benefit of our out-of-town customers. Every order is given the same attention by our expert shoppers who buy FOR YOU, as though they were buying for themselves. They seek the very best values in our stock FOR YOU. They take advantage of the very best BARGAINS. They give your instructions the greatest possible care.

Write for what you want. We send, in many cases, for your inspection, actual photographs of furniture upon our floors, which we believe will best meet your preferences. We quote you prices of the very best values in our stock. We enable you to secure the very newest products of the very best factories, and at lowest possible cost.

We send drapery samples, wall paper samples, etc. Tell us as nearly as you can what you wish and we will make special effort to meet your demands.

We pay the freight 100 miles and part of the freight for greater distances. Careful packing, prompt shipments.

All goods GUARANTEED ABSOLUTELY AS REPRESENTED, and SATISFACTION ASSURED. Write us. Address MAIL ORDER DEPT.

Barker Bros
ESTABLISHED 1880

Complete Home Furnishers

724-738 S. Broadway Los Angeles

F-O-S-T-E-R-S

California "ASTER" Seeds, Best by Test

Crego's Lavender and White. Giant Branching Lavender and Pink. Giant Comet, all colors, Rose King and Violet King, Mixed. Large package 10c, 3 for 25c, 7 for 50c, ounce $1.00. FOSTER'S FLOWER SEED FARM, 1468 Locust St., Pasadena, Cal.

WE SPECIALIZE IN COUNTRY SHIPMENTS

Write for Catalogue

Gerlemann's Basket Grocery and Mail Order House

721-723 S. Main St., Los Angeles, Cal.

The Irishman's advice to a long winded speaker: 'When yer get through pumpin', lave go the handle.'

KEEPING UP ONE'S WARDROBE

Written for California Cultivator
By M. A. T.

After purchasing a pair of kid gloves, select a spool of cotton of the same shade for darning them for if they are darned as soon as they begin to rip they will repay their wearer by a long lease of service.

Ribbons, veils and laces will last longer and look far daintier if they are never creased by folding; they are easily kept smooth by winding over a roller. Gloves should be blown up immediately after stripping them from the hand, then filled with a light shake of glove powder and laid away without folding.

If a soiled spot is found upon a woolen garment, set a small pan of gasoline in a pan of very hot water and use the fluid warm, and it will remove the soil more readily and without leaving a ring around the spots.

White waists and dresses that are worn in the winter soon become soiled and I have found that they can be cleaned with very little rubbing by putting them to soak in warm suds made with borax soap chips, as this softens and whitens the fabrics and it is the rubbing that wears them out much sooner than the wearing. There is nothing better than the soap chip suds for washing lace collars and all small laces, and for all kinds of nice socks and stockings and these wear longer if they are laundered frequently than when they are put away moist with perspiration, as this rots any kind of fabric. Any white woolen article will come out as clean and soft as when new by washing through the soap chip suds and then rinsing in water slightly blued.

If you have several pairs of good stocking legs with worn feet, it will certainly be worth while to get new feet for them. It takes only a little while to sew the feet on to the stockings tops and you have a pair of stockings that are as good as new. Give added length of days to kid and other leather shoes as well as keep them black and soft by rubbing often with a little vaseline on a soft cloth. One of the best shoe polishes is made by mixing lamp black with the vaseline; this can be bought for a trifle at any drug store.

A KITCHEN CONVENIENCE

Probably there is no simple thing about the housekeeping that gives such "quick results" for the same expenditure of time as the covered broom, says Alice Margaret Ashton in the Northwest Farmstead. And yet to many housewives it is still personally unknown. It is one of the innovations that do not cost a cent.

But I valued the covered broom in other departments of the house long before I realized its usefulness in the kitchen. Now I keep a broom covered always in readiness for that room. For the kitchen broom I like soft, old knitted undergarments, which I pin securely in place with safety pins; this does not look as neat as the regular broom bag, but it answers every purpose.

When I put a fresh cover on the broom I first use it to carefully brush the walls and ceiling free from possible webs and to dust all the doors and other woodwork of the kitchen thoroughly. It is then used to sweep the floor for two or three days.

The kitchen looks neat with very little other dusting, besides this triweekly "brooming", which is a big item to consider with a woman whose hands are crowded with duties.

The covered broom removes the dust from the floor as no uncovered broom can, making it look neat and presentable without such frequent moppings.

The soiled covers are shaken as free from dust as possible and then put in the washer after all the other clothes have been washed. Try the covered broom in the kitchen if you do not already use it there.

"PON HAUSE"

Although it is rather late for butchering this old fashioned recipe given by the Colorado Agricultural College may be of interest:

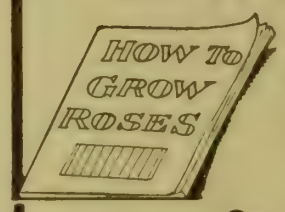
"All meat not used for sausage, hams, shoulders and side meat may be placed in a kettle to be cooked for 'meat pudding.' This includes the head, with tongue, heart, liver and all clean skins after lard has been stripped from them. To these trimmings add water and cook slowly until very done. Remove bones and largest pieces of meat, cut the meat into small pieces and place again in the kettle. Add water and thicken with cornmeal and buckwheat flour, about equal portions. Cook slowly, stirring constantly, season to taste with salt, pepper and sage. When done pour in dripping pans. When firm, slice down. Serve cold or fry as mush."

That housekeeper is most efficient who by the simplest methods best conserves the health, happiness and resources in her keeping. It is she who coordinates mental and manual. In this age the manual is being rapidly taken out of the home by the use of many new inventions which our grandmothers never dreamed of, and the mental is being rapidly ushered in. Today our housekeeper must be a cook, a laundress, a clothier, a doctor, a teacher, a house furnisher and decorator, a finance committee, and a social worker.

Confidence is a great asset. The fact that our people have confidence in their neighbors and in the country to adjust its financial system and marketing difficulties is all the assurance we need for prosperity.

Superb California ROSES

To Women:



When the men folks are ordering fruit trees, vines or plants from the Fancher Creek Nurseries, have them include a few of our hardy field grown roses for you. We have a splendid assortment for this season's planting.

"How to Grow Roses"

One Copy Free for You

This book by our Mr. Geo. C. Roeding is the result of 33 years' experience as a fancier, practical grower, student and rose lover. It contains just the kind of information that every person interested in roses must have in order to get the very finest results. Readers of the Cultivator are offered this book free for the asking.

SEND TODAY FOR YOUR COPY

The edition is necessarily limited, so we suggest that you write now. A postal will do.

FANCHER CREEK NURSERIES

248 Holland Bldg., Fresno, Cal.

BEFORE YOU GO EAST THIS SPRING

MARCH 10th WILL BE NATIONAL ORANGE DAY.

SALT LAKE ROUTE

We should be pleased to have you get in touch with our agents and learn of the advantages of the Salt Lake Route.
'Tis the Short Line from Southern California through Salt Lake City, with beautiful scenic attractions and excellent service.
You may travel first or second class in the Los Angeles Limited, or Pacific Limited, as both carry Standard and Tourist Sleepers and run daily from Los Angeles to Chicago via Omaha, in less than three days, with direct connections for Denver, Kansas City, St. Louis and through sleeper to St. Paul.
Pacific Limited also has Free Chair cars.
The Overland Express has sleepers connecting for the East, and chair cars to Salt Lake City.
Both Limited trains have Dining Cars with the best of service.
You will surely enjoy a trip East if it is over the

SALT LAKE ROUTE THE WAY TO THE EAST

Particulars at any Ticket Office.

P. S. The American Express gives good service via Salt Lake Route to all Eastern points.

Los Angeles Office 501 South Spring Street.

Los Angeles Market

LOS ANGELES, Feb. 7, 1917.

BUTTER

Wholesale prices:
Rects, wk. ending Feb. 6, 308,713 lbs.
California extra creamery....38
Prime first....36
Extra creamery past wk. (Prod. Exch.)

Jan.	31	Feb. 1	2	3	5	6
'17	42	42	45½	41½	38	38

CHEESE

Brokers' prices:
California fresh, lb. 22
Longhorn 25
Tillamook Triplets 22

EGGS

Rects. wk. ending Feb. 6, 1456 cases.
Exchange quotations:
Fresh extras 35
Case count 34
Pullet 33
Fresh extra past wk. (Prod. Exch.)

Jan.	31	Feb. 1	2	3	5	6
'17	34½	35	35	35	35	35

POULTRY

We quote from growers:
Broilers ....25@26
Fryers ....23@24
Hens ....17@21
Roasters 22
Geese, Young 18
Ducklings, lb. ....18@20
Roosters, old 10
Turkeys ....26@28

LIVE STOCK

CATTLE—We quote cwt. f.o.b. L. A.
Beef steers, av. 1000 to 1100 lbs..8.00@8.50
Cows and heifers ....6.00@6.25
HOGS—
Heavy, av. 250 to 300 lbs....8.75@9.25
Mixed, av. 200 to 250 lbs....9.25@9.75
Light, av. 175 to 200 lbs....9.50@10.00
Rough, docked 20 lbs.; piggy sows, 40 lbs.; stags, 40%.
We quote per cwt. f.o.b. L. A.
Prime wethers ....8.00@8.75
Ewes ....8.00@8.50
Lambs ....12.00@12.50
Yearlings ....10.00@10.50

POTATOES

Wholesale selling price:
Northern 4.00
Local 4.00
Lompoc 4.00
Oregon Burbanks 4.00
Idaho Russets 4.00
Sweet, cwt. ....4.00@4.25
Seed: Early Rose, cwt. 4.00
White Rose 4.00
Am. Wonder 3.40

ONIONS

Wholesale selling price:
White Globe, cwt. 10.00
Brown, cwt. 10.00
Onion Sets, Brown ....13@14
Garlic, lb. 8

VEGETABLES

Wholesale prices:
Artichokes, doz. ....1.00@1.35
Beans, str. 25
Brussels Sprouts, lb. 10
Beets, doz. bunches ....35@40
Cabbage, fy. sack 2.50
Red, lb. 4½
Carrots, doz. 30
Chicory, doz. 40
Cauliflower, doz. 90
Celery, cr. ....4.50@5.00
Cucumbers, Hothouse, doz.....1.00@1.60
Eggplant ....18@20
Kale, doz. 25
Horseradish, rt. lb. 12½
Lettuce, doz. 36
Leeks, doz. ....40@50
Mint 40
Onions, green, doz. ....17½@20
Oyster Plant, doz. 40
Peas, lb. ....13@14
Parsnips, lug 60
Peppers, Bell ....27½@30
Radishes, doz. ....17½@20
Rhubarb—Crimson Winter 1.35
Romaine 50
Spinach, doz. 25
Squash—Hubbard, lb. ....2¼@2½
Chayote, lug ....85@90
Turnips, doz. 40

FRUITS

Wholesale prices:
Apples—
Bellflower ....1.50@1.75
W. W. Pearmain ....1.25@1.60
Newtown Pippin, Yellow....1.35@1.50
Bananas, lb. ....4¼@4½
Pears—Winter Nelis, lug 1.75
Persimmons, lb. ....9@10
Pineapples, lb. ....9@10
Pomegranates, ½ bx. 1.25

CITRUS

Navels ....2.00@2.25
Lemons, ...$1.75 Juice 1.25
Grapefruit ....2.40@2.50
Limes, basket 85
Tangerines, lug ....1.25@1.50

NUTS

Prices named by Cal. Walnut Growers' Assoc.

	1914	1915	1916
No. 1	16.50	13.60	15.50
No. 2	12.00	10.60	12.50
Pkgs., 16 oz. Net	.....	.....	16.50
Budded	20.00	17.00	19.00
Jumbos	18.50	16.60	17.50

HONEY

Wholesale prices:
Extr. lb. White 8½@9½c; A. 8½@9c; W.W. 10@11c; Comb. lb. W. 12½c; Lt. A., 12½@14c; W. W. 14½c
Beeswax, lb. 32

BEANS

Wholesale Prices:
Lady Washington 11.50
Limas ....8.25@8.50
Pinks ....8.00@8.25
Manchurian Reds 7.80
Baby Mex. 6.00
Small White 11.50
Blackeyes 5.90
Tepary 6.50
Garvanzos 6.00
Lentils 18.00
Idaho Pinto 5.00

HAY

We quote ton f.o.b. L. A. to producers:
Barley ....14.00@18.00
Oat, tame ....15.00@18.00
Alfalfa, local ....17.00@20.00
Northern ....15.00@17.50
Stock ....11.00@14.00
Straw ....9.00@11.00

GRAIN

Wholesale selling price f.o.b. L. A.
Wheat—No. 1 ....3.25
Corn—No. 2 yellow, 2.55; white....2.60
Oats—California feed 2.80
Standard 2.40
Texas Red 2.90
Cal. Seed Oats 2.60
Barley—No. 1 bright feed....2.50
No. 1 dark feed 2.45
Seed 2.60
Milo 2.30
Egyptian Corn 2.40
Rye 3.25

FEED STUFF

Wholesale, cwt. f.o.b. L. A.
Alfalfa Meal 1.45
Bran, heavy 2.00
Shorts and Middlings 2.35
Alfalfa Molasses 1.50
Meat Scraps, accd. to quan....3.20@3.30
Beet Pulp 1.50
Cracked Corn 2.60
Cracked Wheat 3.40
Cotton Seed Meal 2.40
Bone Meal 2.45
Feed Meal 2.75
Green Bone 2.25
Middlings 2.40
Oil Cake Meal 2.40
Fish Meal ....3.60@3.70
Rolled Barley 2.55
Rolled Oats 2.45
Hulled Oats 3.30
Feed Meal 2.65; Scratch Feed..2.60@2.70
Oil Cake Meal 2.60

San Francisco Markets

SAN FRANCISCO, Feb. 6, 1917.

BUTTER

Dairy Exchange quotations, lb.:
Rcts. wk. ending Jan. 29, 296,500 lbs.
Fresh extras 37
Prime firsts 36½
Firsts 36

CHEESE

Dairy Exchange Quotations:
Cal. Flats ....18@19 Y Am.....19@20½
Ore. Trip. .....20@20½ Y. Am. 21½

EGGS

Dairy Exchange quotations:
Fresh extras 34
Select Pullets 31

POULTRY

We quote from producers, lb.
Hens, large....21@22; Leghorns ...19@21
Fryers, lb. ....24@26
Broilers ....28@30
Roosters, old ...14@15; young ....24@25
Squabs, doz. ....3.00@3.50
Ducks ....20@22
Geese ....20@21
Turkeys, dr. 26@29; live ....23@24
Belgian Hares, lv. 10@12; dr. 15

LIVE STOCK

Prices gross weight:
Cattle:
Steers, lb., 7½@8¾, cows and heifers, 4@7¾; calves, 7@9½.
Sheep:
Wethers, 9@9½; shorn, 1½@2c less; ewes, 8@8½; lamb, lb., 11½@12½.
Hogs:
Hard grain fed, wt. 100 to 150 lbs., 8¾@9; 150 to 300 lbs., 10½@11; 300 to 400 lbs., 10@10¼; undesirable, 6@7.

POTATOES

Wholesale selling prices at wharf:
Delta Burbanks ....3.35@3.50
Oregon ....3.40@3.60
Sweet, Cellar ....3.00@3.25

ONIONS

Wholesale selling price on wharf:
Cwt. ....7.50@8.00
Garlic, lb. ....3@5

VEGETABLES

Wholesale selling price:
Artichokes, doz., large 60-85; small, 35-40
Celery, cr., large, 3@3.50; small, 1.75@2.50
Cucumbers, bx., hothouse....1.25@2.00
Lettuce, cr. ....1.35@1.65
Mushrooms, bx. ....2.00@2.50
Peas, lb. ....7@9
Rhubarb, box ....1.75@2.00
Squash—
Cream, bx. 1.25@1.75; Hub. lb.....2.00
Tomatoes, crate ....75@1.25

FRESH FRUIT

Wholesale selling price:
Apples, bx.—Bellefleur ....60@75
Newtown Pippins ....1.10@1.25
Bananas, bunch ....1.00@1.50
Pears—Winter Nelis ....2.50@3.00
Pineapples, doz. ....2.00@2.50

CITRUS FRUIT

Wholesale selling price:
Lemons ....1.50@3.25
Lemonettes ....1.00@2.00
Limes, Mexican, cs. ....4.00@5.00
Grapefruit ....1.50@2.50
Navels ....1.25@2.50
Tangerines, half orange box....1.50@2.00

PEACH PRICES

The California Peach Growers announces price list No. 6. Please note the following advance in prices, effective Saturday, November 18, 1916, at 6 p. m. All prices are f.o.b. factories, California common points, but no orders will be confirmed by us, at the following prices, unless f.o.b. factories where grades and varieties desired are available. All quotations are subject to our approval of variety and assortment, subject to our confirmation and subject to advance without notice: November, December and January shipment.

Price list No. 5 is hereby withdrawn, and ineffective after 6 p. m. Saturday, November 18, after which time prices herein quoted shall apply.

	Yellows.	Muirs.
Standard Peaches	.06¼	.06¼
Choice Peaches	.06½	.06½
Fancy Peaches	.07¼	.08⅛
Extra Fancy Peaches	.08	.08⅝
Slab Peaches	.....	.05½
Choice Peeled Peaches	.....	.09¾
Fancy Peeled Peaches	.....	.11

Above prices bulk basis.
For 50-lb. bxs., unfaced, add ....½c
For 50 lb. bxs. faced, add ....⅝c
For 25-lb. bxs., unfaced, add ....⅝c
For 25-lb. bxs., faced, add ....⅞c
For 10-lb. bxs., unfaced, add 1¼c
For 10-lb. bxs., faced, add 1½c
For prices on graded peaches, original, in bags, add ⅞c to the bulk basis prices above quoted.

	—Per Lb.—	
Ungraded, original bags	.07⅛	.07⅜
Choice Unpld. 1-lb. cart.	.08½	.08⅝
Choice Unpld, 5-lb. cart.	.08¼	.08⅜
Fancy Unpld, 1-lb. cart.	.09¼	.09⅞
Fancy Unpld. 5-lb. cart.	.09	.09¾

	Per Lb.
Choice Peeled 2-lb. Cartons	.12
Choice Peeled 5-lb. Cartons	.11¾
Fancy Peeled 2-lb. Cartons	.13¾
Fancy Peeled 5-lb. Cartons	.13¼

The above prices are guaranteed against our own decline to March 1, 1917, and apply only to sales and shipments made direct to the recognized jobbing trade. No goods will be confirmed at above prices to Coast or Eastern brokers, or to speculators, it being our object to eliminate speculation in dried peaches, we preferring to carry our stock in storage here on the coast until actually required by the jobbing trade.

DRIED FRUITS

Wholesale quotations:
PRUNES—Bulk basis, per lb.: 30s and 40s, 6½c; 50s, 6¾c; 60s, 7¼c; 70s, 7¼c; 80s, 7½c.
Other fruit, 50-lb. boxes:

	Stand-ard	Extra Choice	Extra Fncy.	Extra Fncy.
Apples	8 c	8½c	9 c	....
Apricots	15¾c	15⅞c	16 c	16⅝c
Peaches	6¾ 7 c	7½c	8½c	9½c
Pears	8 c	8½c	9 c	10¾c

California Associated Raisin Company's prices on 1916 crop: Package Sun Maid Seeded, 36-16s, per case, $3; package Sun Maid Seeded, 48-16s, per case, $3.95; Bakers Sun Maid Seeded, 25-lb. boxes, per box, $1.75; fancy Seeded Muscats, 36-16s, per case, $3.05; fancy seeded Muscats, 45-12s, per case, $3.15; fancy bulk Seeded, 25-lb. boxes(per box, $1.75; choice Seeded Muscats, 36-16s, per case, $2.90; choice Seeded Muscats, 45-12s, per case, $2.95; choice bulk Seeded, 25-lb. boxes, per box, $1.75. (Wood cases if desired.)

Loose Raisins in 50-Lb. Boxes

One-crown loose Muscatels, floated, per box, $4; 2-crown loose Muscatels, per box, $3.25; 3-crown loose Muscatels, per box, $3.50; 4-crown loose Muscatels, per box, $3.75.

London Layers

Three-crown London Layers, 20-lb. boxes, per box, $1.50; 4-crown clusters, 20-boxes, per box, $1.75; 6-crown Imperial Clusters, 20-lb. boxes, per box, $2.60; 5-lb. boxes, 50c additional; 10-lb. boxes, 25c additional; fancy clusters, 1-lb. cartons, 20 to case, per case, $1.85; fancy clusters, 2-lb. cartons, 12 to case, per case, $2.20; fancy clusters, 5-lb. cardboard cartons, 4 to case, per case, $2.35; bulk layers, in 50-lb. boxes, per box, $3.25; bulk layers, in 100-lb. boxes, per box, $6.25.

All f. o. b. common shipping points. Regular California dried fruit terms. Prices guaranteed to April 1, 1917. All raisins not shipped before January 1, 1917, to be paid for at that time. The company will carry the raisins free of expense to time of shipment, which must be before March 1, 1917, unless otherwise arranged.

No export rebate will be allowed.

Prices subject to change without notice.

NUTS

Jobbers' Prices:
Almonds.—Exchange opening prices: Nonpareil, 20½c; Ne Plus Ultra, 17c; IXL, 18c; Drake, 16c.
Peanuts ....5½@6½

BEANS

Jobbers' prices, cwt. recleaned:
Limas ....8.15@8.25
Bayous ....7.15@7.25
Garbanzos ....4.50@5.00
Small White ....10.50@11.00
Mexican Red ....7.75@8.00
Large White ....10.25@10.50
Pinks ....7.50@7.60
Horse Beans ....5.00@5.25
Black Eyes ....5.15@5.25
Red Kidneys ....11.75@12.00
Cranberry, California ....7.75@8.00

HONEY

Jobbers' prices:
Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. ....11@12
Ex. Fy. lb.....9c; Lt. A.....6@8
Beeswax ....20@32

HOPS

Prices to growers at shipping points:
Sacramento, lb. ....8@9
Sonoma ....10@12
Mendocino ....9@10
Oregon and Wash., lb. ....6@10

HAY

Scott, Magner & Miller say under date of February 3:

Receipts past week 1361 tons, last week 1283 tons. With these small receipts without doubt we may look for higher prices. Considerable hay has changed hands in the country during the past week. Export trade is normal. Alfalfa is in good demand.

We quote car lots f.o.b. San Francisco. New crop.
Wheat, Fy., lt. bales....21.00@22.00
Wheat or Wh. & Oat, No. 1...18.00@20.00
Wheat or Wh. & Oat, No. 2...16.00@18.00
Oat, Choice Tame ....18.00@19.50
Other Tame ....15.00@17.00
Wild ....15.00@17.00
Barley ....15.00@17.00
Alfalfa ....14.00@17.00
Stock ....14.00@15.00
Barley Straw No. 1 ....70@90

GRAIN

Grain Exchange prices, cwt.
Wheat, California Club ....2.60@2.65
Wheat, No. Bluestem ....2.90@2.95
Corn, Eastern Yellow, sk.....2.20@2 22½
Corn, Egyptian White ....2.15@2.35
Oats, White Feed ....2.07@2.07½
Black ....3.00@3.50
Barley, feed ....2.22½@2.25
Shipping 2.37½
Rye, cwt. ....2.65@2.75

FEEDSTUFFS

Wholesale prices per ton:
Bran ....30.00@31.00
Cornmeal, feed ....49.50@50.50
Rolled Barley ....45.00@47.00
Cracked Corn ....49.50@50.50
Middlings ....35.00@37.00
Alfalfa Meal, carlots ....21.00@22.00
Shorts ....31.00@32.00

SEEDS

Prices in round lots, lb.:
Millet, recleaned ....3½@4
Alfalfa ....20@21
Rape ....2¼@2½
Flax ....5@6

Citrus Fruit Market

LOS ANGELES, Feb. 7, 1916.

Exceedingly cold weather given in Eastern sections has prevented some marketing. The market in general, however, is good. Variation in prices is great because of injured fruit being severely cut, and high grade stuff is in keen demand.

Lemon prices are much more satisfactory than for some time.

Shipments

Shipments of oranges from Southern California to date since November 1, 1916, oranges 5826 cars, lemons 1323, total 7149; to same date last season, oranges 4566, lemons 1400, total 5966. From Central California to date this season, oranges 3965, lemons 143, total 4108; to same date last season, oranges 4142, lemons 141, total 4283. From Northern California to date this season, oranges 842; last season 609.

FROM THE AUCTION

January 31

New York: Thirteen cars navels, 1 blood, 2 mixed, 1 lemon. Navels, $1.85@3.35; bloods, $1.50; tangerine halves, $1.40; lemons, $2.90@3.20.

Pittsburg: Navels, $1.70@2.45; lemons, $2.45@3.30.

Cleveland: Seven cars. Navels, $1.90@2.70; lemons, $3.55@3.70.

Boston: Ten cars. Navels, $1.60@3.10; lemons, $3.20@3.40.

St. Louis: Six cars. Navels, $1.80@2.20; lemons, $2.75.

February 1

New York: Fifteen navels, 1 mixed, 2 lemons. Navels, $1.55@3.40; Valencias, $1.75; tangerine halves $1.45; lemons, $2.70@3.20.

Philadelphia: One car lemons. Average, $2.60@3.00.

Boston: Nine cars. Navels, $2.00@2.50; lemons, $2.95@3.40.

February 2

New York: Eight navels, 2 lemons. Navels, $1.90@3.10; lemons, $2.75@3.10.

Cleveland: Five cars. Navels, $1.85@2.40; lemons, $3.15@3.18.

Boston: Nine cars. Navels, $1.25@2.85; lemons, $2.95@3.50.

February 5

Boston: Twelve cars. Navels, $1.75@2.50; lemons, $3.00@3.45.

Cleveland: Five cars. Navels, $1.65@2.60; lemons, $1.65@3.65.

February 6

New York: Fourteen navels, 2 lemons. Navels, $1.60@3.60; tangerine halves, $1.45@1.65; lemons, $2.70@3.35.

Boston: Six cars. Navels, $2.25@2.70; lemons, $2.90@3.60.

WEATHER CONDITIONS

For the Week Ending February 3, 1917

	Rainfall Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	2.92	16.78	25.39	54	28
Red Bluff	.10	11.14	14.37	64	28
Sacramento	.01	6.54	11.17	62	36
San Francisco	.35	10.16	13.03	64	38
San Jose	.04	6.47	9.35	68	26
Fresno	.00	5.23	5.31	66	20
San Luis Obispo	.00	14.99	11.04	74	34
Los Angeles	.00	9.89	8.42	80	40
San Diego	.00	6.66	5.40	76	44

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Information about the feeding and care of your baby chicks and many dollar making pointers are given in our booklet, "Makes Hens Happy." Get your copy by writing your name on the coupon and mailing it today. It's FREE.

Sperry Poultry Foods are made in a Special Mill at Stockton by the Sperry Flour Co.

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SPERRY FLOUR COMPANY
Stockton, Cal.

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Address .....

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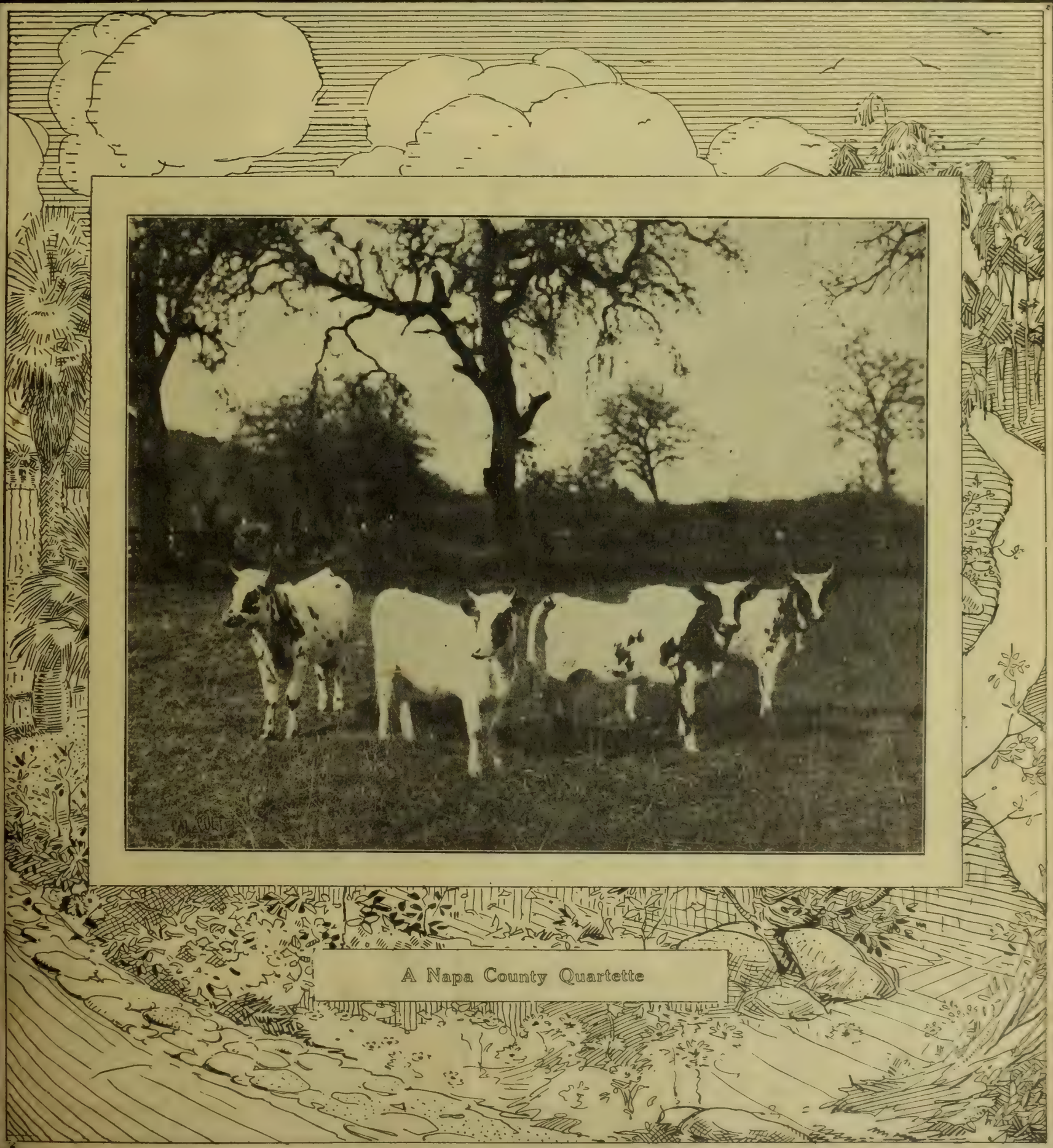
FEB 24 1917

CALIFORNIA CULTIVATOR

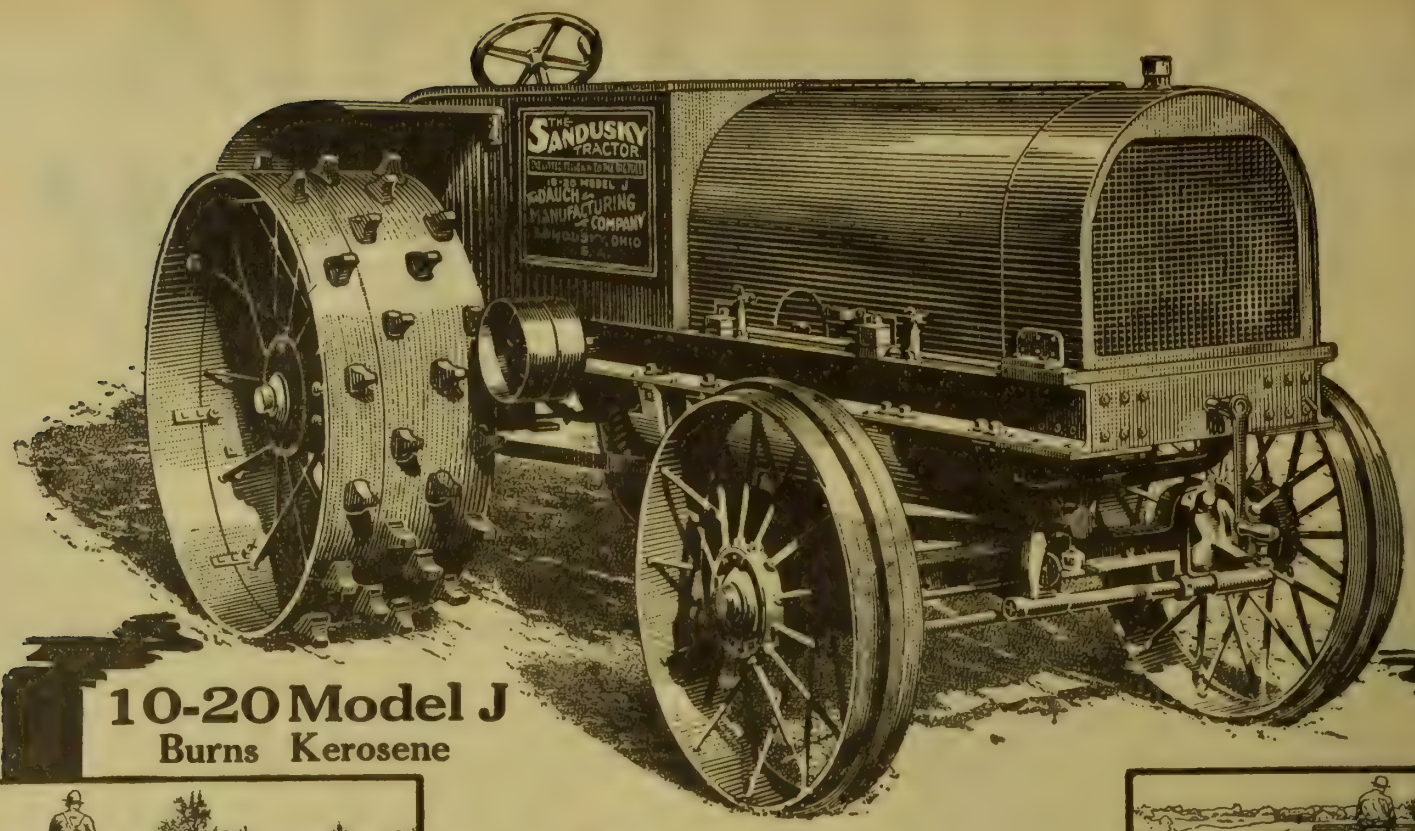
THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

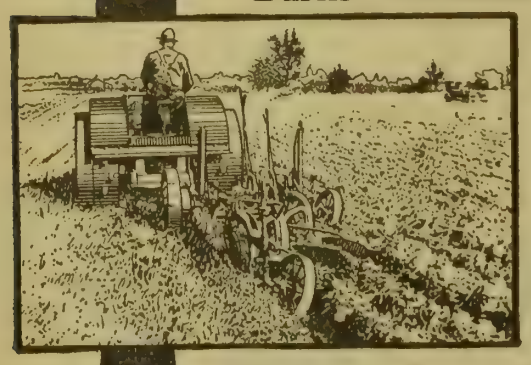
LOS ANGELES February 17, 1917 SAN FRANCISCO



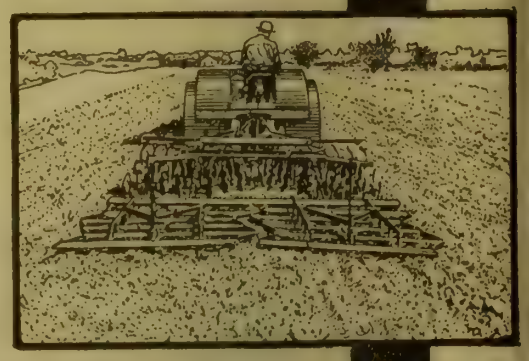
A Napa County Quartette



10-20 Model J
Burns Kerosene



$1095.00 F.O.B. SANDUSKY.



THIS 10-20 Model J Sandusky Tractor places the farmer with lesser acreage on the same basis of economy as the man with the larger farm.

Gives him proportionately the same dependable service, produces the same results in dollars and cents and effects the same economies of labor as secured by the hundreds of farmers operating our 15-35 Model E.

Pound for pound the Model J is as good a tractor as our larger machine. It is designed on sound engineering principles, built with the same mechanical precision, of the best materials and proved out thoroughly in actual field work.

It is sold strictly on a guaranteed basis, after an actual demonstration *on your farm* has shown that it is profitably adapted to your needs and capable of doing your work. You buy tractor certainty when you buy a Sandusky, and you get it at a reasonable price.

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Our own four-cylinder, four-cycle, 4½×5½ motor; drop forged crank-shaft, cam-shaft and connecting rods, interchangeable high grade bearings; combination force feed and splash oiling system; high tension magneto; Bennett air cleaner; belt pulley; three speed transmission; Timken worm and gear drive; Hyatt equipped; universal couplings between motor, transmission and differential; three-point spring suspension; thorough protection against grit; full steel construction; short turning brakes. Weight, 4000 pounds; wheel base, 76 inches; height, 52 inches.

BOOK J-13 FREE

It describes fully the unique principles of design, the construction and performance of this smaller "Little Fellow With the Big Pull." Also gives the details of our "Try It Before You Buy" sales policy, as well as covering our broad, binding guarantees. Tell us your problems, and we will gladly assist you in solving them without obligation on your part. Be sure to ask for Book J-13

A NEW PLAN—FREE SERVICE

We announce an entirely new departure in tractor selling. A coupon book good for 100 hours of service goes with every Model J. This means expert service and help without charge when you want it. See catalog for details.

If your work requires more power than furnished by Model J let us send you catalog covering our 15-35 Model. Ask for book E-13

TO DEALERS—We want men of standing, with pep and energy, to get behind this 10-20 Model J and push it. Write for our proposition.

THE DAUCH MANUFACTURING CO., Sandusky, Ohio

The Sandusky Tractors—both Models—are ready for inspection at and delivery from our principal Factory Branches and Service Stations at Indianapolis, Ind.; Bloomington, Ill.; Milwaukee, Wis.; Lewistown, Mont.; Minot, N. Dak.; Fargo, N. Dak.; Sioux City, Iowa; Lincoln, Nebr.; Wichita, Kans.; Dallas, Texas; Leesburg, Fla.; Los Angeles, Cal.; Sacramento, Cal.

THE SANDUSKY TRACTOR

"THE LITTLE FELLOW WITH THE BIG PULL"

California Cultivator

Vol. XLVIII No. 7 LOS ANGELES: February 17, 1917 One Dollar Yearly

A County of Compact Resourcefulness

Napa County, Where Prunes, Grapes, Cherries and Many Other Fruits Grow to Perfection. A County Where More Intensive Farming Generally, and Live Stock Interests Especially, are Being Encouraged. Statements of Resources by Adviser Baade and the Cultivator Representative, C. A. Briggs

"COUNTY of Compact Resourcefulness" is claimed as a slogan for Napa County. In the entire county there are less than 800 square miles. The rich bottoms along the streams which drain into San Francisco Bay afford opportunity for most intensive culture, and since '49 this intensive culture has been followed in much of the county—not to the extent it should be, however, and today with more capital, better equipment and better and more folks there is opportunity for vastly increasing the output of these rich acres. The Cultivator representative, C. A. Briggs, has used his little Ford auto to penetrate every section of the county and learn as to how many and how well cared for are the live stock.

Putah Creek Bridge

There are some horses, more cows, a few sheep, still more hogs, yet the animal industry of Napa County is still in its infancy, that is animal industry from a modern standpoint. In the days of hides and tallow there were cattle on these rich lands, but they gave way to the grain fields and later to the fruit orchards, and fruit has been the queen for many years. "The finest wines in the world are Napa's; we have proved it at expositions." "We grow the finest prunes and in pears we are not excelled; in cherries ours are among the largest, earliest and sweetest."

To summarize, we note that in the county there are almost 5000 acres of bearing orchards, 12,000 of vines; of figs to supply the San Francisco market there are nearly 1000 acres; in good old time back East corn there are 2400 acres; as yet only 1400 acres of alfalfa—this should increase—and while it is not a commercial citrus producer there are said to be over 250 acres of olives, lemons and oranges in Napa County.

How may these rich lands be made to supply more of the food which San Francisco and some of the Eastern sections demand? That is a question which Farm Adviser Baade, Horticultural Commissioner Fox and a lot of other people are endeavoring to solve, for there are in the county 512,000 acres, of which only 102,000 are cultivated. Some of this is mountainous as its wonderful scenery proves, but even there live stock flourishes, and as live stock is becoming more profitable and more attractive we leave the remainder of the story of Napa and its live stock interests to Mr. Briggs. But first a short statement as to live stock interests in the county by Farm Adviser Baade.

Hillside Orange Grove in Napa County

Sheep in Berryessa

LIVESTOCK IN NAPA COUNTY

Written for California Cultivator
By H. J. Baade, County Farm Adviser

THE livestock industry in Napa County has had a varied history. During the early days, we are told, our hillsides had wild oats growing on them four and five feet high. This made plenty of feed for the grazing of livestock; cattle, sheep and horses. As the population increased, the quantity of livestock increased also, with the result that the hills were so closely pastured that the grasses and wild oats were practically killed. So today such sights as are described to us of former years are no longer in evidence.

Continued on Page 202

TREES

Established 1888

One Year Peach Trees

Now ready for delivery. High grade nursery stock in

Almonds
Prunes
Peaches
Apricots
Pears
Cherries
Plums
Grapes
Oranges
Lemons
Pomelos
Olives

Ornamental and Shade Trees, etc., etc.

We grow annually more than two million plants of these varieties.

Your order solicited.

Buy the best trees obtainable and thereby guarantee your investment.

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HART & BARBER AVOCADO CO.

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ELECTRIC WHEEL CO., 111 Elm Street, Quincy, Ill.

The White Scale

Written for California Cultivator By James Boyd

TODAY but little is heard of the white scale, Icerya purchasi, but 30 years ago it occupied a great deal of time at all meetings of horticulturists. The story of the white scale and its practical extermination is one well worth being repeated and perpetuated. The white scale was the most dreaded and destructive scale that the orange grower ever had to contend with.

It was first introduced into California about 1868 by Geo. Gordon of Menlo Park and appeared in several places north and south about the same time. It first began to be noticed in the early seventies. It seemed to be proof against all ordinary insecticides, and while it had full sway increased enormously fast. The only safety for the orchardist lay at that time in the comparatively isolated and scattered groves. This was before the days of fumigation and when experiments were being made with it. Fumigation, it was reported, killed the trees. The various kinds of washes seemed to have no effect on it. It would also stand a greater degree of heat than any other scale. Heat and steam were tried with the result that the tree was injured and the scale unhurt. The kerosene emulsion and the various rosin washes were harmless to the scale. Infested trees would not bear after the third year after being infested and would then speedily die.

This was the state of affairs until a State Fruit Growers Convention was held in Riverside in connection with a citrus fair in April, 1887. At that meeting Prof. C. V. Riley, United States entomologist from the Smithsonian Institute, Washington, D. C., in speaking on the subject of insect pests had the following to say in regard to the white scale. Australia he said was the home of the white scale. Nothing was known of it prior to the seventies. It appeared almost simultaneously in Australia, Africa, and America. "The white scale," he said, "has greater powers of locomotion and accommodates itself to a greater variety of plants and survives longer without food, which makes it one of the most difficult species to contend with. No bird of California is known to feed on it, and of true parasites, none have hitherto been reported. Albert Koebele reported making many experiments to exterminate it without results. Caustic soda would not kill the eggs when it killed the bark and burned the leaves. Prof. Coquillett also experimented without any result.

"It has doubtless occurred to many of you that it would be desirable to introduce from Australia such parasites as serve to keep this scale in check in its native land. This state, even this county, could well afford to appropriate a couple of thousand dollars for no other purpose than the sending of an expert to Australia to devote some months to the study of those parasites there and to their introduction here. The result for good in the end would be a million fold. I would not hesitate as United States entomologist to send some one there with the consent of the commissioner of agriculture were the means at my command, but unfortunately the mere suggestion that I wanted $1500 or $2000 for such a purpose would be more apt to cause laughter or ridicule on the part of the average committee of Congress than sorrow or earnest consideration, and the action of the last congress has rendered any such work impossible, limiting investigation to the United States. The white scale is the most difficult to master. One thing is sure, it is pure folly to think of giving up the battle. Permit me to congratulate you as a board on the good work already done and to prophesy that in future years when the fair and unrivalled fruits of the Coast shall have been multiplied beyond the most sanguine vision of any of you and have found their way in one form or another to consumers in all parts of the world the people of California will gratefully remember the work you have instigated and the battles you have fought."

In speaking of Prof. Riley and his work the Press and Horticulturist remarked: "One of the gratifying results of Prof. Riley's visit is the assurance that the United States government is now to assume local and continual control over our insect pests.

At an international exposition at Melbourne, Australia, Albert Koebele was sent out to attend and look for a remedy for the white scale. The result was that he sent three kinds of parasites, one of them, the vedalia cardinalis that was very voracious, preying on the white scale both in its larval and adult states. These were sent and distributed by Prof. Coquillett wherever most needed.

The Press and Morticulturist under date of February 8, 1890, reports: "Since the perfect destruction of the white scale in Los Angeles County the orange trees in the older orchards are making a very fine growth and prospects are good for a very large crop in that county after this season."

Founded in 1889 by R. M. Teague

The R. M. TEAGUE CITRUS NURSERIES

Successors to

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Teague Trees are Quality Productive Trees

Because properly grown and budded from selected trees producing abundantly only quality fruit. Buds cut from carefully selected fruiting bud-wood only. In addition we give quality service in the way of digging, packing and delivery that insures success to the planter. Correspondence and inspection invited; our treatise on "Citrus Culture" and annual Price List sent on application.

R. M. TEAGUE, Manager
San Dimas, California

The Navel Orange in Brazil

THE department of agriculture is giving out a bit of information regarding the early history of the Washington, or Bahia, Navel, from which we quote:

"All the evidence points to the fact that the variety of navel orange now so largely grown in this country first came into existence at Cabulla, a suburb of Bahia, Brazil, early in the nineteenth century, as a sport from the Selecta orange. The latter variety is still grown extensively near Bahia and in other parts of Brazil and some of the trees show a marked tendency at times to produce fruit

with well developed navels. Such fruits, however, are not seedless, though the number of seeds is relatively small. The navel variety has almost entirely supplanted the parent variety about Bahia, where it has been known for over 100 years. In the vicinity of Rio de Janeiro but few trees of the seedless variety are grown.

Origin of the California Stock

It was from the plantation of a Senor Teizeira, near Bahia, so far as can be determined, that the budded trees were obtained through which the navel orange wood was introduced into the United States 45 years ago. Several trees were gotten from this plantation by a Presbyterian missionary, the Rev. F. I. C. Schneider, and shipped to William Saunders, then horticulturist, landscape gardener, and superintendent of grounds of the United States department of agriculture. Mr. Saunders grew the trees in the department greenhouse, and trees propagated from them were distributed to California and Florida. The variety proved to be unsuited to Florida conditions, but in California it is very productive and highly valued. Almost the entire present planting of the variety in that state can be traced directly back to two of the trees sent there in 1873.

Culture in Brazil

The navel orange in Brazil, unlike its descendant in California, grows under warm, moist conditions. Seedlings of the bitter or sour orange (citrus aurantium) are employed almost exclusively as stocks, and the navel orange wood is propagated on them by shield budding. The trees are usually planted on the tops and sides of low hills. About the only cultivation practiced consists in clearing the land of weeds with a heavy hoe two or three times a year. Some of the owners of the larger groves are beginning to manure their trees. Many insects and diseases attack Brazilian oranges, but of these only a species of ant is, in general, combated.

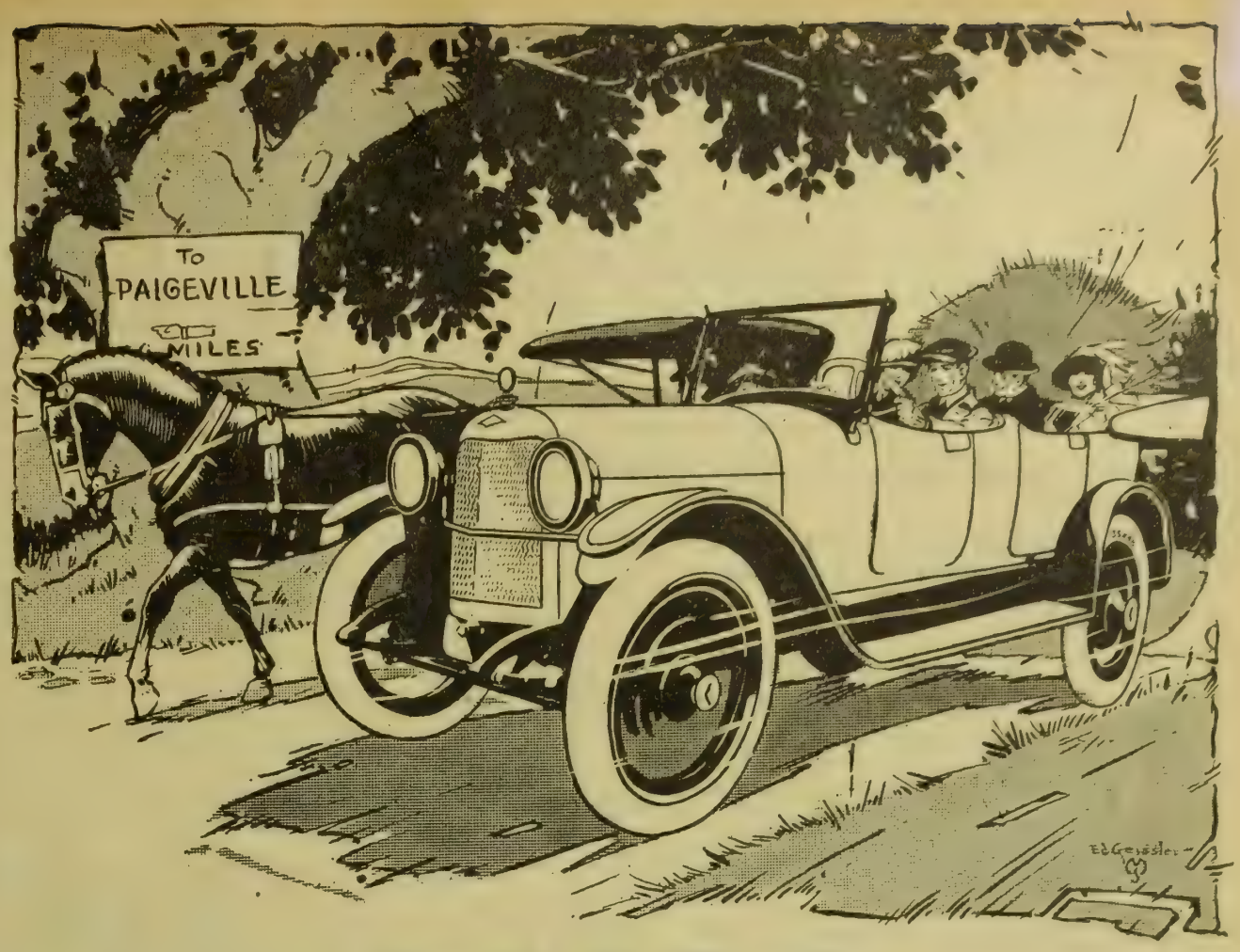
Ripe oranges may be obtained in Bahia every month in the year, but the two principal crops mature in June-July and December-January. On an average each tree produces about 250 oranges. Where the trees receive good care the yield probably will compare favorably with that in California.

Brazilian and California Oranges Compared

The navel orange as it occurs near Bahia is large, varying from three and a half to four inches in diameter, is yellow green in color and extremely juicy and sweet. Comparative studies made by the department of agriculture show that the Brazilian fruits have a considerably lower percentage of peel than the California fruits and somewhat less fibrous matter or "rag." The California orange, however, has a much larger percentage of both citric acid and sugar.

Bud wood from a number of the most promising strains of the Bahia navel orange trees was brought to the United States by the department's plant explorers and is being tested in California and Florida. It is pointed out by the department that because of the important effect of climate on the size and character of the fruit, it is impossible to determine in advance whether strains which appear desirable in Bahia will retain their characteristics in the United States. This can only be decided by the tests now under way.

Denair farmers are busy checking land preparatory to sowing alfalfa.



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The Most Beautiful Car in America

PAIGE cars are made in two sizes. There is a seven-passenger, 51-horsepower model which sells for $1495. There is also a five-passenger, 39-horsepower model which sells for $1175.

The "Stratford" model is, of course, considerably larger than the "Linwood." It is well worth the difference in price. But we want to point out at this time that both cars are *Paiges*—blood brothers of the same strain.

So far as a choice between these two motor cars is concerned, it is simply a matter of your individual requirements. If you can advantageously use a large, sumptuous, seven-passenger automobile, by all means invest your money in a Paige "Stratford-51."

On the other hand, if a five-passenger model is ample for your purposes, then, decide on the "Linwood-39."

It is merely a choice between a one karat or a two karat diamond. Both cars are clean cut, flawless gems. In their respective price fields, these two cars represent the *utmost* that you can secure in automobile value.

We are putting the matter before you in this frank way, because we want to be genuinely helpful. We also want to emphasize—just as clearly as we possibly can—that Paige builds only *good* cars—quality cars.

But—above all—make it a point to see the Paige line before you buy *any* car. As a business man, you can't afford to overlook the two greatest dollar-for-dollar values in the entire automobile field. This is a broad, sweeping statement, but you can establish the facts to your entire satisfaction.

Will you make it a special point to see "The Most Beautiful Car in America?"

Stratford "Six-51" 7-passenger	$1495 f. o. b. Detroit
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Will bring big money, either for the local or long distance market

ALMONDS, CHERRIES, TUSCAN CLING PEACH
BLENHEIM and ROYAL APRICOTS
the old and safe standbys

Fine Assortment Pears and Plums

FOR AVENUES
Elm, Maple, Plane, Mt. Ash, Mulberry, Poplar, Tulip Tree, Walnuts, etc. 6-8 ft. size, low prices.

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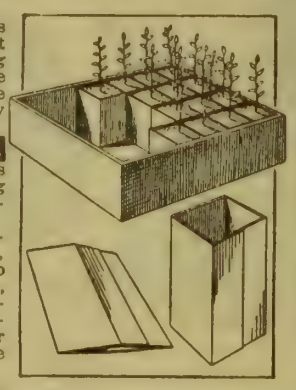
That will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.



Collapsible Planting Pots
These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour.
For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus and Conifers. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.
THE EXPAN CO., 935 E. Central Ave., Redlands, Cal.

CALIFORNIA'S GREATEST MID-WINTER EVENT!
Seventh National Orange Show
SAN BERNARDINO, February, 20 to 28

A Gorgeous Spectacle of Art Moulded from 5,000,000 Oranges, in a Romantic Celebration of a Century's History of the Golden Fruit of California.

SEVEN BANDS
FREE VAUDEVILLE
CITRUS CONVENTION
AUTOMOBILE SHOW
8 DAYS AND NIGHTS OF SPLENDOR
INDUSTRIAL EXHIBITS
MIDWAY OF ROLLICKING FUN

Excursion Rates On All Railroads

THE BASIS FOR ORCHARD PERFECTION
TRADE MARK
CROW TREES

ALMOND TREES
1750 each Texas and Drakes, 4-6 ft.

PRUNES
Burbank's Standard, Sugar, French and Imperial, on all roots.
All other leading fruits in good supply.

SHADE TREES
The finest blocks in the state.

CROW'S NURSERIES, Gilroy, Cal.

For Sale

Sour Orange Seed Bed Stock

One and two-year-old Eureka Lemon, Valencia Late and Washington Navel Orange Trees. All stock clean and free from scale. Write for prices and amount wanted.

C. D. Hubbard
R. F. D. No. 1 - - - Carpinteria, Calif.

50,000 CITRUS TREES
Valencias, Navels and Eureka Lemon Trees
A1 Stock - - No Junk

We have had over 20 years' experience in Citrus Trees. Were among the first to advocate bud selection from fruit-bearing wood.
Citrus trees grown in the San Fernando Valley, which is free from scale.
Write or call for prices.

J. T. WALKER NURSERY CO., First National Bank Bldg., San Fernando, Cal.

Planting Season

Written for California Cultivator

PROBABLY there has been more planting of deciduous fruit trees this season than for some years. Nurseries are already reporting shortages of peaches. We understand, however, there are plenty of freestone varieties but very few of the clings left. Nectarines, neglected for a long time, might well be planted. There is a certain demand for fine, good-sized nectarines, but where there is indication of light planting—which is to be regretted—is in the apricot. True, there have been seasons when this fruit has not proven exceptionally profitable. There have been other seasons which have kept averages up. We may well plant heavily to apricots. Almonds have been planted very freely, but as this nut is imported to this country in immense quantities, sections which are fitted for almond culture may well extend their planting.

Perhaps the lightest planting this season is of olives. The last two or three years have been rather discouraging for the orchardists. We had hoped cooperative organizations would put the market end of the industry on its feet, so encouraging it that thousands of acres might be planted. The movement has not yet succeeded, neither has it been given up, and we believe ultimately there will be a strong olive producers association. Then one of the most healthful of foods, which will increase California's reputation and California's wealth, will be produced more extensively. A large olive grower told us some months ago that if he were planting an orchard today he would plant—if he could get the trees—25 per cent Manzanillos, 25 per cent Ascolanos or Sevillanos, and 50 per cent Missions. The Manzanillos are early ripeners; they are out of the way before any danger of frost, and they extend the harvesting season so as to enable handling the crop with less regular help. The Ascolano is not so fine in quality as the Mission, but its immense size fills a certain demand; the packers must have them in order to fill orders. The Mission, of course, for high quality is the standard, though some prefer the flavor of the Manzanillo. However, the percentage given makes an orchard of a type which gives fruit easy to dispose of to the large packers.

Walnut trees have been selling well this year; prices have been good, and in the sections fitted for walnut planting available trees have been largely picked up. Another neglected nut is the pecan. California is producing some of the finest pecans the markets have seen; they are especially valuable as a border tree.

Pomegranates are a valuable fruit, and while extended planting might prove embarrassing, this fruit might be grown to a far greater extent than

Stone Bridge Near Calistoga

or three years have been rather discouraging for the orchardists. We had hoped co-operative organizations would put the market end of the industry on its feet, so encouraging it that thousands of acres might be planted. The movement has not yet succeeded, neither has it been given up, and we believe ultimately there will be a strong olive producers association. Then one of the most healthful of foods, which will increase California's reputation and California's wealth, will be produced more extensively. A large olive grower told us some months ago that if he were planting an orchard today he would plant—if he could get the trees—25 per cent Manzanillos, 25 per cent Ascolanos or Sevillanos, and 50 per cent Missions. The Manzanillos are early ripeners; they are out of the way be-

The Best Fig to Plant

Written for California Cultivator By G. P. Rixford

IN your answer to a Fresno subscriber in the Cultivator of February 3, I am somewhat surprised that you even guardedly suggested the planting of Adriatic or other variety of fig instead of Smyrna on account of the man not being able to master the intricacies of caprification. I have faith enough in the intelligence of the average California fruit grower to believe that he can master the subject equally as well as does the ignorant Arab of Asia Minor. It is true that there seemed to be some difference of opinion at the Fresno meeting as to the comparative merits of the Smyrna, Adriatic and Kadota as money makers, but none as to the quality of the dried product of the different varieties. The Kadota is out of the question as a dried fig; the skin is too tough. But for shipping undried to the Eastern market it seems to have no rival, according to the interesting paper by Mr. Clark of Sultana.

On a recent visit to a prominent

retail fruit and nut shop in Washington, D. C., the only California figs found on sale were the sour Adriatic, sour from sulphurous acids the result of sulphur bleaching. On showing the proprietor a package of fine Fresno County Smyrna figs he said: "I retail four tons per annum of this Adriatic trash, but if I could get such figs as you show me I could retail ten tons." He added, "I can sell a customer almost anything once, but if he buys these sour Adriatics he never comes for more."

To put it mildly, I was ashamed that such stuff was being sold as California figs. It is time for the packers to realize that they are doing California irreparable injury. They might as well try to build up the fresh fruit trade by shipping frozen oranges and green grapes as to try to build up a great dried fig trade by shipping the unpalatable Adriatic stuff. The importation of the millions of pounds of Smyrna figs can never be stopped except by sending to the Eastern markets the best Smyrnas. However, the growers appreciate the situation. According to statements made at the Fresno convention Fresno County alone is this season planting more than 5000 acres, almost entirely

Bunch of Napa County Grapes

Smyrnas. I hope to see the day when the million dollars per year now paid to the Turk and Arab will be paid to the American fruit grower.

* * *

Mr. Rixford has studied the fig industry from all angles, and we are glad to have his comment and his appreciation of the worth of the Calimyrna or Smyrna fig. It is a very large fig for which there will be a long commercial demand, and the Cultivator would not—and we think did not—in any way discourage its planting. The shipping of frozen or green oranges and of green grapes is doubtless a reflection on other fruits of the same kind which are of highest quality, but we fear the practice will be continued for many years, and yet the orange industry and the grape industry will thrive because of the great number of producers of high quality fruits. The same is true of the fig, but we still believe that there is field for the growing of fine Adriatics—and the way will be devised to cure them right—and to limitedly market the Kadota and even the black Mission. In fact, when it comes to quality there do be some folks who think the black is about the finest thing in fresh fruits. We sincerely hope that the Cultivator may not be understood as in the slightest discouraging the planting of the Smyrna, but there are so many people entering the fruit and every other productive industry who do not understand their requirements that a warning as to their own limitations is sometimes wise. In proof of this we may mention that the writer has a neighbor who has planted one Smyrna tree in the back yard for fruit for home use. Presumably he has no idea as to caprification problems. This is an extreme case but some small growers are planting with little more understanding of this finest of all figs.

Fig growers of Stanislaus County met in Ceres February 6 to organize a Stanislaus County Fig Growers' Association.

Table grape growers of Kerman are planning to form a local exchange.

Send Peaches to Your Friends

Written for California Cultivator

SALES Manager Sturtevant of the California Peach Growers' Association is inaugurating an unique movement in disposing of cured peeled peaches. He has written to each one of the 6000 growers who are members of the organization the letter which appears below. It seems to us that this is a good movement and will result in good advertising for good peaches.

"Dear Growers: This company needs your assistance and cooperation in its sales activities. It wishes to introduce the sale of Ribbon Brand Peeled Peaches in the carton form. The process for peeling dried peaches is owned by the growers company. The carton keeps the fruit in a sanitary condition and bears the "Ribbon Brand". The sale of these will result in greater profit to the growers and will impress their brand upon the consumer.

"Each of you has many friends scattered over the United States to whom you would like to send some peaches, especially so when by so doing you are assisting your own company to introduce its brand. If you will, therefore, fill out and return to us the enclosed card with the names and addresses of such persons thereon, we will forward and prepay express charges to each address our attractive five-pound carton of peeled peaches, charging against your account with us $1.00 for each package sent forward. You are thus enabled to pay for the gift from your final settlement with us later in the year.

"Most of your Eastern friends would enjoy a day or two of California sunshine, and a package of peaches direct from your orchard would make a great hit. We will mark the package, 'Compliments of.....'

"Yours for increased consumption of "Ribbon Brand" Peaches. California Peach Growers, Inc., A. J. Sturtevant, Jr., Sales Manager."

Hanford reports very encouraging numbers signing up for the Peach Growers' Association.

SPRAY NOW

Written for California Cultivator

For the grower who had curly leaf on his peaches, who had branches break off because of the peach worm, or wormy peaches, this is the time to spray with lime-sulphur solution. If the commercial is used, full strength, that is, one gallon to nine or ten.

Citrus growers are, some of them, spraying with commercial lime-sulphur, say, one to 30 or 40—this in the hope of catching possibly now and then a black scale—or giving a preliminary spraying for red spider which will appear later. Remember that when red spider shows plainly that he is occupying the orchard it is too late to accomplish much for the particular trees infested.

Another caution at this period of the year: Watch for aphis. Aphis, like the red spider, needs to be killed before it is born. The melon grower or grower of any other succulent crop should watch his vines closely, and the first that shows aphis should be destroyed by burning where it stands. Cover with distillate and burn at once. Keep down weeds which may harbor the pest. One treatment in time will save 9,000,000 or more.

JOHN DEERE IMPLEMENTS

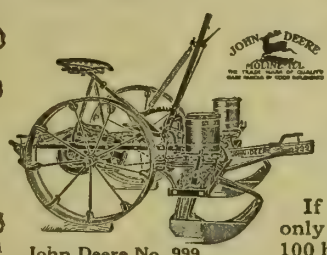
BOOK FREE 156 page reference book—tells all about a complete line of farm implements and how to adjust and use many of them. A practical encyclopedia of farm implements. Worth dollars.

Describes and illustrates Plows for Tractors; Walking and Riding Plows; Disc Plows; Cultivators; Spring Tooth and Spike Tooth Harrows; Disc Harrows; Alfalfa and Beet Tools; Farm and Mountain Wagons; Manure Spreaders; Inside Cup and Portable Grain Elevators; Corn Shellers; Hay Loaders; Stackers; Rakes; Mowers and Side Delivery Rakes; Hay Presses; Kaffir Headers; Grain Drills; Seeders; Grain and Corn Binders.

This book will be sent free to everyone stating what implements he is interested in and asking for Package No. X-111.

JOHN DEERE, MOLINE, ILL.

John Deere Corn Planters



John Deere No. 999 is accurate. It has the John Deere *Natural Cell Fill, Edge Delivery Seed Plate.* Surface of hopper bottom and openings to seed cells are oblique, or sloping. Kernels move toward and enter the cells in their natural position. They do not have to be tipped on edge.

Merely move foot lever to change number of kernels per hill.

Drilling distances varied, and change hilling to drilling or back to hilling made easily.

Accuracy in a corn planter means uniform drop—number of kernels the same in each and every hill.

If the planter misses only six kernels in every 100 hills, the loss in yield is nearly two bushels per acre.

Accuracy in planting has been the main object in designing John Deere planters. One of the many advantages of using a John Deere planter is that with proper handling it will plant practically 2, 3 or 4 kernels in every hill, as desired.

John Deere Spreader

The Spreader with the Beater on the Axle

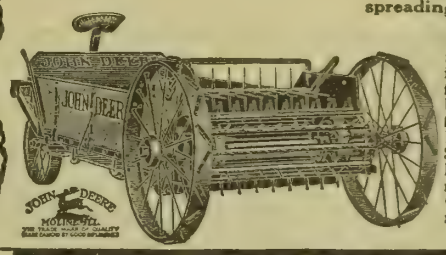
Mounting the beater on the axle simplified the construction, eliminated troublesome parts and made possible a successful low-down spreader with big drive wheels. There are no shafts to get out of line, no chains to cause trouble, and no clutches to adjust. The only spreader with beater and beater drive mounted on axle.

Low down, with big drive wheels out of the way. Easy to load.

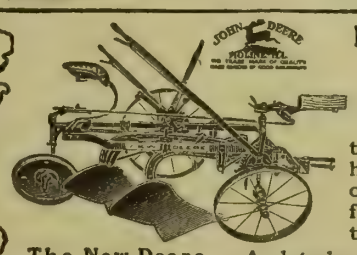
Revolving rake, driven by manure moving toward the beater—no bunching of manure. Ball bearing eccentric apron-drive—a new and exclusive driving device.

Makes uniform spreading certain.

Wide spread attachment for spreading seven feet wide can be furnished for the John Deere Spreader. No chains nor gears. Quickly removed.



New Deere Light Draft Gang Plow



The New Deere Gang is the most widely used plow of its type.

It is light draft, durable and is equipped with John Deere bottoms, known all over the world for superior work, easy scouring and light pulling qualities. It cuts and turns full width of furrow.

A simple, practical foot lift and auxiliary hand lift lever—easy to raise bottoms out of the ground.

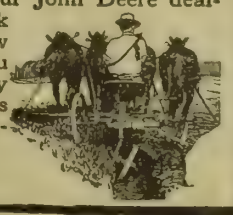
John Deere Quick Detachable Shares—great labor and time savers. Share can be taken off easily, only one nut to remove.

For twenty years the New Deere Gang has had the good opinion of enough farmers to make it the one best seller—

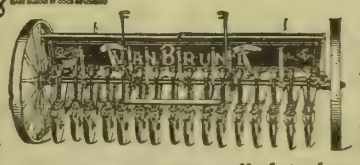
And, today, it is the same plow it was twenty years ago, with the usual minor refinements added.

Correct in design, always representing the highest development of the plow-maker's art, the New Deere Gang is a leader, and has been every single year for twenty years.

Go to your John Deere dealer's and look this plow over—you will readily see why it is such a popular plow.



Van Brunt Grain Drills



Van Brunt Drills plant any small seed.

Amount sown per acre easily regulated.

Direct, double, gear drive from the continuous axle.

High-grade discs with bearings guaranteed to last lifetime of drill. Scrapers keep discs clean.

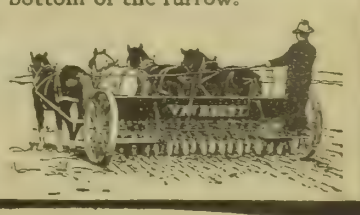
Pressure springs individually adjustable to make uniform depth furrows.

Either single or double discs.

Grass seeder attachment which will drill or sow broadcast can be furnished.

Van Brunt Grain Drills are particularly noted for their adjustable gate force feed. Each feed cup plants exactly the same amount. The seed is compelled to leave the seed box in even, continuous streams without bunching or choking up. All the ground is seeded.

The Van Brunt Single Disc is the first successful single disc grain drill with closed delivery. The seed is protected by metal seed tubes, disc openers and the disc boots until it reaches the bottom of the furrow.



JOHN DEERE, MOLINE, ILLINOIS

The men who sold you your fruit trees say:

"Your trees must be planted *right* if they are to thrive. Make the holes deep and wide and break up the subsoil. The best way to do this is by blasting."

Nearly every Western nurseryman uses and recommends blasting for tree-planting. "We know the value of such work," say Fancher Creek Nurseries, California. "We favor blasting," says Oregon Nursery Co. "Blasting is important," says Puyallup Nursery, Washington.

Blast with

GIANT FARM POWDERS
STUMPING — AGRICULTURAL

—which do their work cheaper and *better* than ordinary dynamites. These improved explosives—made in two brands, Eureka Stumping Powder and Giant Stumping Powder—are prepared especially for Pacific Coast *farm and orchard* work. They pulverize the soil several feet deep and wide, and place it in the best condition to insure the rapid growth of trees and crops.

Be careful to get the genuine, made by the company which originated all "giant powders." If your dealer has only ordinary dynamites, write us and we will see that you are supplied with the *real* Giant Powders.

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Get our valuable, illustrated books. They tell how to save money by using Giant Powders for Boulder Blasting, Stump Blasting and Ditching, how to grow bigger farm crops by blasting the subsoil and how to blast in new or old orchards. Mark in coupon the subjects that interest you, and the books will be sent free.

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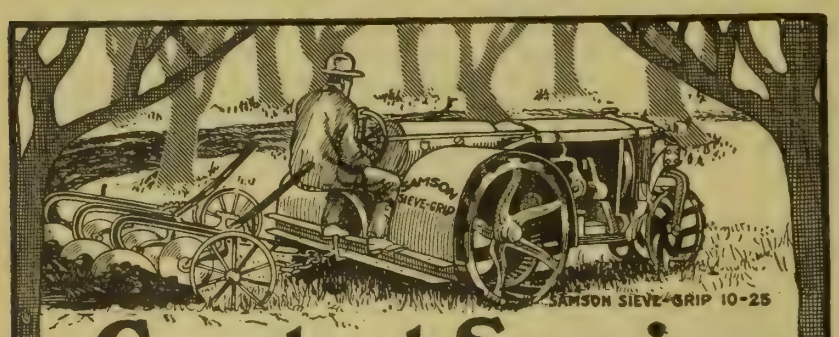


SAMSON SIEVE-GRIP 10-25

Constant Service

SAMSON
SIEVE-GRIP
Pat. and Reg. U. S. and Foreign Countries

TRACTORS

will stand by you in the rush season, and all the year 'round. Their steel construction, dust-proof qualities, oversize bearings and thorough lubrication insure constant service at low cost. The world-known Sieve-Grip wheel gives complete traction---no slipping, no soil packing.

You Can Do Better Work

in the orchard and field with a Samson Sieve-Grip Tractor. Your plowing and cultivating will be easier, crops larger and expenses less. Your farming business needs a Samson Sieve-Grip. By placing your order NOW, you will get your tractor when you want it. Though the demand for Samson Sieve-Grips is tremendous, we can make deliveries on time.

Samson Sieve-Grips are built in two sizes—
10-25 at $1350 and 6-12 at $775, f. o. b. Stockton.

SAMSON SIEVE-GRIP TRACTOR CO.
Stockton, California, U. S. A.

Study Parentage of the Scion

Scions must be cut from trees that show good parentage. Never cut a scion from an unproductive or sickly-looking tree, for like will produce like. Healthy scions of good quality, hardy, and sound should be sought. They may be taken from two sources—from an old tree or from young seedling stock in the nursery row.

When taken from old trees, straight, thrifty looking twigs of the previous year's growth should be chosen. A terminal bud on each scion is desirable, but this is not absolutely necessary. Each scion should have at least three buds. Six inches is usually considered a good length to cut them.

Scions obtained from the seedling stock in the nursery rows are preferred by some. The shoots from this stock are usually in a better condition than shoots from older trees. The chief objection to using scions from this source is that one never knows what he is grafting, as the young trees never have borne fruit.

The scions may be selected in the autumn, during the winter, or early in the spring. When cut in autumn or during the winter, they should be packed in fine sand or sawdust, placed in the cellar, and kept damp. If cut in the spring, and are not used immediately, they may be kept by burying the lower ends about four inches in the ground in some shaded spot. Never allow them to suffer exposure.—Kansas Industrialist.

California Prune and Apricot Growers Name Trustees

Returns from the final election of trustees for the Prune and Apricot Growers' selling association show the following men elected:

District No. 4—T. S. Montgomery, H. G. Coykendall, F. L. Barnhisel, J. J. Stanfield, George Glendenning, Nathan Lester, A. Kammerer, J. S. Williams, S. E. Johnson, I. E. Pomeroy, Frank Swett, Henry Hecker.

District No. 1—W. J. O'Connor, F. W. Wilson, W. A. Yerxa, F. O. Scarlett.

District No. 2—Henry Wheatley, H. C. Dunlap, H. L. Bree, J. E. Lowery.

District No. 3—A. B. Abshire, P. W. Bussman, F. A. Brush, S. W. Baker.

District No. 5—E. F. Eggen, W. E. Riesland, H. W. Lewis, Arthur Hainey.

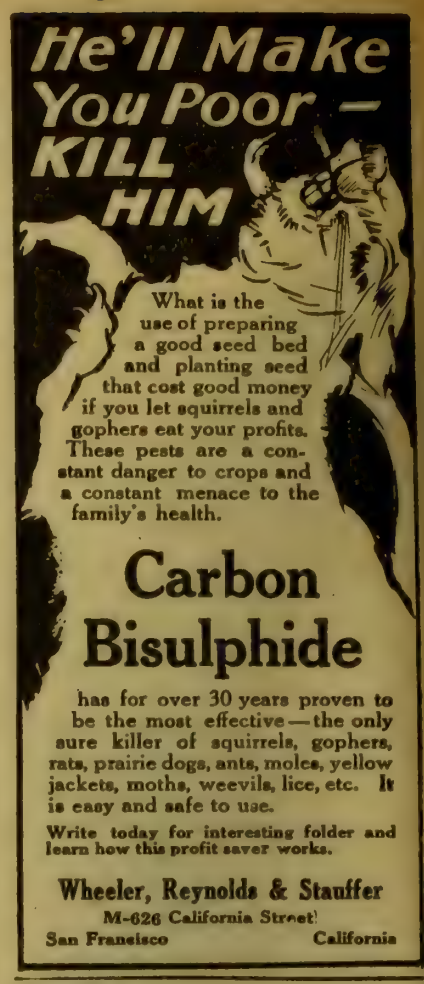
District No. 6—David Felsenthal, F. E. Bagnall, R. E. Harrington, J. S. Appleton.

District No. 7—J. W. Macaulay, Arthur Swall, R. M. Woods, W. F. Hanks, E. F. Hart.

HORTICULTURAL ACTIVITY IN SAN LUIS OBISPO

County Horticultural Commissioner S. V. Christierson of San Luis Obispo County writes as to the horticultural awakening of San Luis. He says.

"At the present time some 10,165 acres are planted to fruit trees of different varieties, of which 2400 acres are now in bearing. About 3000 acres are planted to almonds, and this season 2000 acres will be planted in the Paso Robles and Templeton sections. The estimate made by this office two months ago indicated that 2000 acres would be planted to fruit trees in this county during the spring of 1917. By February 1st enough trees had been shipped in to plant 3500 acres, so that actual plantings will probably exceed estimate by 100 per cent."



What is the use of preparing a good seed bed and planting seed that cost good money if you let squirrels and gophers eat your profits. These pests are a constant danger to crops and a constant menace to the family's health.

Carbon Bisulphide

has for over 30 years proven to be the most effective—the only sure killer of squirrels, gophers, rats, prairie dogs, ants, moles, yellow jackets, moths, weevils, lice, etc. It is easy and safe to use.

Write today for interesting folder and learn how this profit saver works.

Wheeler, Reynolds & Stauffer
M-626 California Street
San Francisco California

Nitrate of Soda

California soils need available nitrogen. Get it as cheap as you can. Write us for "Cost of Available Nitrogen."

DR. WM. S. MYERS
Chilean Nitrate Propaganda
25 Madison Avenue, New York

IRON AGE
Farm, Garden and Orchard Tools

Answer the farmers' big questions, How can I grow crops with less expense? How can I save in planting potatoes? How make high priced seed go farthest? The

IRON AGE Potato Planter

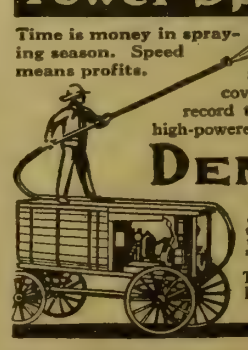
solves the labor problem and makes the best use of high priced seed. Means $5 to $50 extra profit per acre. Every seed piece in its place and only one. Saves 1 to 2 bushels seed per acre. Uniform depth; even spacing. We make a full line of potato machinery. Send for booklet today.

No Misses
No Doubles

Bateman M'f'g Co., Box 40B, Grenloch, N. J.
KANOUSE & FOOTE, *General Agents*,
FIRST & JACKSON STREETS, OAKLAND, CAL.

Power Spraying

Time is money in spraying season. Speed means profits. For fast, *thorough* spraying, covering every leaf in record time with a clinging high-powered spray, use



DEMING
POWER RIGS

Catalog showing everything from 200 gallon rigs to bucket pumps free on request.

The GERMAIN Seed & Plant Co., 332 S. Main Los Angeles, Cal.

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Workmen's Compensation

An inquirer wishes to know as to the present situation in the California workmen's compensation law and as to whether it applies to the farmers. This matter was fully discussed by Mr. Farrand in a former Cultivator, but we have asked him as to whether there are any changes which would affect the farmer, and he writes:

"The California workmen's compensation law excludes farmers, among others, from its provisions. A farmer may, however, become subject to its provisions by filing a written acceptance to that effect with the Industrial Accident Commission, San Francisco. In the absence of such election on his part the farmer remains liable to his employees in damages in the case of injury to them occasioned by negligence, etc. An employer may insure himself against the liability created by the compensation law, either with the state fund or with a private insurance carrier. Information concerning the state fund may be acquired by addressing State Fund, Underwood Building, San Francisco, or State Fund, Union League Building, Los Angeles. Private insurance companies will likewise furnish information, rates, etc., to persons desiring the same."

Distributing Manure

A subscriber in Portugal recently wrote the Cultivator for information as to the advisability of spreading manure in his olive orchard. He is not far from the city of Lisbon and has practically a daily supply throughout the year. He has been applying the manure daily direct to the orchard during this season of the year—which in Portugal as in California is the rainy season. He wishes to know regarding the handling of the manure during the three or four months when there is no rainfall. In Portugal this period begins in May. He states that he has no water under pressure to aid in composting. We have written him that regardless of the dry season we would spread the manure as rapidly as available rather than take a chance of its fire-fanging or burning out the nitrogen; also during the summer months we would cultivate lightly. However, we referred the question to Prof. C. B. Lipman, University of California, and he replies:

"You can safely reply to your inquirer that the best thing he can do under the circumstances is to haul the manure out to the fields as fast as it is made and leave it there. While there is no question that he will lose some of the beneficial properties of the manure through oxidation, he will gain so much more by protecting his soil by means of that barnyard manure, even though it is not plowed under, that the loss in comparison will be very small and insignificant.

"He would benefit greatly, I think, by ceasing cultivation in his orchard, as I have been recommending for the past four or five years, and merely use his barnyard manure as a surface mulch for the soil, not plowing the material under at all. If, on the other hand, he has bare land on which grain or vegetables are grown then of course the best way for him to do would be to apply the manure and immediately plow it under. But even letting it lie out, if plowing is impossible on such land as is last mentioned, would be of very great service to the soil."

Setting Prunes

Please advise how to prune roots of prune trees and plant, also how much of tops should be cut away.—Subscriber, Marysville.

At one time severe root pruning became almost a craze. H. M. Stringfellow, a Texas horticulturist, published "The New Horticulture" in which he announced discovery of or advocated advantage of close root pruning. In fact the root system was almost entirely sacrificed and a tree closely resembling a cutting was planted. The system is now generally discredited, but one lesson remains, and that is that clean cuts of the larger root tips, which are almost invariably more or less mutilated as taken up from the nursery, are advantageous. Mangled roots afford lodging for fungus and fungus sometimes means root rot. However, we would do no more cutting than necessary to remove any mangled portions of the root. This especially is true of the tap root. As to cutting back the top, that is different. The wood which comes from the nursery is only of value as a base or foundation for the future tree. Too often the entire top or too much of it is left when planted in orchard form. We would cut back all tops to a uniform height, say 16 to 20 inches from ground.

Effect of Feed on Milk

Please advise whether feeding cows any particular feed will cause them to give richer milk or influence the milk test.—Subscriber, Coronado.

Feeders have found little or no influence on the fat content of milk by feeds, that is, in the percentage of fat.

1842 The Seventy-Fifth Anniversary of 1917

P&O

LIGHT DRAFT PLOWS

Built for the Field Test.

Three-Quarters of a Century of "Knowing How" Hammered Into Every One of Them.

The product of the Parlin & Orendorff Co. has always been noted for simplicity of construction, great strength and ease of operation. It was upon such a basis that the founders of this business made their implements, established their reputation, and built their factory. It is upon the same foundation that the business has been carried on to this day, and in 1917 we celebrate our Diamond Jubilee; 75 years of practical experience gained through constantly striving to provide for the exacting requirements of three generations of American farmers.

For an even three-quarters of a century we have met the demand, and today we operate the largest and oldest permanently established plow factory in the whole world. "It's the way we build them."

P&O

Light Draft Plows, Harrows, Planters and Cultivators are made in all types and sizes, to meet the conditions in all sections, and are Backed by an Unqualified Guarantee.

We also make the most complete line of Traction Engine Plows produced, and we have a special catalog devoted to these famous plows.

The P&O Little Genius Engine Gang Plow

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Nitrogenous Fertilization

Number 9

YOU have often asked yourself how much good comes from the nitrogenous fertilizer you use. That depends largely upon the ability of your soils to hold and convert it into nitrate nitrogen.

SULPHATE OF AMMONIA

is held in the soil by humus compounds until the beneficial bacteria have transformed the ammonia into available plant food.

Partly because of the small quantities ordinarily applied as compared to the large mass of earth it fertilizes, Sulphate of Ammonia is readily nitrified even in soils poorly supplied with humus.

Dr. Lipman of the Berkeley Experiment Station states, in Bulletin 260, that "definite nitrification of Sulphate of Ammonia nitrogen, occurred in all soils tested without apparent exception." Further on he notes that Sulphate of Ammonia is particularly adapted for use on arid soils because of the apparent ease with which it is nitrified in them.

This means that conditions existing in California soils are exceptionally favorable to the use of Sulphate of Ammonia. Its action should be noticeable within from nine to fourteen days.

The Barrett Company

New York City, N. Y.

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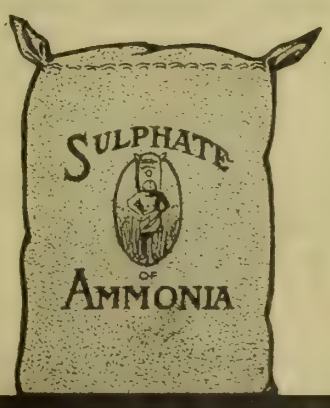

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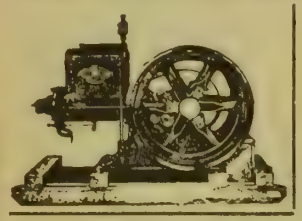

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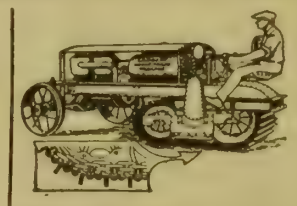

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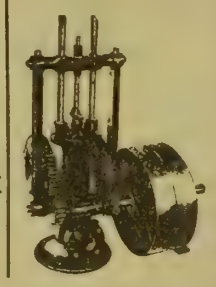

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The fat is increased by rich and abundant feeds of course by increase in the flow of milk, but a cow which naturally produces four per cent milk will continue to produce four per cent milk under richer feed though she will possibly double the quantity. The test of cow's milk varies somewhat from day to day and during the milking period. In general near the close of the milking period there is a higher per cent of fat than at time of freshening. The greatest variation we have ever known was that of a Jersey cow being fed to the limit. Naturally she gave about five per cent milk. While she was still apparently in normal condition a test showed her milk to contain nearly 11 per cent of fat. The tester felt sure there was some mistake and made a re-test, which showed the same percentage. It was afterwards learned that the cow had an exceedingly high temperature and within 24 hours died.

Persimmons

In answer to request in Cultivator of January 27 for ways of using persimmons besides eating them fresh several suggestions have been received.

Mrs. Geo. Campbell of Whittier sends recipe for a persimmon pudding, which appears on household page.

L. J. Harbison of Vacaville writes: "Advise subscriber that if he will write to United States Department of Agriculture, Washington, D. C., for 'Farmers Bulletin 685, the Native Persimmon', he will learn how to make persimmon bread, crumpets, griddle-cakes, peanut muffins, cake, pudding leather, ice cream, fruit ice, taffy, fudge, preserved persimmon pulp, preserved whole persimmons, coffee fruit cake."

James W. Wood of Alameda sends clipping from catalog of Fancher Creek Nursery on Japanese methods of curing persimmons and a simple way of drying:

"The astringency is readily removed by placing the fruit in Japanese tubs, from which Saki (Rice-beer) has been recently withdrawn. After the persimmons are placed in the tub, close carefully to exclude the air. In ten days the fruit, although perfectly firm, will have lost all its bitterness.

"A new simple process of alcohol inoculation is lately practiced. Pierce the fruit at the bottom several times with a common needle dipped in alcohol and pack them in a tight box or container lined with straw and layers between the rows, keep the box closed for ten days.

"It is not generally known that the persimmon is delicious when dried. It is so sweet, so rich in sugar and has such a unique flavor that one who has never eaten the dried persimmon before, immediately comes to the conclusion that the fruits have been crystallized. The method of drying is simple; skin is pared off and the fruits are suspended by the stems on a stick and exposed to the sun when they gradually lose their original form—turning quite dark and covered with sugar crystals. The dried persimmon is considered by many to be more delicious than the 'date of commerce'. Fruit should be picked for drying when yellow and firm."

Thompson Seedless

We have ten acres near Lindsay and would like to know if Thompson Seedless would do well there. The soil is rather heavy with very little sand. What special care does the Thompson Seedless require, especially as to pruning? Can it be pruned back short or will it have to be trellised and will it need irrigation after the first year? When should it be planted?—Subscriber, Glendora.

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"High-Pressure"
TIRES

The rugged super-toughness of Norwalks renders them as suitable for country as for city driving. Norwalks insure your safety of arrival without delay. Their perfect service is absolute.

7500 Miles Guaranteed—Ford Sizes
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SPECIAL PRICE ON
ROYAL APRICOTS
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A complete line, all kinds of
Deciduous Trees
Orange, Lemon and Grapefruit
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solves the garden labor problem. Takes the place of many tools—stored in small space. Sows, covers, cultivates, weeds, ridges, etc., better than old-time tools. A woman, boy or girl can push it and do a day's hand-work in 60 minutes. 38 combinations, $3.25 to $15.00. Write for booklet.

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"THE OVERLOOKED FRUIT"
Bear early and regularly. Splendid shippers. Long keeping. Hold for the right market. Fine for intersetting.
Van Dieman and Smyrna better varieties than pineapple and orange.
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Or perhaps all your engine or pump needs is a good overhauling. Let us do that and we will do it right too.

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Motorcycle Given Away

If you would like to own a fine speedy $290 Indian motorcycle as a reward for work that can be done during spare time send in your name to California Cultivator, Los Angeles, to take part in the campaign just starting. This is the easiest way to get a motorcycle. Already eleven machines have been won with far less dollars in subscriptions secured from others than the motorcycle would have cost of a dealer. Write and say "Tell me about the motorcycle you will give away" with name and address and we will tell you all about it. This places you under no obligation to us whatever. Address Manager Motorcycle Campaign, California Cultivator, 115 N. Broadway, Los Angeles.

Thompson Seedless would without question do well in the section you mention. We question very much whether you can purchase any vines this year for planting has been very heavy. Some have recommended that in view of the heavy planting other varieties will perhaps be safer. Of course Thompson Seedless has double marketing value in this, that it may be shipped as a table grape or cured as a raisin, but the popular demand is for a raisin of the Muscat type, and there might be overproduction of Thompson Seedless. The pruning required by the Thompson Seedless is the so-called long pruning. The vines are usually trellised on wire, though some prefer staking.

Almonds in Tulare

Would almonds do well in the Lindsay section or do they require lower wet land?—Subscriber, Glendora.

So far as soil is concerned any section where peaches do well will answer for the almond, and they do not want wet land. However, the growing of the almond is more a matter of climate; it must be grown in a section where there are no late frosts.

Greasewood

What is the name of the shrub from which the branch enclosed was taken? It grows in an exceedingly dry part of San Joaquin Valley.—Subscriber, Kern County.

Dr. A. Davidson writes: "This is 'Mexican Grease Wood,' Larrea tridentata, a desert shrub sometimes used as a tea for blood troubles.

Spraying Apples

I have a few apple trees, the fruit of which falls every year before it is ripe, and it is very wormy.—Subscriber, Burbank.

Spraying for codling moth or "wormy" apples will be touched upon in some number of the Cultivator in March. Spraying of the apple at this time would only be effective against scale or fungous trouble.

Dead Stubs

I have apple trees which were grafted a few years ago and they did not heal over properly. There is decay on the old stubs. Is it practical to treat them by cutting out dead wood, disinfecting or filling with cement?—Subscriber, Burbank.

Had the grafts been properly inserted in these trees the healing over would have been done quickly and the stub not had time to decay. Now, however, the best way would probably be to chisel out so far as possible the dead and decaying wood and treat with coal tar or grafting wax. It might be advisable first to paint the diseased wood over with Bordeaux, which is a disinfectant.

EGG LAYING CONTEST

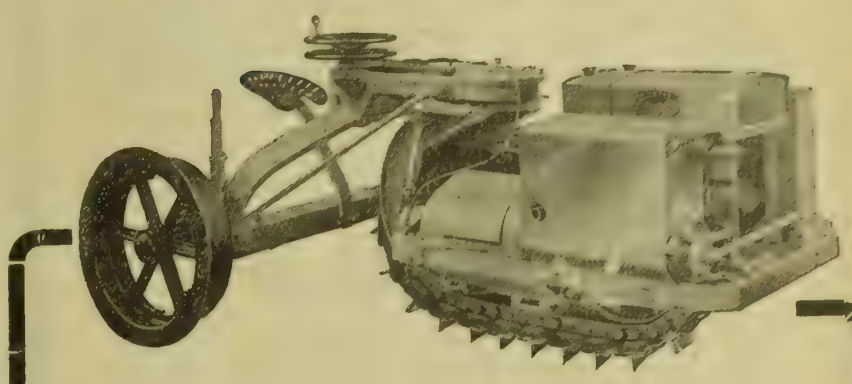
The first week of the egg laying contest at the Phoenix, Arizona, Union High School was a Leghorn week. The highest record made by any pen was made by White Leghorns with 21 eggs. One pen of Brown Leghorns, and one pen of White Leghorns laid 20 eggs each. The highest individual record was made by a R. I. White pullet which laid six eggs in the seven days. The two Hoganized pens, one "good" and one "bad" produced 20 eggs for the good and one small egg for the bad.

NATIONAL SWINE SHOW

The National Swine Show will be held at Omaha October 3-10.

The arrangements for the show are similar to those of 1916 show. The same buildings will house it in 1917 as were used in 1916, with such additional room as is necessary to properly care for the exhibits. Extra showring facilities will be provided.

Does the Work of Six Horses



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Orchard Work

In an orchard or citrus grove this tractor will work under tree boughs only four feet off the ground, and closer to the trees than horses can go. It is especially adapted for cultivating and works hour after hour without a stop. A boy can operate it with a little practice. The BEAN TrackPULL Tractor "gee's" and "haws" just like a team of horses, and delivers as much power on the turn as when pulling straight.

The 10-Foot Turn

This wonderful little tractor is so compact that it will turn completely around in a circle 10 feet across. Because it can make such a short turn it gets into corners just as well or better than a team can. The motor is a simple four-cylinder automobile type, but built for heavy duty. Controlled by a friction clutch driving four big gears. It has a pulley for stationary work. The grousers and wheel flanges can be removed for running on boulevards.

No Other Tractor Like This

No other tractor now does or ever did what the BEAN TrackPULL Tractor does. No other tractor with such advantages was ever sold at such a low price. It is fully patented. There will be no other tractor like it. The demand for these tractors is growing daily. Wide-awake farmers and growers are realizing the value of the BEAN TrackPULL Tractor—

We Guarantee Prompt Deliveries in April

Our factory has been working night and day but we cannot supply the demand. We are now enlarging our plant and increasing our facilities, and by April will be able to handle deliveries promptly.

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Please send me prices and the big folder with the complete story of the BEAN TrackPULL. If I decide to purchase I will need my tractor about

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I work ..... acres

I grow .....
(Name fruits or vegetables you produce)

Name .....

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City..... State.....

"The Old Lines"

EVERYBODY speaks of them as "the old lines," many perhaps without realizing how thoroughly new and up to date are all these **Champion, Deering, McCormick, Milwaukee, Osborne** and **Plano** mowers, rakes and tedders. What really good improvement was ever made in haying machines that did not show itself first on one of these machines? Where can you find mowers, rakes, or tedders that need so little adjustment, so few repairs, or that are so easy to repair when they do need it? Nowhere. These old standard machines, known to farmers for three quarters of a century, can still be depended upon to get in all the hay from any field and to make the work light for the farmer.

When you need a mower, rake, or tedder, see the local dealers who handle the **International Harvester** lines. We can remind you here that our machines have always done good work, but the dealer can show you why they still do it. You will find that the local dealer has just the size and style you need. Buy from him.

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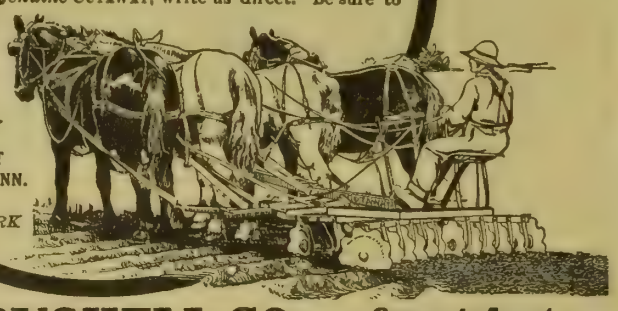
Save half the time and labor and have a better seedbed. Use a CUTAWAY (CLARK) Double Action Harrow. Its rigid main frame causes the rear disks to cut and turn all the land left by the fore disks—and with equal force. It will

Quickly Cut, Pulverize and Level

the toughest plowed land. The CUTAWAY disks are of cutlery steel *forged sharp*—and they penetrate deep without bringing up stones and trash. Dustproof, oil-soaked, hardwood bearings and perfect balance make light draft. Tongue truck not required—close hitch. Many CUTAWAY (CLARK) Harrows in use 25 years and still giving splendid service. There's a CUTAWAY for every need and a size for every requirement. If your dealer has not the *genuine* CUTAWAY, write us direct. Be sure to send for our new free book, "The Soil and Its Tillage." Plan now for better crops.



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Disc Harrows

We have nine distinct styles of Disc Harrows. A Harrow for every use. 3 feet to 12 feet in width of cut. 14 to 20 inch discs, solid or cutaway. No assortment so complete. Call and see them or write for catalogue. We are headquarters.

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When writing advertisers, mention The Cultivator.

Races and Strains of Bees

Written for California Cultivator By Henry Perkins

MEMBERS of the honey bee family are found in their native state in practically all parts of the tropical and temperate zones. There are many species ranging from the giant bee of Ceylon to the Central American species, which is no larger than an ordinary house fly. Only a few species have proved profitable to man when domesticated. The leading races kept on the North American continent are the Italian, black or German, Carniolan and Banat. The Italian leads all the others in popularity with the beekeepers. The Italian bee combines the greatest number of virtues and fewest vices, and in a general way is more adapted to our climatic conditions. They are above all industrious and their queens are wonderfully prolific. Their tendency toward swarming may, by proper handling be reduced to a minimum. They are among the gentlest of all races and are therefore easy to handle. It also appears that the Italian is more resistant to disease, especially to European foul brood, than the other races.

Next in importance come the black or German bees. They are much given to swarming and are often extremely cross, especially when kept in large apiaries. They are good honey gatherers, beautiful comb builders and hardy winter bees. The Carniolan bees seem to embody all the virtues of beedom save one. They are excessive swarmers and therefore not as good for the average apiarist as the Italian.

The Banat are of comparatively recent introduction. They are very gentle and steadily gaining favor where they have been tried.

Aside from the racial difference in bees there remains a considerable range of variation among the various strains of a given race. For instance among Italians we have the golden, leather colored, etc. Breeders have spent years endeavoring by selection and inbreeding to establish some special characteristic, as for instance, nonswarming, gentleness, white capping, etc. The fact that queens always mate at large and never in confinement makes selective breeding extremely difficult. No doubt some progress has been made in this direction, but it is also equally apparent that many of the claims made by enthusiastic breeders are extravagant. The natural tendency of bees to cross mate and hybridize works against the breeder who is specializing. Attempts have been made to overcome such obstacles by selecting an island for a breeding ground. Sooner or later the art of bee breeding will be systematized. Summing up the subject I will say in conclusion that the Italian bred from imported stock is a safe selection for the California beekeeper to bank on.

Honey Strainer of Cheese Cloth

There are probably more cheesecloth strainers used in straining honey than any other style, says a writer in the Beekeepers' Guide. The arranging of this style of strainer in a satisfactory manner over the top of a clarifying tank is not so easily accomplished. The orthodox way of tying it on top of the tank with a stout cord is not very satisfactory, for who hasn't had such a strainer work well until the very minute he is ready to draw off a tank of nice, clear, transparent honey, when behold, in goes the strainer, skimmings and all.

We are sure you'll appreciate what I'm telling you for you have likely all had just such an experience. A cloth strainer tacked to a frame is not much better, for it will tear loose, is hard to wash and is generally unsatisfactory.

How to make a satisfactory honey strainer of cheesecloth, one that is easily kept clean, is as follows: We will describe a strainer that fits a tank 26 inches in diameter. Cut four pieces of narrow lumber 26 inches long. The material we use is ⅞ x 2½ inches and lies flat on the tank when in use. These four boards are nailed together into a frame 26 x 26 inches square. If the corners are halved together they look some better. So much for the frame. Buy two yards of cheesecloth, fold it in the center and sew the two selvedge edges together, making a bag. Then put the frame inside the bag and place on the tank. The open end is folded under the strainer frame, between that and the tank. It will be noticed that there are no strings or tacks, that the strainer is easily taken off to wash, and has thus far proved very useful to us. This is the second season we have used it.

Growing Popcorn

There is a very common belief that the supply of popcorn is not nearly equal to the demand. No doubt this belief comes from the fact that popcorn is sold very high—sometimes as high as 5 cents per pound—by retailers. There is a great deal of variation. One season there may be a shortage, and another year a surplus.

For popcorn a rich loam in a high state of cultivation is best. If it is not naturally rich, 20 or 30 loads of rotten stable manure per acre should be applied. We plow the ground deep, harrow thoroughly, see that the seedbed is well compacted before planting. We go over the ground with a harrow just before the seed is put in so that all weeds which have started will be killed.

The rows should be not less than three feet apart. Popcorn being much smaller than field corn can be planted much closer. We plant from one to two kernels every eight inches in the row. Some varieties stool very readily, producing occasionally 12 stalks from a single seed. If this kind is chosen, care must be taken not to plant it too thick. The tendency always is to drop too many seeds in a hill, consequently it is almost always necessary to thin the young plants after they are well started.

Great care is always necessary at the first cultivation, so as not to injure the tender young plants. We give about the same treatment as for field corn, keeping the soil free of weeds, and well pulverized. The land should be well drained, as popcorn will never do well if excessive moisture is present.

FARM VALUES AND RAILROADS

Transportation Problem Must be Solved Nationally in Order to Assure Agricultural Prosperity.

THE greatest industry of the United States is farming. Next to that comes transportation.

Efficient transportation is essential to the continued welfare and business progress of the nation. To the farmer it means wider markets and better prices for his crops.

Speaking for 90% of the railroad mileage of the country we invite your cooperation in the solution of the railroad problem to that end.

Make Regulation Efficient

There is no question that public regulation of transportation has come to stay. The railroads accept it. They ask only that such regulation be made efficient. They ask that the functions properly subject to public supervision—incorporation, the issuance of securities, the making of rates—be placed under the direction of a single responsible national body such as the Interstate Commerce Commission, with regional subcommissions, in order that regulation may be kept close to the people. They ask that such regulation be so administered as to permit the railroads to earn a living return, to attract new capital and to make the improvements and extensions necessary to enable them to serve the American people fairly and efficiently.

In the Federal Reserve and Rural Credit Banking Systems the operation of regional divisions under Federal supervision is well illustrated. The railroads seek a similar solution of their problem.

Commerce is Nation Wide

The farmer wants free trade among the states.

Commerce in farm products is not confined to state lines. It is nation-wide. Its regulation should also be national. The fundamental state right is the right of each state to be protected against discriminations by other states such as exist today. Every barrier that a state erects to the free movement of commerce across its borders limits the farmer's market, makes it easier for speculators to control products and depress prices and tends to increase the cost of what the farmer has to buy.

The railroads cannot serve 49 masters—48 states and the nation—and serve efficiently. The present system of multiple and conflicting regulation is wasteful and destructive.

In the interest of all, regulation should be in behalf of all the states. We invite discussion of this question and shall be glad to answer questions and to supply information on request.

This is the first of several brief talks on this subject.

RAILWAY EXECUTIVES' ADVISORY COMMITTEE

61 Broadway New York City

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We allow the crop to thoroughly ripen on the stalk, then husk out and store in a dry place, and when thoroughly dried out we store in barrels, so arranged that rats and mice cannot get at it.

If the fall has been very dry, the corn can be used the first season, but as a rule it contains too much moisture and should be held over until the next year. If marketed the same season it will not pop well, and this tends to lessen the demand.

Broom Corn Culture

An advantage possessed by the Southwest for the production of broom corn is that the usually dry, sunny weather of the region during and following harvest is favorable for curing the brush so that it retains its natural green color. While the broom-corn growing industry is largely centered in the Southwest, it is still carried on to a greater or less extent in the Central States.

About two-thirds of the broom corn crop of the country is of the dwarf variety. The fiber of this is usually much finer than that of the standard broom corn and its method of growth facilitates harvesting. The head, or brush, of the dwarf plant, however, is relatively small and is used chiefly for making whisk brooms. The department of agriculture has recently developed a third variety—the Acme—which combines the height and other growing qualities of the dwarf with the size of brush of the standard. This variety is not yet grown commercially.

Growing the Crop

The cultural requirements of broom corn are practically the same as those of milo, kaffir and corn. The time and depth of plowing depend largely upon the nature of the soil and the quantity of the winter rainfall. The land should be worked with a disk harrow and a smoothing harrow into a deep, uniform seed bed, since this permits sowing the seed at a uniform depth and allows the young plants to emerge at about the same time and the brush to develop uniformly.

Harvesting

To obtain brush of the best quality, harvesting should be done early. It may be at any time, from the beginning of blooming until the seed is in the early dough stage. The exact time depends very largely upon the development of the fiber. The strength of the fiber increases until the natural pea-green color extends from the tip to the base and from the outside to the center of the head. After this time the brush becomes more brittle as the ripening progresses. If harvesting takes place before the green color has developed throughout the base of the brush, the result is a weak base and poor quality.

Market for Teparies

One of the best beans yet produced is the desert bean known as Tepary. Many who grew them when they were first introduced found it almost impossible to dispose of them at satisfactory prices. The trade did not understand them, and they would hardly pass for the Small White Navy, but with the present high prices of everything—especially beans—there has been demand for this type of bean, and the Arizona experiment station, which was largely responsible for its introduction, informs us that the New York brokers will now handle the beans in almost any quantity and will buy on samples. Of course carlots are necessary for cross-continent marketing. We also presume that San Francisco and Los Angeles buyers will be more willing to buy the beans than formerly.

This is the Small Tractor You've Been Waiting For

HERE'S a tractor, the Advance-Rumely "8-16" that was especially designed to fit the needs of the small and medium size farm—a small, light weight, kerosene burning outfit to meet the demand where the famous Rumely OilPull is too large.

The "8-16" is easy to handle, economical and durable. It supplies reliable power for every farm job, and just as important, it is made by a company with an established reputation for dependability.

It is a real one-man outfit—tractor and plows are combined in one machine, and full control is from the driver's seat. With the Advance-Rumely you plow the same as with a horse gang, the plows are where you can always see what you're doing. Also you can back up with your plows, make short turns and cut square corners.

Kerosene for Fuel

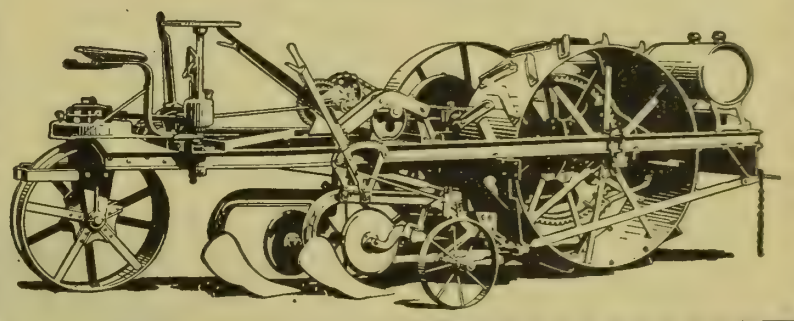
Kerosene is its fuel, and it burns kerosene, not as a makeshift proposition, but continuously and at variable loads as well as full load.

An Advance-Rumely "8-16" not only will plow, but it will draw your discs, drills, harrows, mowers and binders, and on the belt it will run a small separator, hay baler, silo filler, sheller, feed grinder, etc. In fact, it will deliver the same reliable, steady power on all jobs—draw-bar or belt. When used for other jobs than plowing, the plows are quickly detached.

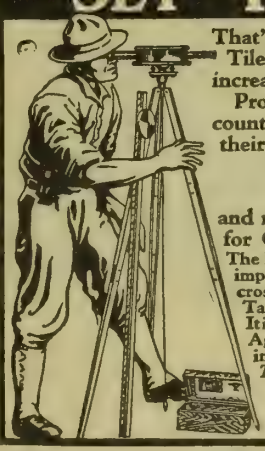
The powerful four-cylinder motor and the entire machine is Advance-Rumely built throughout. It comes from the same shops that build the well known OilPull tractor, the Ideal separator, and all the other dependable machines in the Advance-Rumely line.

Write our nearest branch for a special catalog on this new Advance-Rumely outfit.

ADVANCE-RUMELY THRESHER CO.
LA PORTE *(Incorporated)* **INDIANA**
Address our nearest branch
San Francisco, Cal.



SET YOUR OWN PRICE



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Bostrom $15 Farm Level

and make spare days the most profitable days. Also fills the bill for Grading, Road Building, Foundation Work, etc.

The Bostrom Farm Level has been on the market over thirty years, the latest improved having a *Telescope* with *Magnifying Lenses* which enable you to see the cross on the Target a quarter of a mile away. Man Size Tripod, Leveling Rod, Target, Plum-Bob and full instructions included. Weight, 15 pounds. It is used and *endorsed* by Agriculture Schools and U. S. Farm Demonstration Agents, and you will endorse it, too, after using it—if not *Your Money Back*, including express both ways. Write today for description of *Level* and *Telescope*, details of our Money Back Guarantee, and names of Jobbers in San Francisco, Sacramento and Los Angeles who carry it in stock.

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The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday Feb. 17, 1917

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We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Napa is one of the greatest fruit producing little counties. Notwithstanding that, our Mr. Briggs has been making some investigations which show that there is some livestock within the county boundaries. The scene on this week's cover is evidence of the type of Ayrshires produced in Napa. These yougsters were photographed on the Oak Knoll ranch of D. Melone. We doubt not their performance at the pail will show that they are not only handsome in appearance but in production.

RESTING

Prof. Liberty H. Bailey, editor of the Cyclopedia of Agriculture, the Standard Cyclopedia of Horticulture, and dozens of other valuable agricultural books, and author of many others, has just finished the final proof reading on the last, or sixth, volume of the Cyclopedia of Horticulture, and has shaken off all kinds of work for a deserved rest. He is on his way to the Far East, but during the past week has made California his first stopping place. The stop was all too short.

LETTUCE

The Imperial Valley is sending out this year over 500 carloads, of 304 crates each carload, of the finest lettuce we have ever seen. The heads are as large and almost as solid as small cabbages. The better cared for acres are producing about a carload, and the growers have made immensely on this year's production. The planting was in November. The harvest is on now and will continue for several weeks. This year's success will induce a much heavier planting next year. This will be in part controlled by the fact that the crop is one calling for much labor. The grower, unless able to employ help, can produce but comparatively few acres, but those contemplating extensive planting another year should look well to a market before they plant.

ANNUAL ASSEMBLY

The Imperial Valley farm bureau assembly is a live wire gathering. We attended one there last Saturday, and while the attendance of 1500, which was claimed by a local paper, may be rather optimistic, yet it was an immense gathering. Its immensity was most apparent in the enthusiasm shown in the discussions and in the disposal of the barbecue which was served at noon time. The Cultivator camera was busy, and another week will show how Imperial Valley looks when it is eating, likewise give some other information on that remarkable section. We wish that producers of other sections of California could show some of the enthusiasm of Imperial County pioneers and some of their desire to gather information as to best farming practices. True, they are impelled to this by their facing of conditions which obtain in practically no other section of the world. They have problems to solve which are so different that they have nowhere to go for the answer but to themselves. Hence they meet and discuss, and we have seen many a state fruit growers convention and other conventions which did not have one-tenth the attendance given to this assembly.

ARNOLD V. STUBENRAUCH

One of the brightest and strongest men connected with the University of California passed last Monday when Arnold V. Stubenrauch died.

He graduated from the University of California in 1899, took his master's degree in Cornell in 1901, and in 1901 and 1902 was assistant professor in the University of Illinois, coming at the close of 1902 to the University of California, at which institution he served until the end of 1905. In 1906 he took up work with the United States department of agriculture in the field investigations of pomology of the bureau of plant industry. Later, in 1910, he was made head of investigations and continued the direction of this work until 1914 when Dr. Hunt, seeking for some of the brightest minds of the country for building up California institutions, insisted upon his return to his own state university. Since then he has been a tireless investigator and a power in educational work along pomological lines.

Professor Stubenrauch was a fellow of the American Section for the Advancement of Science, member of the American Pomological Society, of the Society of Horticultural Science, the American Association of Refrigeration and the American Genetic Association. He was author of many bulletins and publications issued by the United States department of agriculture and the experiment station of the University of California. He was joint author with Mr. Buchanan of a Country Reader.

Prof. Stubenrauch was yet a young man, and California, especially its great pomological interests, will suffer because his activities have ceased. And with all his abilities he was most genial, wholesouled, and likable.

At the Recent State Fruit Growers' Convention
At the reader's right is the late Prof. Arnold V. Stubenrauch. The others are Prof. Lloyd and Commissioner Fox of Napa.

DATES IN ARIZONA

Arizona date growers are sensible. They are growing a fine product which, as a novelty so far as American production goes, would command a long price. But in speaking of the industry at the recent Imperial County Farm Bureau Assembly, Dr. R. H. Forbes, director of the agricultural experiment station of Arizona, said that Arizona date growers had determined to sell their output at a price which would let producers and consumers live. They are putting in small five-basket crates about five pounds of choice fresh dates which are sold at $1.00 per crate. Specimens of fruit were exhibited at the assembly which were certainly exceptionally fine fresh fruit.

Americans have not yet learned the art of curing the softer dates, try as they will. Because of the amount of syrup, or for some reason, they will not keep, but for fresh fruit, put into storage five months ago, as were the dates exhibited at Imperial, and sold to be consumed within a few days, or at least a few weeks, there is a great market. Some have been shipped to the Eastern coast and sold well and gave satisfaction. As noted above the price receipts above packing costs were a little above 16 cents per pound, to grower. Presumably American dates may sometimes be sold lower than that, but it is a satisfaction to see a trade being developed by asking of the consumer a price which will encourage greater demand. For commercial trade the ordinary sized berry crate holding 15 baskets is to be used.

Dr. Forbes insisted that the date industry was not yet an industry, that is, it is not yet developed to the point where its future can even be estimated. While the range in climate is not great almost any kind of soil will be tolerated by dates, but a dry, intensely hot climate and abundance of water are necessary. This is proven in California date producing sections by experience in Imperial Valley where date growing has not been so general as in the Coachella Valley which is warmer and much dryer than the nearer-the-ocean-section of the Imperial.

One problem to be solved is the artificial ripening which is necessary in Arizona, at least for most of the varieties that have yet been tried. This necessitates incubating, or placing in a temperature of 50 degrees Centigrade for a few days, then for a short time holding at 65 Centigrade or 150 degrees Fahrenheit. This destroys any bacteria or fungi which may be present. The dates are then packed in pound boxes and attractively labeled and placed in crates as indicated above.

Agricultural Notes

The Russian sugar beet crop proved a disappointment in not coming up to estimated tonnage.

Regulations have been issued for compulsory tillage of arable lands in Ireland in 1917 to insure greater home production of food.

South African beef growers are receiving record prices for their cattle. $209.25 is the highest price reported for an ox at recent sale.

A large majority of the creameries and cheese factories of New Zealand are owned cooperatively by small dairymen and general farmers.

The cane sugar production of the Hawaiian Islands for 1917 was estimated on January 1 by the Hawaiian Sugar Planters' Association at 633,920 tons.

Siberia consumed considerable amounts of California dried apricots, pears and peaches prior to the war. This fruit was mostly secured through shippers at Hamburg, Germany.

A tick eradication conference was held in Dallas, Texas, last week. A little over 400,000 square miles of territory now remain infested. The campaign of eradication will be pushed vigorously.

It is estimated that there are 150,000 persons and firms in Japan awaiting the installation of telephones on their premises, the government being unable to keep abreast of the demand for appliances.

The National Apple Growers, an association recently formed, met at St Louis in February to take steps to secure uniform grading laws in different states. Delegates were present from eight states.

America's consumption of sugar in 1916 was 78.13 pounds, six pounds less than the preceding year and 11 pounds less than in 1914. The world's production last year was 4,000,000,000 less than in 1915.

Oil of the soy bean is a palatable food widely eaten by the Chinese. This vegetable oil also is used in making paints, varnishes, soaps, rubber substitutes, linoleum, waterproof goods, lubricants, and printing ink.

Weather news is now received regularly by wireless at 270 amateur radio stations located in nine of the northern and western states. In this way the wireless operator is enabled to give his neighborhood the weather forecast as soon as it is issued.

Chile is developing as a fruit country. Its latitude is practically the same as that of California and similar production methods are being practiced. It is already exporting considerable quantities of almonds, dried fruits, etc., to neighboring South American countries.

At the fifth annual meeting of the Chamber of Commerce of the United States recently held at Washington, D. C., R. G. Rhett of Charleston, South Carolina, was reelected president and John Jay Edson of Washington, treasurer. Willis Booth of Los Angeles was elected a vice president.

Ontario has about one-half the milch cows of Canada. There has been a marked increase in average yield of milk, per cow. A large part of this increase is due to the campaign of instruction that has been carried on by the dairy division at Ottawa for the last 12 years, and to the weeding out of cull cows by the increased exportation of cattle—mainly worn-out animals.

Agricultural News Notes of the Pacific Coast

Northern California

Farmers in Nevada County are becoming interested in the organization of a county farm bureau.

The Colfax Fruit Growers' Association at its recent annual meeting re-elected A. L. Wisker president.

The continued dry, cold weather in Amador County has produced a serious situation for cattle on range.

It is announced that a stockyards is to be located at West Sacramento backed by Harry Thorp, J. H. Glide and C. E. Virden.

The Northern California Olive Corporation with a plant at Palermo is planning to operate its cannery throughout the summer.

A ranch of 155 acres near Benicia will be devoted to growing meat chickens. The company owning the ranch has announced that it will build a poultry plant at Benicia.

Butte County is planning for its spring exposition at Chico May 21-27. The management states, "We expect to make the exposition this year a live stock show above all else.

The rice mill of the Globe Milling Company at Woodland, one of the largest in the state, is just completed at a cost of $750,000. The rice from the time it leaves the warehouse is not touched by hand.

In response to a call issued by the forest service heep owners of Northern California gathered at Red Bluff last week to discuss grazing prcblems. Steps were taken toward the organization of a wool growers' association.

Horticultural Commissioner Stokes of Lake County writes that he is "exceptionally busy inspecting incoming trees. The planting this season will exceed that of last, especially in Bartletts of which over 28,000 have already been delivered and most of them already planted and we have yet two months more to plant in."

Central California

Madera will hold an agricultural and live stock fair next fall.

Tulare Lake is filling rapidly with waters from Kings, Kern and Tule Rivers, and grain farmers are fearful of flood damage.

The California Prune and Apricot Growers', Inc., announces that sufficient acreage and subscriptions have been assured to go on with the association.

Seventy-five representatives from irrigation districts all over California gathered at Merced last week to discuss irrigation bills pending in the legislature.

Squirrel Inspector Wiles of Kings County reports that fully 90 per cent of the land owners are cooperating with inspectors in the squirrel inspection campaign.

Horticultural Commissioner Collins of Tulare County, announces that during the past year 1424 cars of green fruit were shipped from the county, 1288 cars were grapes.

The Visalia Cooperative Creamery held its annual meeting and turkey dinner January 22. During the month ending January 15 this creamery received 285,000 pounds of cream.

Members of the Central California Poultry Producers' Association met last week in Petaluma to discuss marketing conditions. The association expects to market eggs from 1,500,000 hens.

The California Fruit Exchange has instituted a campaign for membership throughout the state, making special effort in the San Joaquin Valley. It now has 25 growers' associations affiliating.

At the recent annual meeting of the Tulare Cooperative Poultry Association dinner was served to 250 poultrymen and their wives. Interesting programs were given in the morning and afternoon.

Southern California

Orange will hold a flower show April 18-20.

Hemet, Riverside County, reports total rainfall for the season at 8.59 inches.

Bee men of Riverside and San Bernardino Counties last year shipped out $200,000 worth of honey.

Brawley shipped out 11 carloads of live stock on one day, Monday, January 29. On the same day a carload of cottonseed and three cars of milo were shipped.

Judges are now inspecting gardens of those who competed in the Redlands Horticultural and Improvement Society contest for home garden improvement.

Antelope Valley hogs topped the Los Angeles market last week at 10¼ cents. That the hogs were in good condition is shown by the fact that they dressed out 80 per cent.

The new contracts made this year between the California Lima Bean Growers' Association and growers will carry a penalty clause sufficient to deter members from breaking their contracts.

A mass meeting to discuss a flood control bond election was held last week at Pomona. The flood control plan calls for the construction of a series of reservoirs, the largest one to be located south of Lordsburg.

Manager F. A. Shipley of the State Lima Bean Growers' Association gave an address before bean growers of the Encinitas district recently, outlining plan for an organization of the growers to affiliate with the state association.

Truck growers of Riverside County are contemplating forming an association for the purpose of developing a home market for their products. At their recent meeting the growers were addressed by Prof. S. S. Rogers of the university farm.

The Coast

Farmers of Pierce County, Washington, have organized an association with Fred Chamberlain of Sumner, president.

At the recent convention of the Wool Growers' at Salt Lake City 800 delegates were in attendance. Every Western state and all live stock states in the Union were represented.

Farmers of the Salt River Valley of Arizona will have to pay $60 an acre for the construction of the Roosevelt reservoir. The first installment of two per cent is due December 1, 1917.

A cow testing association organized at Buhl, Utah, has finished a year's testing. Records show an average of 304.6 pounds butterfat of an average test of 3.76 per cent, average profit per cow $39.52.

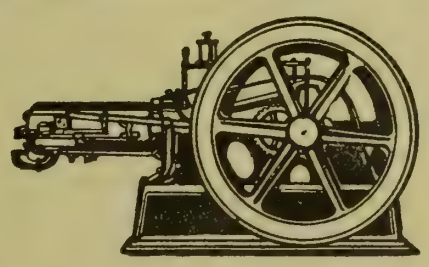
Berry growers of the Nooksack Valley of Washington have formed a fruit growers' association. Their 1917 crop has already been contracted at four cents a pound, an increase over last year's prices.

Cranberry growers of Pacific, Washington, and Clatsop Counties, Oregon, have organized the Pacific Cranberry Exchange at Astoria. This organization expects to handle about 10,000 barrels of cranberries the coming season.

At the recent annual meeting of the National Wool Growers' Association of Salt Lake a resolution was adopted asking the federal congress to appropriate $300,000 to fight predaceous animals, especially coyotes, which do such serious damage to the sheep industry.

The farm agricultural agent of Lane County, Oregon, who recently resigned because of lack of county funds, has been reinstated in his position and an appropriation for maintenance of the office assured through the activities of chambers of commerce and leading farmers.

It's up to You!



What are you going to do about that engine you are thinking of buying? Are you considering price or quality most? Do you want a cheap engine or a good engine? You can't expect very much from a cheap engine, because when an engine is made of poor material and poorly designed and constructed something is bound to happen early and often. Maybe you have had experience with the cheap kind, and are looking for quality this time.

Commercial Engines will give you more for your money and more genuine satisfaction than you ever dreamed possible.

It's up to you to get posted on the Real Thing in Pumping Engines.

An ironclad written guarantee protects the purchaser of every Commercial Engine. Write for handsome illustrated catalog showing details of construction.

Commercial Engine Co.

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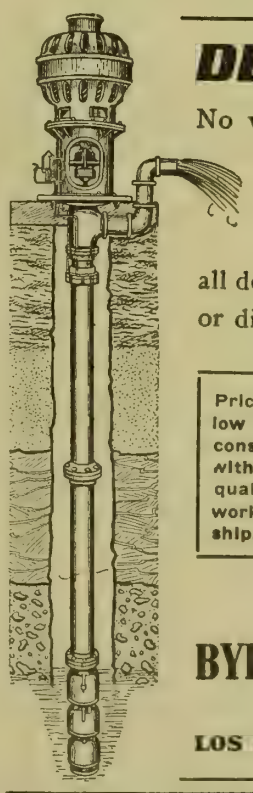
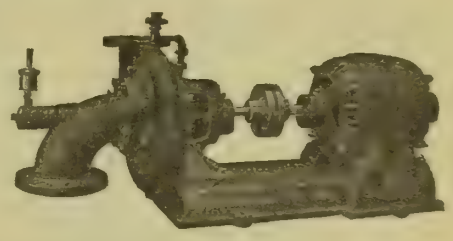
DEEP WELL TURBINES



No valves to pack or plunger rods to get out of order. For use in any well ten inches in diameter or over.

A complete line of irrigating pumps of all descriptions, horizontal and vertical for belt drive or direct connection to electric motor.

Prices as low as are consistent with good quality and workmanship.



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Reversible, Adjustable, No Wheels, Cogs or levers. No breakable parts. All steel. 2, 4 and 6 horse sizes. Guaranteed to do more work than 50 men with shovels. Cost low, upkeep nothing. Over 10,000 satisfied customers everywhere. Write TODAY for catalog, full particulars and introductory offer on new 1917 models.

The Martin WAY

ONE OF A THOUSAND

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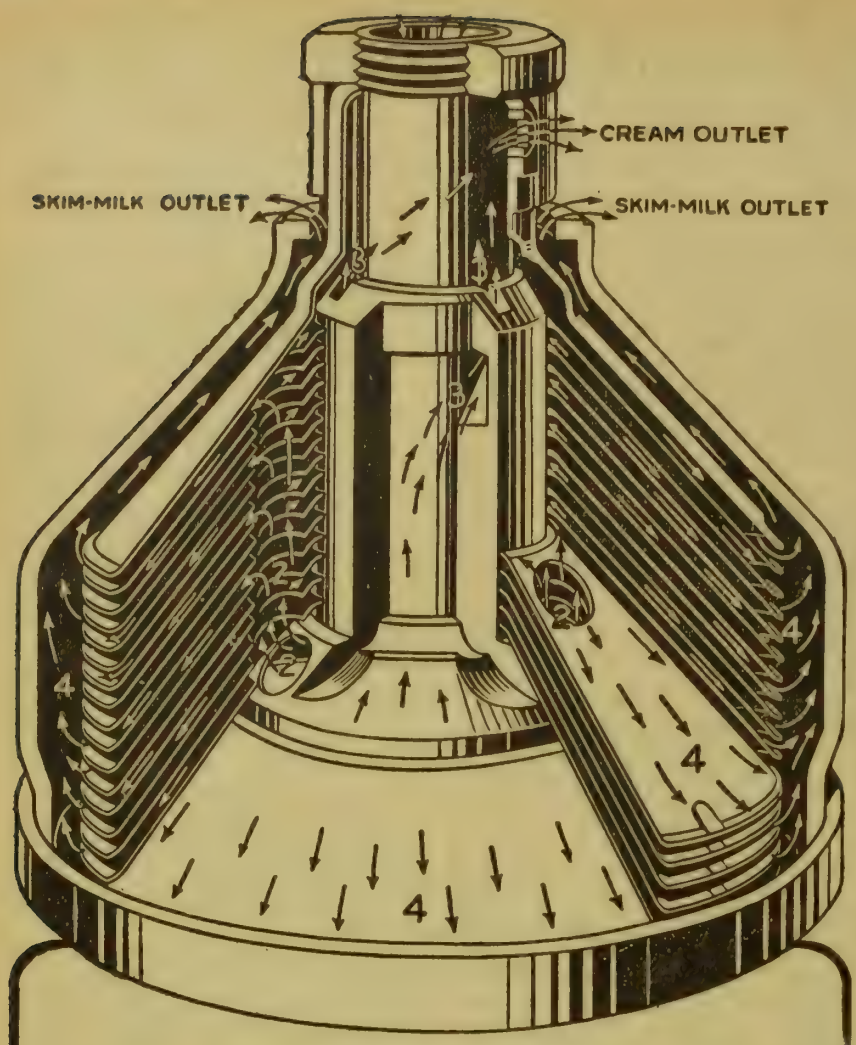

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THE NEW DE LAVAL

CREAM SEPARATOR

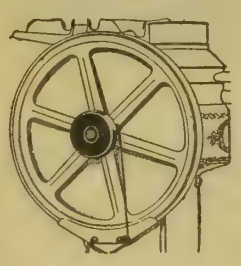
THIS is the new self-centering De Laval bowl with detached spindle, that is creating such a sensation in the dairy world.

This new De Laval bowl, with patented tangential tubular milk passages and patented removable milk conveyor, makes possible in a bowl of given size and weight, operated at a given speed, greater skimming efficiency and capacity than has ever before been attained in any other cream separator bowl.

These are big advantages that you can secure only in the De Laval.

But aside from the big advantages of greater capacity and closer skimming, there are many other important improvements in the New De Laval.

All discs are now interchangeable and are unnumbered. There are fewer discs. On account of greater simplicity of bowl construction, the New De Laval is easier to wash and, capacity considered, is still easier to run than before. High grade construction and design, together with perfect automatic lubrication, are a guarantee that the splendid De Laval record for durability will be maintained in the new style machine.



Every New De Laval is now equipped with a Bell Speed-Indicator, the "Warning Signal" which insures proper speed and uniform cream.

If you are trying to get along without a cream separator or with a half-worn-out or unreliable machine, why not get a NEW De Laval NOW and stop your cream waste? You don't need to count the cost, because the De Laval will soon pay for itself.

There is a De Laval agent near you who will be glad to explain all the improvements and advantages of the NEW De Laval, and who will set and start a machine for you on your farm and let you try it for yourself.

Why not see the nearest De Laval agent at once? If you do not know him, write to the nearest office for any desired information.

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Feeding Rice

Written for California Cultivator By W. S. Quilford

YOUR Fresno subscriber asks for information about feeding hull rice. This is what is commonly known as "paddy rice." The rice hull is composed largely of silica, is indigestible and has no feeding value. Its composition is about the same as that of glass.

But whole, unmilled rice, either standing in the field, from the bundle or from the sack after it has been threshed, has been fed to horses, mules, cattle, sheep, hogs and chickens very extensively this season in the rice growing districts of the Sacramento Valley. And practically all of the reports are to the effect that it is one of the best grains grown in California for stock feed. Just now it is the lowest in price.

As I have written before, in many of the rice fields all of the work stock was fed nothing but rice and rice straw during the harvesting season, and many a thin old horse and mule left the job in far better condition than it was at the beginning.

Then hundreds of sheep and hogs have been fattened on the rice stubble fields, and many more have been fed in pens and feed lots.

Butchers report that rice fed pork is firm and of the highest quality. An Esparto grower sold two pigs recently to a butcher. The buyer and some other judges of the weight of hogs estimated them at 190 to 200 pounds each. They weighed 245 and 250 pounds respectively. I have a report of one big hog feeder in Yolo County who has fed rice to a large number of hogs this year. At one time he fed one lot rice that had been cooked, another lot whole dry rice just as it came from the sack. There was no difference in feed value. This may be accounted for in the same way as results of tests with whole Indian corn and corn meal, which generally show that there is not enough gain to pay for the cost of grinding. The hog has a wonderful digestive apparatus.

There are some who are trying out crushed and rolled and rolled and steamed rice, and another six months will see much more information on the feeding of these different forms.

Rice is considered to be of a little higher feed value than corn or barley.

Those who are feeding rice to chickens report good results, particularly when the fowls have the run of alfalfa for protein.

Rice can be secured from growers at many places in the Sacramento Valley.

Weighing In at Start of Pig Club Contest
A member of one of the Napa County Pig Clubs.

Analysis

According to Henry & Morrison's "Feeds and Feeding," rough rice contains: Water 9.6 per cent, ash 4.9, crude protein 7.6, fiber 9.3, nitrogen free extract 66.7, fat 1.9.

Polished rice is materially the same except that it contains practically no fiber and of course much less ash.

Rice bran, high grade, contains: Water 10.1 per cent, ash 9.7, crude protein 12.1, fiber 12.4, nitrogen free extract 44.3, fat 11.4.

Give the Brood Sow a Chance

The care of brood sows is a thing that should receive attention now. Feed is very high in price this season, but there is no better way to use it than in keeping the brood sows—those that have been somewhat thin at breeding time, in particular—in good condition and increasing in weight. The sow has not only her own bodily needs to care for but those of the litter as well. Read what Bob Evans says in the Duroc Bulletin about caring for the sow:

"When I travel over the country viewing the many Duroc herds and

Weighing Out at Finish
Napa County feeds made these too large for the same scales used above.

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Visitors always welcome.

W. J. BEMMERLY, Woodland, Cal.

Linnview Farm BIG TYPE Poland Chinas

We have a choice lot of young sows and boars ready for delivery, sired by champion Iowa boars and out of big boned, prolific sows. A Wonder, Iowa King and Big Orphan blood—none better.

O. L. LINN, Route A, Modesto, Cal.

see the thousand and one handicaps placed on the old red sow, I wonder how she ever has managed to raise a mortgage, buy a phonograph or a flivver, or even provide sufficient meat for the home table. Because she is a hog she stands the neglect of the thoughtless, the haphazard method of the careless and the abuse of the ingrate, and withal pays more bills than all the other farm animals combined. What could she do with ideal care and comfort? Isn't she entitled to careful consideration?

"Individual houses with small lots with two, three or four sows to a lot are ideal conditions for sows after being bred and during ordinary winter weather. In this manner they have plenty of shelter from night and storm, do not pile up and get overheated and then chill, and if the houses are properly ventilated danger of pneumonia is lessened.

"Insist on lots of exercise for the sows during pregnancy, for the system naturally gets sluggish during the winter months and the sows are inclined to eat and sleep and neglect the more important function of moving about. Fix their feed and water so they will have to travel some distance between and see that they do the traveling. If this is impossible give them a range on fields and where there is some little green stuff to pick up and where they will have to exercise to get it. Sluggish systems bring on disorders, and diseases of many kinds are sure to follow. Keep the bowels open and the digestive organs working actively. Remember she is supplying sustenance for from eight to fifteen besides herself and laying up a balance for the suckling period besides. This cannot be done on little feed. Don't starve the mother or the litter. You'll cut your profit in the middle if you do."

Support the Live Stock Organizations

California producers of pure bred live stock are becoming very well organized. Almost every breed has a good association, and all of these deserve the hearty support of all who are identified with the various interests.

It goes without saying that every breeder should be a member of his breed association, but he should not stop at that. He should attend the meetings and be constantly alert to do anything possible to make the organization a big success. For the business of every one breeding animals should be increased by a good live organization. If the association is doing what it should the breed will receive a great deal of publicity that it would not otherwise, and through it many new breeders should be added to the ranks annually. Then it should make a lot of demand for boars, bulls, rams or stallions to be used in improving the grade stock of the country.

Occasionally a breeder is found who laments the fact that too many are raising animals of the same breed that he had. Men of this sort are few and far between. The majority of pure bred live stock men are broad minded, far-seeing individuals who realize that there will be far more business for all if there are a dozen establishments producing one breed of animals in a locality than if there is only one.

When there are a number of herds there is more discussion of the breed locally, and if the representatives have merit, an increasing local demand. And the community soon becomes more or less widely known as a "center", depending on the energy, ability and resourcefulness of the breeders, and the amount of advertising they do.

The raising of pure bred domestic animals is coming to be a better business in California every year.

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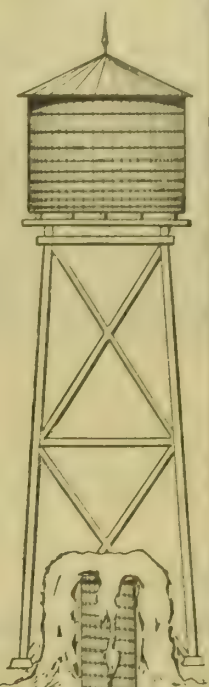

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ARABIAN-THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent Santa Anita, Cal.

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35 Registered Scotch-Topped Bulls
15 Registered Scotch and Scotch-Topped Cows and Heifers

All This Stock is Tuberculin Tested.
They are Large, Rugged Individuals with Excellent Bone and Quality

A Few Choice Berkshire Boars and Gilts For Sale

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FOREST GROVE LAUREL 8TH
First and Reserve Grand Champion
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Jacks and Jennets for sale at all times. Come and see them.

John Burrell

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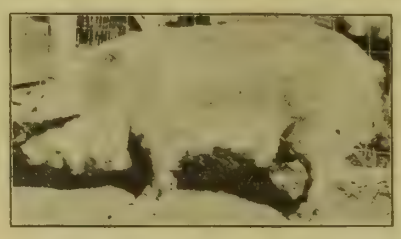
Oak Knoll Ranch Chester Whites

The hog that is making good under California conditions. They are easy keeping and quick maturing and dress out second to none. They are the profit-making kind.



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Napa - - California

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TREATMENT: If STERILOID is used at the first sign of abortion the cow will go her full time and have a healthy calf. If your cows or heifers do not come in season, or fail to get with calf, use STERILOID. Cows get with calf after only one treatment. Write today for FREE BOOK. It explains the causes and symptoms of Abortion and tells how to cure Abortion, and make your cows regular, healthy breeders with STERILOID. Also contains letters from breeders who have used STERILOID successfully

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COUNTY OF COMPACT RESOURCEFULNESS

Continued from Page 187

At present then the man who intends to raise stock in this county must realize that he will have to till his land carefully in order to grow sufficient forage to feed the stock and get the best results. This has been done very successfully by a number of farmers in the county. We have several breeders of pure-bred stock who are doing splendidly by careful feeding and still more careful selection and breeding of animals, which enables them to get exceptionally high prices for the stock produced.

There are at present a number of Duroc hog breeders in the county, among whom we might mention W. W. Everett, S. S. Southworth, H. E. Boudier, C. E. Durrell, F. M. Johnson and M. Derby. Len D. Owens of Aetna Springs and Wentworth & Rossi of Napa are breeders of pure-bred Poland-Chinas. C. F. Tubbs of Calistoga has an excellent herd of Yorkshires. I. R. N. Boid of St. Helena is also going into the Yorkshire business, in addition to which he has shipped in a number of milking Shorthorns. Shorthorns are also being bred by William Watson of Napa Junction who has made some very fine records with these animals.

The pure-bred Jersey breeders of the county are W. L. Mitchell and F. M. Johnson, while the Holstein breeders are represented by the Napa State Hospital, Dr. Ben Stetson and Homer Hewins.

The Guernseys are being bred by B. E. Nixon who has a very large establishment and some extra fine stock, also by William Watt. One herd of Ayrshires is owned by the Melone Company.

Some very fine horses are being bred by the Spreckels Stock Farm, also by Henry Wheatley.

While this is a small county we have some exceptionally fine livestock. The interest the breeders are taking in better methods of management is very encouraging. There is no reason why Napa County could not become noted for its pure-bred livestock, as this industry is at present being very much encouraged and fostered by the Napa County Livestock Association which has recently secured the services of Dr. R. E. Dedrick, a graduate of Cornell Veterinary College, who has been appointed county livestock inspector.

Beef Cattle in Berryessa Valley

The climatic conditions of Napa County are ideal for livestock. With its rich, fertile valley and gentle sloping hillsides leading up to mountain crests from which comes the pure, clear water that is necessary for successful livestock raising, we have natural advantages which cannot be excelled anywhere. The temperature here rarely goes above 100 degrees in summer nor below freezing in winter, so that the hogs do not suffer in the summer nor does the poultry suffer in winter. The climate here is pratically ideal for both man and beast, and there is no reason why the livestock industry of the future should not thrive and prosper.

Chester Whites on Oak Knoll Ranch

NOTES ON NAPA LIVE STOCK

Near Calistoga is the Montelena Ranch of the A. L. Tubbs Co., managed by C. F. Tubbs. The ranch is well located with both bottom and hill lands. At present the pure bred interests are confined to Yorkshire swine, there being 150 of well bred animals on the place. The senior herd boar is Miner's Hearts Delight from

STOCKMEN: Stop at the

GATES HOTEL

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Take Taxi at Station at our expense

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Holstein Bulls

Well bred, vigorous, registered Holstein bulls of good type for sale. Steady sales have moved all our bulls of service age, but we have a few unusually good calves to offer at moderate prices.

The McCloud River Lumber Company
McCloud, California

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Formerly with Universities of Minnesota and California
TWENTY YEARS EXPERIENCE
In Breeding, Feeding, Selecting and Showing Dairy Animals.
Practical Farm Buildings Planned
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833 North Coronado St. : Los Angeles

El Dorado Holsteins
Headed by
SEGIS PONTIAC DE KOL BURKE LUIT.
Out of a 32.76-pound 4-year-old. His sire is a son of Riverside Sadie De Kol Burke, 32.29 pounds butter in 7 days.
Herd officially tested for 7 and 30 days.
Alex Whaley, Tulare, Cal.

YOU CAN'T CUT OUT
A BOG SPAVIN, PUFF OR THOROUGH-PIN, BUT
ABSORBINE
TRADE MARK Reg. U.S. PAT. OFF.
will clean them off permanently, and you work the horse same time. Does not blister or remove the hair. $2.00 per bottle, delivered. Will tell you more if you write. Book 4 M free.
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I am especially prepared to make loans on California, Arizona and Nevada live stock in amounts of $5000 or more at reasonable rates. Prompt service. Can also make loans of from $100,000 to $1,000,000 on large improved California ranches.
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Northern Arizona, mountain bred, heavy bone cattle. Fenced range.
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Foundation Herds
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BEN A. RHOADES, Auctioneer
1501-2-3-5 So. Main St., Los Angeles, Cal.

Cultivate the habit of reading advertisements and get the news of the manufacturing world.

Farm Chazy, New York. The Junior herd boar is Grove Hill Doch, from John Campbell's Lynn, Indiana, herd. This boar's granddam was first in all classes at the Chicago International Live Stock Show in 1914. Modern equipment in the way of yards, houses and feeding arrangements mark the farm. While the Yorkshires are the only pure bred stock on the place it is the intention of the manager to work into a herd of pure bred Holsteins.

Frank B. Stetson, Napa, breeds Berkshires and has some good ones, 20 head in all, headed by Oak Superb, a son of Superbus. Mr. Stetson is constructing a new hog house on modern lines.

S. S. Southworth, Napa, has about 20 head of Duroc-Jerseys, herd boar, Napa Chief of Chief's Colonel breeding. He has a number of especially fine sows.

E. C. Spear, St. Helena, raises pure bred Rambouillet sheep and usually carries from 500 to 600 ewes. His 1917 get of rams is in demand for breeding purposes.

On gently rolling land the 85 acres of F. M. Johnson of Napa provide a home for his fine foundation herd of strictly big type Duroc-Jerseys. Mr. Johnson is adding new blood of "quality" stuff. He will soon build a modern piggery to house his stock. Bondholder 13, first senior yearling at California State Fair, 1916, and grand champion at Napa County Fair, 1916, heads his herd. The farm also keeps a foundation herd of pure bred Jersey cattle of execllent breeding.

At River Bend Farm, St. Helena, 245 acres in extent, with 100 acres of good bottom land, you find Duroc-Jersey swine of the right kind. This herd is led by River Bend High Model of Crimson Wonder and Defender Stock. He was second in senior yearling class at Sacramento in 1916. His sire was High Model and was owned by W. N. Shanks of Minnesota, who won six grand championships with him at different fairs. One of the sows is Defendress of River Bend. She is a daughter of Defender out of Radiant Model. Her sire sold twice for $5000. This establishment is well located on the banks of a stream of pure water, has model arrangenents of buildings, yards and driveways, raises grain and alfalfa for feed on the place, irrigating from wells and pumps. It is well worth a visit.

B. E. Nixon's Revada Farm, Napa, is the home of a herd of pure bred imported Guernseys. It is 600 acres in extent and has some very fine bottom land. A reservoir of 35,000 gallons crowns the summit of a hill overlooking the farm buildings which are thoroughly modern and up-to-date. The milking barn, 162x37, with latest equipment, stables 80 head. Two 150-ton silos at the end of the barn furnish feed. At the other end of the barn is the completely equipped milk house with its cooler, separator, refrigerator and sterilizing plant. There are now 76 head, 37 of which are mature cows. The senior herd bull is Imported Robert Secre. The junior sire is Ricardo of Edgemoor, first, junior and reserve grand champion, Sacramento, 1916, and first in class and junior champion at San Francisco, 1915.

The Veterans Home at Yountville has 60 head of pure bred Holsteins and 350 Tamworth swine. They also keep 3000 hens, the institution taking the entire product for its own use.

The Stock Farm of A. B. Spreckels at Napa is devoted largely to the

Continued on Page 206

DUROCS

Large Type
Superior Quality

RIVER BEND FARM
St. Helena -:- -:- California

BERKSHIRES

A few fine fall pigs, strong in Bandmaster, Masterpiece and Rival's Champion blood. They are strong and active with good top lines, heart girth and moderate heads. Glad to show them or send full particulars and prices.

MAPLEWOODE RANCH
E. M. HOLGE, Owner HOMER HEWINS, Jr. Manager
Calistoga, Cal.

Forest Grove Duchess 5th

Herd Boar at Age 16 Months, First In Class, Sacramento, 1916

BIG TYPE
Duroc-Jerseys

Every animal on the ranch has big bone, is long, deep and wide. They keep easy, mature quick and are in every way the kind of stock you would like to breed from. Our plan is to always have the best blood lines of the big type.

F. M. JOHNSON
Napa - - California

PIPE

For Every Purpose NEW Threads and Couplings Hot Asphaltum Dipped

2nd Hand and NEW

Screw Casing Fittings and Valves Guaranteed for Pressure

Pacific Pipe Co. Main and Howard Sts. San Francisco

A Great Bull For Sale

Teddy R, a grandson of Stoke Pogis of Prospect, 4 years old. Every daughter great udders fore and back. Have small herd and sell so not to inbreed. A great bargain. Also two sons from champion cows, 14 to 16 months.

JERSEY QUEEN FARM, San Jose, Cal.

Young Hereford Bulls For Sale

Seven head of fine, stocky youngsters, fit to head any man's herd. They are out of Beau Donald and Beau Defender. Inspection invited and Satisfaction Guaranteed.

Write to H. E. COIL

Woodland, Yolo County, Cal.

Elliott-Brant Rancho Guernseys Are Persistent Producers

PRINCESS OF MEADOWBROOK, a six-year-old cow, averaged 40 pounds a day of 5% milk for over a year. This rich milk brought 16 cents per quart, a gross income of $1,168 for the year, or $3.20 per day.

LOIS VALENTINE'S LAD'S LASSIE, a two-year-old heifer, averaged nearly 30 pounds milk per day for a year, producing more in her tenth month than at any time previous. The gross income from the sale of her milk was $842.40, or $2.33 per day.

It cost about 25 cents per day to feed these cows.

Compare these results with those of other herds and breeds.

Elliott-Brant Rancho, - Owensmouth, Cal.

Poland Chinas, Medium Type

Choice breeding stock, both sexes, from Panama-Pacific International Exposition prize winning strain. 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to

M. Bassett

Hanford, Kings County, Cal.

This Guernsey Grade Cow produced yearly for five consecutive years an average of 11490 lbs. of milk and 604 lbs. of butter fat, equivalent to 705 lbs. of butter.

Buy a GUERNSEY BULL for Your Grade Herd

Write for our free booklets about GUERNSEYS

The American Guernsey Cattle Club
Box P. C. Peterboro, N. H.

Butter and Cheese Scoring Contests at University Farm

During the year six scorings were held. One hundred and sixty-one cubes of butter were entered by 54 different creameries. This represents 29 counties. Several entries were received from outside the state. The average score on all butter entries was 91.89. The average per cent of moisture was 13.31, salt 2.16. Under the 1916 plan certificates will be issued to butter makers under the following averages:

Grade A Certificate, average score of 92 or above on six entries, Grade B Certificate, average score of 93 or above on five entries, Grade C Certificate, average score of 90 to 92 on six entries.

Butter makers who will receive certificates are: Grade A, L. Larsen, Sunset Creamery, Loleta, 93.16; P. Peterson, Valley Flower Creamery, Ferndale, 93; J. N. Jensen, Visalia Cooperative Creamery, Visalia, 92.83; G. G. Plunkett, Exeter Creamery, Exeter, 92.66; Ed. Hooper, Spreckel's Market Creamery, San Francisco, 92.5; Bert Myers, Los Angeles Creamery Company, San Luis Obispo, 92.16. Grade C, H. C. Nielsen, Martinez Creamery, Martinez, 91.75; J. C. Phillips, Delta Creamery, Imperial, 91.33; H. R. Pyke, Orland Butter & Cheese Co., Orland, 91.25.

Ninety-nine cheese (44 Cheddar, 42 California (granular) and 13 jack) were entered, representing 23 factories. The average score on all the cheese was 91.27. The following is the average score and moisture on the different classes of cheese: Cheddar, 91.46, 37.45 moisture: California (granular), 90.85, 39.8 moisture; jack, 91.73, 41.5 moisture.

Certificates will be issued to cheese makers under the following averages: Grade A Certificate, average score of 92 or above on five entries; Grade B Certificate, average score of 93 or above on four entries; Grade C Certificate, average score of 90 to 92 on five entries.

Cheese makers who will receive certificates are: Grade A, Chris Kolbeck, Henderson Company, Galt, 93.25; Grade A, A. J. Davis, Los Animas Cheese Factory, Gilroy, 92.3; Grade A, J. A. Scaroni, Santa Cruz, 92.1; Grade C, C. Ebbe, Watson Cheese Factory, McArthur, 91.7; A. Schoenrock, White & Terry Cheese Factory, Galt, 91.6; H. C. Watson, Watson Cheese Factory, Bieber, 91.5; John Reber, Watson Cheese Factory, Bieber, 91.16.

WHAT STOCKYARDS DO FOR FARMERS

"An institution that is doing its share to solve the problems of bringing producer and consumer into more economical relation is the Spokane Union stockyards," says the Idaho Farmer. "It has only service to sell, neither buying nor selling live stock itself. As Walter D. Roberts, its president and manager, puts it, 'We speculate in nothing.'

"This company, whose ownership is widely distributed among 150 stockholders in the Inland Empire, has invested $407,000 in land and buildings. Its plant covers 24 acres on the main line of the Northern Pacific, three and one-half miles east of the center of Spokane. It can put 4000 hogs and sheep under cover, and 1600 to 1800 head of cattle. It is just a big live stock hotel.

"Suppose a farmer anywhere in the Inland Empire wants to sell a carload of cattle on the Spokane market. He can either bring in his stock himself or send it to the company. For the service given at the yards he will pay a yardage charge of 25 cents a head plus the value of the feed consumed there by his cattle while finding a buyer. This yardage charge of 25 cents per head is always the same whether the cattle are sold in a day or kept there a week.

"As many as 40 competing buyers have been at the yards at one time but as a rule there are from three to six. Two commission merchants are authorized by the company to handle business for shippers who may desire their services, but they are independent of the stockyards. Their authorized commission is $10 a car for hogs, $15 a car for cattle.

"The Union stockyards have been operating a little more than a year and the growing popularity of the service is attested by the fact that

Guernsey Owned by Revada Farms, Napa County

Holstein Owned by Homer Hewins, Napa County

Warranted to Give Satisfaction.

Gombault's

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More calves have been raised on Blatchford's Calf Meal than on all other milk substitutes combined.

100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk.

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Careful attention given to mail orders.

Whittier State School

Whittier, Calif.

from November 1, 1915, to November 1, 1916, live stock of the value of $2,876,000 was put through. In October, 1915, 44 cars were handled; in October, 1916, 222 cars.

"Before the Union yards were opened Spokane live stock prices averaged from 85 cents to $1.00 per hundred below the Seattle and Portland markets. Spokane prices to producers are now on a parity with Coast prices, and Manager Roberts says there have been days this winter when the price of hogs here was the highest in the United States.

In these times when the whole nation is aroused over the problem of cutting out some part of the middlemen's profits, service of a kind given by the Spokane stockyards merits friendly approval."

FIELD NOTES

At the time of this writing, February 7, the continued dry weather is having a marked effect on prices of all kinds of cattle. In some sections the price of alfalfa hay has reached $25 per ton, and owners are exceedingly cautious in making any further additions to their herds. Yet there is a tremendous pent up demand for most kinds of cattle that will turn loose in a veritable flood after the next good rain. Should the rains come in quantity to insure even fair feed there will be a grand scramble for cattle in California within the next 60 days.

Fred W. Kiesel, president of the California Holstein-Friesian Association, has appointed an executive board for the association that is particularly strong and promises to put the association to the front in the campaign for better dairy cattle and dairying in California. The board is composed of seven members, as follows: W. H. Taylor, superintendent of Santa Anita Rancho, Santa Anita; J. M. Henderson Jr., president Sacramento Bank, Sacramento; Owen Duffy, business manager Napa State Hospital, Napa; A. R. Magruder, cashier of the Bank of Ripon, Ripon; A. W. Morris, Woodland; Frank M. Helm, Fresno; Gion W. Gibson, Williams. Mr. Kiesel has some well defined plans for an active campaign for the association in which the executive board is in the fullest sympathy, and it is hoped that the work of the association will do much to better the great Holstein breeding and dairying business of California.

A 28-Pound Record at Sunnyside.—Gradually the records are reaching higher levels in Sunnyside herd of registered Holsteins, owned by R. F. Guerin of Visalia. The latest maker of a new high record for the herd is Lady Leola Hengerveld who recently completed an official seven-day test with 28.08 pounds butter and 448.4 pounds milk to her credit. She is sired by Arcady Pontiac Wayne Hengerveld, 24 A.R.O. daughters, and she, together with her dam and granddam were all bred and raised at Sunnyside. Mr. Guerin reports a number of sales of breeding animals recently, among them a daughter of the good old cow Sacajawea to Clifford Farm Company, and a choice bull to E. L. Robertson, Tulare County.

George Chandler, the well known Oregon Hereford breeder, won grand championship in the recent Denver show for the best carload of breeding bulls, all breeds competing. The lot consisted of 15 yearlings, and The Hereford Journal states that they were much admired by breeders because of their unusual scale and strength of bone. They were sold in one lot for $575 per head to E. L. Dana of Wyoming, the owner of Superior Fairfax, the bull for which Mr. Dana paid $10,000 at public sale.

The second prize carload of registered Hereford bulls at the Denver show, consisting of 15 sons of Beau Carlos 2nd, exhibited by Davis-McConnell Company, of Wyoming, sold for $500 a head after the show to Tomkins Cattle Company of Colorado.

Dispersal of Lakeside Holstein Herd.—An echo of the disastrous flood which swept the fertile little valleys of San Diego County a year ago is found in the offering at public sale of the Lakeside Holstein herd owned by H. I. Shaw. Mr. Shaw lost all of his barns and part of his land in the flood, and has finally decided to sell his entire herd. The herd consists of 23 head of registered Holstein females two registered Holstein herd bulls and 27 high grade Holstein cows and heifers. The pure bred herd has been built up from a foundation which Mr. Shaw selected carefully some years ago, and while no official testing has been done in the herd the cows show every evidence of being able to perform creditably if given a chance. The lack of official records will undoubtedly have an effect on prices in this sale, and there will be some real bargains for some one. The sale is under the management of California Breeders' Sales and Pedigree Company, and Col. Ben. A. Rhoades will officiate as auctioneer.

A seven-year-old grade Holstein, fresh in November, owned by Peter Truog, produced 1788.7 pounds of milk testing 4.1, according to the December report of the official tester of the Arizona Pioneer Cooperative Cow Testing Association. This made 73.3 pounds of butter fat, equal to over 85 pounds of butter, which at the wholesale price of butter for December would have brought $34.

The great increase in the number of dairy cows in the Salt River Valley of Arizona during the past year is creating more demand for silos. Mr. J. Stanley Howard, one of the pioneer dairymen and one of the moremost breeders of Holstein-Friesian in Arizona, states that it is his belief that 500 silos will be put up in the Salt River Valley during the coming year.

400 Pounds Butter in 90 Days

AAGGIE ACME OF RIVERSIDE 2d

California State Butter Record

Butter 7 Days 35.38 Lbs. Milk 627.3 Lbs.
Butter 30 Days 142.34 Lbs. Milk 2730.7 Lbs.
Butter 60 Days 275.02 Lbs. Milk 5365.0 Lbs.
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The above records are strictly official. She is a daughter of our herd sire, KING MEAD OF RIVERSIDE, who is transmitting with great certainty

HEAVY PRODUCTION - HIGH TEST - GOOD TYPE

There is no surer or quicker way of breeding these qualities into your herd than by the use of one of his sons from one of our high record cows. All of the daughters of King Mead of Riverside that have been tested for the year have an average of 4 per cent fat, and five two-year-old daughters have an average of over 700 pounds butter and over 14,000 pounds milk. We are offering several of his sons that carry more than 50 per cent of the blood of Aaggie Acme of Riverside 2d.

Pedigrees and prices will be submitted by request.

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AUCTION SALE OF 25 PURE BRED Duroc-Jersey Hogs

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PATHFINDER-PROUD COL. GILTS.
PATHFINDER-MODEL WONDER GILTS.

SEVEN OF ABOVE PATHFINDERS bred to our KING THE COL. BOARS, together with other pure bred Durocs, 32 grade Poland-China sows (many bred, some with litters), over 400 feeding hogs, complete equipment of farming implements, tools, wagons, live stock, hog wire, pipe, lumber, galvanized tank, gas engine, etc., etc., at Houck Ranch, 2 miles east of Grape (formerly Keystone), between Brawley and Imperial, on

Mail Bids Conscientiously Executed. **MONDAY, FEBRUARY 26, 1917.**

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M'ngr. F. A. Langdon

Grand Champion Sow, Sioux Queen 24,848, San Francisco 1915

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Lakeside Dairy Holsteins

We are instructed by Mr. H. I. Shaw, owner of the well known Lakeside Dairy, to sell at public auction his entire herd consisting of

23 Registered Holstein Cows and Heifers
2 Registered Holstein Herd Bulls
27 Grade Holstein Cows and Heifers

This is one of the best working herds in Southern California, and the registered stock carries the breeding and the type to make good on official test if given a chance.

The grade cows are mostly young, well marked, and a nice clean lot.

Mr. Shaw lost all of his barns and part of his land in the flood of last winter and has decided to retire from the breeding and dairy business, otherwise this splendid herd would not be for sale.

Sale will be held on Thursday, March 15, 1917, on the Thum Ranch, half mile east of Lakeside, 20 miles east of San Diego, California.

For further information and catalog address.

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Auctioneer, Col. Ben A. Rhoades, Los Angeles

C. L. Hughes, Sales Manager, Sacramento, Cal.

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Berkshire Hogs—Milking Shorthorns

Breeding Stock For Sale

G. A. Murphy - Perkins, Cal.

NOTES ON NAPA LIVE STOCK

Continued from Page 203

breeding of thoroughbred horses. About 100 are on the place, including 53 brood mares and four stallions. Fifty head of grade Shorthorns headed by a pure bred bull and 150 Duroc and Berkshire swine, not registered but with pure bred boars, comprise the live stock other than horses. Two thousand hens are kept. The place is a model of neatness, both as to condition of land and buildings, and is a credit to its owner and to the manager, Walter De Bretteville.

Mrs. E. M. Holje, Calistoga, has a splendid farm of 474 acres, 275 of which are in the bottoms. The live stock interests are represented by eight pure bred Holsteins of fine type. The herd sire is King Segis Riverside sired by the well known King Segis Pontiac Emperor. Twenty-one registered Berkshires of exceptional quality and blood lines are housed in modern style and make a foundation herd that will be heard from. The manager of the farm, Homer Hewins, Jr., also has foundation herds of his own, in number four Holsteins and 16 Berkshires. He plans to increase this number by adding some animals of the big, robust typey kind. They will be of the best.

Dr. Ben Stetson, Napa, breeds Holsteins and has a foundation herd of 20 good ones. No one is more enthusiastic as to the merits of the Blacks and Whites, and Napa County is fortunate in having a breeder of this kind.

H. E. Boudier, Napa, has a neat farm of 30 acres. His herd of Duroc-Jerseys is headed by Royal Col, second prize winner as a junior at the State Fair at Sacramento in 1916.

C. E. Durrell, Napa, has a herd of 14 head of Duroc-Jerseys.

The Grange Stock and Poultry Farm, Yountville, Mrs. F. S. Granger, is 540 acres in extent. They breed Duroc-Jerseys, now having about 100 head. Herd sire Monarch of the Nook. They have a modern milking barn for 32 head and a 100 ton silo. Twenty-five hundred laying Leghorns represent the poultry end of the farm.

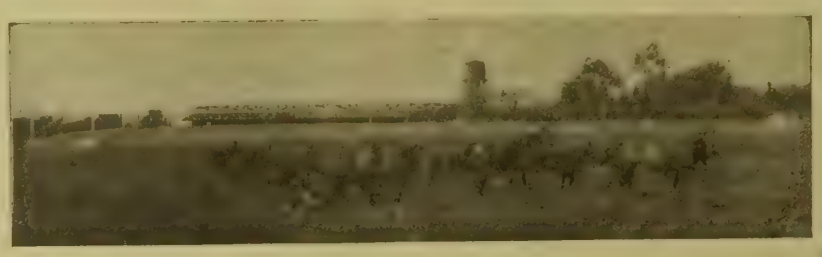
At the Napa State Hospital is the most modern equipment and 230 head of Holsteins. There are four bulls: Lord Asa, Admiral of West Lawn, Soseal Prince, and Prince Rag Apple Imperial. The last is the junior bull but will soon head the herd. His sire, Prince Rag Apple Imperial Korndyke, a three-fourths brother of the $25,000 bull, Rag Apple Korndyke, runs back to four crosses on Pontiac Korndyke who is the sire of 137 A. R. O. daughters. This young bull is located right and should make his mark. Pure bred Berkshires are kept, about 60 at this time. The herd boar is Kentucky Duke Third. There are about 600 head of grade Berkshires in addition to the pure breds.

Desford Banker
Shire Stallion Owned by Henry Wheatley

W. L. Mitchell, Napa, breeds Jerseys, 40 grades, two pure breds, with pure bred bulls. There are 200 acres in the farm, 90 acres in rich bottom land. Mr. Mitchell has pure bred Poland-China boars at the head of his swine herd. His two pure bred Jerseys are Columbiana's Merry Maiden, sired by King Milan's 2nd Son, dam Merry Maidens Columbiana; and Jacoba Irene's Bessie, sired by Jacoba Irene's Premier, dam Bessie Sears, who was a daughter of Jacoba Irene, a former world's record cow.

The Oak Knoll ranch of the D. Melone Company, Napa, has 2500 acres, 900 of which is in cultivation. There are 60 acres of alfalfa and 350 acres in orchard. Apples, pears, cherries and prunes are the principal fruits grown. Two water systems, gravity and pumping, furnish a plentiful supply of water. Two shipping stations, one on the electric and one on the steam railroad, both on the farm, furnish the very best shipping facilities. Good, well equipped, well arranged farm buildings house the stock and make up the working plant. The piggery is ideally located for drainage, shade and water. The yards and quarters for the hogs are excellent. The silo capacity of the farm is 280 tons.

Mr. Melone believes in the Chester Whites, and the 250 specimens of that breed on the place speak well of his judgment in selecting good foundation stock and his skill as a breeder. The herd is in charge of L. S. Edington and is well cared for. The Ayrshires



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are the breed of cattle chosen to turn feed into profits. A large amount of hillside pasture seems to be the ideal place for them, and they are certainly doing well under these conditions. There are now 14 pure breds, headed by Moonstone of Steybrae. A milking machine is used and proves satisfactory. All manure is housed from the weather in a cement lined and floored building. Efficiency everywhere is the motto.

In the county there are a large number of farmers with a few good pure bred animals, both cattle and swine. A large number still have pure bred boars and bulls to head their herds and grade them up. The outlook for pure bred live stock in Napa County is a good one and will be watched with much interest by the breeders of the state.

LIVE STOCK SALES

Pure Bred Duroc-Jersey Hogs, Brawley, California, Monday, February 25, J. P. Williams, Mgr.

J. Frank Walters' Duroc-Jersey Sale, Grape (Imperial Valley), Monday, Feb. 26, 1917.

Kings County Third Semi-Annual Poland-China Breeders' Assn. Sale., Hanford, March 7, 1917.

California Breeders Sales & Pedigree Co., Holstein cows, heifers and herd bulls, Lakeside, San Diego County, Thursday, March 15.

Stephenson Holstein Herd, Lake Mills, Wisconsin, May 1, 2, 1917.

D. O. Lively Stock Farm Sale, Hereford Cattle, Mayfield, May 3.

Lake Mills Holstein Breeders' Consignment Sale Co., Lake Mills, Wisconsin, May 8, 9, 1917.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

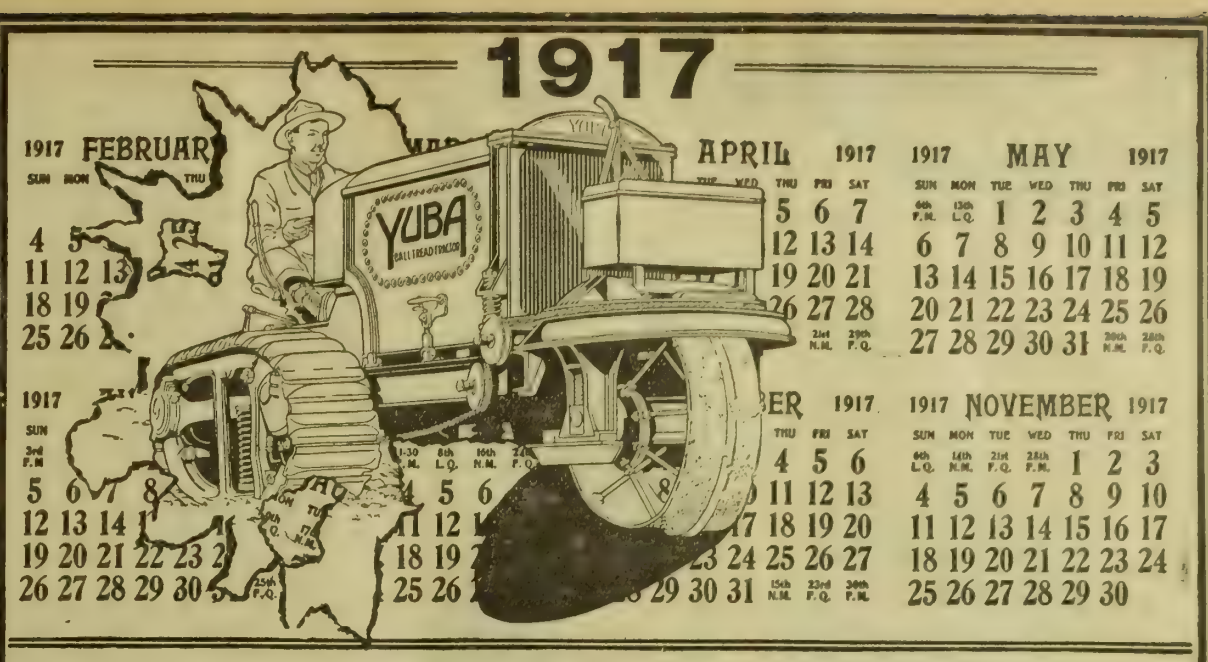
Pin Worms in Horses

In the Cultivator of February 3 I noticed a remedy for worms in horses, it being taken for granted that they were stomach worms. I have two horses that have had worms since the first of the year. They are white, slender and about three inches long. I have used some wood ashes for a few days but have noticed no improvement. Would like to know if they are stomach worms so I can use the rest of the treatment.—Subscriber, Klink.

The worms you describe are pin worms and only infest the lower bowel and rectum. Almost any remedy given by the mouth has lost its strength before reaching them, although the salt and ashes will usually get them if continued long enough. The quick and sure way to destroy them is to steep eight or ten ounces of scrap tobacco in three gallons of water for 15 or 20 minutes and when cooled to the temperature of the body strain and inject all into the rectum at one time. Make the horse hold it as long as you can. It will destroy all the worms it reaches but you better repeat the treatment once a week for three or four weeks to get those that hatch out later.

Cows Failing to Breed

We have been having trouble for about two years with our milch cows not getting with calf. We have had to take them to the bull several times and some finally get with calf while others are still coming in heat regularly when they should be coming fresh. We have changed bulls and have disinfected the cows with one-half per cent solution of lysol before taking them to the bull and before and after calving, but see little improvement. Do not think it is regular contagious abortion or the calves would be coming before time, which they are not. If you can give us any light on



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But no matter how successfully a tractor comes through this endurance test, it is not necessarily a good investment. The spring plowing season does not last long.

If the tractor is to make good as a year in and year out investment, it must do more than the plowing. It must have the power to pull a harvester, the steadiness to drive a thresher or a pump, the speed for light discing or harrowing and the flexibility for road hauling.

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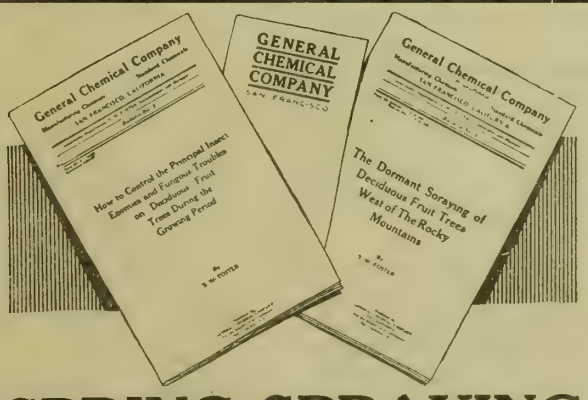
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Holstein herd of choicely bred females, many with good A.R.O. records, headed by PRINCE RIVERSIDE WALKER, whose sire is Prince Gelsche Walker, and whose dam is Aaggie Acme of Riverside, 808.82 pounds butter in one year, and she has a 3-year-old daughter that made 1095.1 pounds butter in one year.

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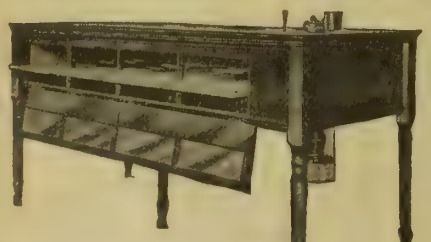

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the subject it will be appreciated.—Subscriber, Escondido.

It is not contagious abortion. Your cows may be too fat and not getting enough exercise. Reduce the feed and give plenty of salt. Also give them a teaspoon of sulphate of iron in the feed occasionally. See that they get plenty of exercise, and just before breeding give them a drive of five or ten miles. It will heat up the blood and they will probably get with calf all right. That is getting back to nature, you know, being in good form for breeding after an unusual amount of exercise.

Rheumatism

What can I do for a mare that is stiff in the fore parts? She has been that way for the past three years and of late is getting worse. She can only take steps about a foot long, and her knee joints crack loudly when she walks.—Subscriber, Exeter.

It is probably rheumatism, and being of so long standing will be hard to cure. Try these powders: Salicylate of soda, bicarbonate of soda, nitrate of potash and farina, of each four ounces. Mix and give a teaspoon in the feed twice a day for a week, then once a day while the powders last. Also cook all the grain you feed her by pouring boiling water over it and letting it cool before giving it to the mare.

Worms in Dog

I have a well bred Collie dog that has spasms about every day, and I can not find out what causes them. He is about one year old and has been having the fits for over two months. I thought it might be worms and gave him worm medicine but he is no better. At times his jaws stretch open as far as possible and he appears to be choking. What is it?—Subscriber, Porterville.

The spasms may be due to worms or chorea, but probably it is worms. The gagging or vomiting would indicate stomach worms. Get of your druggist ten powders, each containing 15 grains of powdered areca nut and ten other powders, each containing ten grains of santonin. Give one powder of the areca nut every morning in half a cup of sweet milk and one of the powders of santonin every evening by just dumping it back on the dog's tongue. You will probably notice some of the worms in the dog's passages and see an improvement in the dog in a week or ten days.

Barley Beards

I have a mare that last April had gathering under the jaw caused by barley beards working through at the root of the tongue. It broke. We have never been able to heal it. It is still running and the odor is very disagreeable. Otherwise she seems all right.—Subscriber, Elsinore.

The opening in the mouth where the barley beards first started to work down into the tongue may still be open, and probably there are still some beards in the passage between that and the opening on the outside. Cut the skin at the outside opening large enough so you can put your finger in and remove all the beards. Then once a day wash out the canal with a solution of permanganate of potash, one dram to the pint of water. Use a syringe and force the solution through into the mouth if possible. Feed something beside barley until this is healed.

Diabetes

I have a stallion that I have been working for several years but this year seems "all in". He does not keep up in flesh and the only thing I can see that is wrong is that he makes water oftener than seems necessary (eight or ten times in half a day). Could that be wholly responsible for his condition? If so, what is best to do for him?—C. F. H., Subscriber.

The symptoms are those of diabetes, and there is always great weakness in those cases. Get your druggist to prepare this: Iodide of potash three ounces and water one quart. Give a tablespoon of the liquid in the feed or water three times a day for a week, then once a day while it lasts. Also get five pounds of ground flaxseed with the oil in, and once a day prepare some flaxseed tea by putting a large handful of the meal in a bucket and pouring on it a gallon of boiling water. Let it stand until cool then fill the bucket with cold water and let the horse drink it. Feed him laxative feed as far as possible. Some carrots would be good for him.

Worms

In the Cultivator of February 3 you gave a treatment for worms in a horse, using tincture of iron and barley. How often and how many doses shall I give?—Subscriber, Reedley.

If you will read the article in the Cultivator of February 3 again you will find that it says give the medicine twice a week, and it also says to get eight ounces of the tincture of iron, that would be eight doses and would last four weeks. Notice also that the article does not say barley but coarse bran. I think that if you will read the article carefully and follow directions accurately you will get the results you desire.

Efficient Feeding

Written for California Cultivator By Jean A. Koethen

THE problem of feeding poultry has probably never been quite as difficult as it is just now. The unprecedented rise in prices of feed without a corresponding rise in prices of eggs puts the feeder on his mettle to hunt out some way of producing the same number of eggs as before with cheaper feed or less of it. He must steer between the Scylla of unjustifiable expense on the one hand and the Charybdis of underfeeding on the other. Making bricks without straw was nothing to this task.

And let me say right in the beginning, it is a task the poultryman ought never to be called on to face. In other kinds of business, when cost of production increases the price of the finished article increases with it. Shoes, dry goods, groceries, clothing of every description have gone steadily up in price. The prices of eggs and poultry alone have remained the same, or practically the same. Is not this absurd? Dr. Prince T. Woods says this is because the poultry producer has been willing to be the "goat," that he has not only gone on working tremendously hard for the barest scrap of a profit or none at all, but he has actually bragged about the big returns he was getting for his labor. Other producers have acknowledged that they could not make a living without charging more for their goods. The poultryman, who really doesn't know what it does cost him to produce a dozen eggs, has gone on selling at the old prices and wondering why poultry doesn't pay.

All this is going to be changed, but until poultry producers are so thoroughly organized that they can demand a fair price for their output, as other producers do, we must leave no stone unturned in our search for the feed which will produce most eggs with least expense.

Efficient feeding considers two things, the cost of the feed and the work it will do. A feed that is actually cheaper in dollars and cents is no cheaper if it produces fewer eggs. We are learning, however, that some of the cheaper feeds are nearly, if no

uite, as efficient as the higher priced eeds we have been accustomed to hink absolutely necessary. Take heat, for example. We used to think e could not feed hens without it, but e are finding barley a very good substitute. The feeding value of the two rains is about the same, and while he barley contains more fibre, this nay be so softened by steaming or prouting that the barley is quite as ood as wheat.

Next to barley, our cheapest grains re kafir and milo. Either of these vith barley, using, perhaps, the barey in the morning and the other grain t night, makes a fair combination.)ne man I know, who feeds 2500 hens, teams the barley for the morning feed nd gives a light feed of milo or kafir t night. For smaller flocks sprouting s to be preferred to steaming for the arley, because it puts the hull into nore palatable shape. Indeed careful eeders are agreed that sprouted rains, vegetables and greens offer the nly hope in the way of a solution of he problem. Hens that are given all he sprouted barley they will eat, and dry mash always accessible, will lay well with very little other feed. All owls are very fond of the sprouted rain and will consume large quantities of it, and when it has been sprouted four or five days there is still considerable nutriment left in the grain in addition to the value of the sprout as green feed.

According to Professor Jaffa's table, barley that has been sprouted five days contains: Water, 54.66 per cent; ash, 1.34 per cent; crude protein, 5.92 per cent; starch, sugar, etc., 32.93 per cent; crude fibre, 4.06 per cent; crude fat, 1.09 per cent. The dry seed barley contains: water, 7.96 per cent; ash, 2.74 per cent; crude protein, 12.52 per cent; starch, etc., 68.91 per cent; crude fibre, 5.79 per cent; crude fat, 2.08 per cent. Examination of these percentages shows that while the sprouted barley contains a good deal less protein it also contains less fat, less crude fiber and less starch and sugar. In other words, the birds will have to eat a good deal more of the sprouted barley than of the dry in order to get the same amount of protein, but it is in a form of which they can eat more without cumbering their digestive organs with fat and carbohydrates.

The very best way of sprouting barley for a small flock is to bury it in the soil of the run. It may be either dumped, after it has been soaked 24 hours, into holes dug here and there, or the surface of the ground may be scraped away to a depth of three or four inches and the grain spread over the exposed surface and covered. It does not matter if it is not all covered, for the hens will get it and with it all the enjoyment that comes from stolen sweets. As soon as it has sprouted, a shovel full or so turned up each morning gives the birds their breakfast and a chance to dig in the soft dirt for other succulent bits of green. What is not found and eaten in the first stages of sprouting will appear above ground sooner or later.

Eastern writers have a good deal to say about potatoes as a cheap poultry feed. In California they could hardly be called cheap and they are certainly fattening. Other vegetables, however, such as turnips, carrots and mangel beets, might be raised for poultry on almost any ranch, for a small patch of ground can be made to produce a large number of either. The beets are usually fed raw, but the turnips and carrots are best served cooked and made into a mash with ground grain. I know of no better way of reducing feed bills than by feeding vegetables, which are wholesome and nutritious as well as cheap. Many poultry keepers feed too much grain, for a diet of hard grain is fattening and hard on the liver. Probably most side-line poultrymen could replace half the grain ration with vegetables and half the remainder with sprouted barley and have healthier, brighter, busier hens. In many cases, also, part of the grain ration might be replaced by dry mash, which is cheaper. Half the ration, experts say, may safely be mash.

In selecting the ingredients for the dry mash care must be taken to avoid too much crude fibre or all our efforts may be wasted. Ground oats, ground barley and alfalfa meal all contain a good deal of this fibre, only a small portion of which can be digested. A little helps digestion by making the ration bulky, but too much clogs the digestive organs. A poultryman whose hens were unhealthy and unproductive called in an expert to help him locate the trouble. Examination of the crops revealed that they were crammed with hulls which the poor birds were unable to handle. They were actually starving to death with full hoppers before them.

Efficiency means making the best of what one has or can obtain most cheaply. It does not mean sacrificing eggs or health. It means feeding not too little nor too much, but just enough to keep the hens at the maximum of vigor and production. Many hens are fed too much. Many are fed a ration so rich in carbohydrates that it overtaxes the liver. Many, very many, are denied the liberal ration of green feed which means health and vigor and therefore production. Efficiency eliminates all these leaks. A very good way of reducing the grain ration to just what is needed is to give the hens during the day all the green feed (including sprouted grain) and mash they will consume, and then at night give them a feeding of whole grain that will send them to bed with full crops.

EGG LAYING CONTEST AT STORRS

Storrs, Connecticut, report for thirteenth week ending January 30, 1917:

The end of the thirteenth week of the contest at Storrs found the total production at 22,768 eggs. The number of eggs laid during the week was 2502, or 315 more than they laid during the previous week and 67 eggs less than for the corresponding week last year.

Obed G. Knight's White Wyandottes from Bridgeton, R. I., were first for the week with a yield of 50 eggs. This represents a new high record for the current competition, the previous record being 49 eggs in any one week.

The three best pens in each of the principal varieties are as follows:

Barred Plymouth Rocks

Jules F. Francais, 383; Fairfields Poultry Farms, 350; Rodman Schaff, 247.

White Wyandottes

Merrythought Farm, 393; A. L. Mulloy, 335; Brayman Farm, 303.

Rhode Island Reds

Jacob E. Jansen, 387; Hillview Poultry Farm, 365; Geo. W. Harris, 351.

White Leghorns

A. P. Robinson, 488; Hilltop Poultry Yards, 429; J. O. LeFevre, 411.

Miscellaneous

Koshaw Farm (Buff Rocks), 363; Cloyes & Sullivan (Buff Wyandottes), 337; Obed G. Knight (White Orpingtons), 325.

EGG LAYING CONTEST AT MOUNTAIN GROVE

By C. T. Patterson, Director Missouri Poultry Experiment Station

January report.—The contest made some very unusual records during January. The 290 pullets laid 3982 eggs during the month, which is an average of 13.7 eggs for each pullet. One Buff Orpington pullet laid 28 eggs in December and 30 in January, making a profit of almost $1.50 during the two months.

Many breeds and varieties are making good records, so the prizes and honorable mention are distributed among the many varieties.

The five highest hens to date are: White Wyandottes, Missouri, 81 eggs; R. C. R. I. Whites, New Jersey, 75 eggs; White Wyandottes, Missouri, 71 eggs (tie); S. C. Red, Iowa, 71 eggs (tie); Buckeye, Missouri, 69 eggs (tie); White Rock, Idaho, 69 eggs (tie); White Rock, Idaho, 67 (tie); White Wyandotte, New York, 67 (tie).

The five highest pens for January are: R. C. Rhode Island Whites, New Jersey, 114 eggs; Buff Rocks, Kansas, 108 eggs; Buff Orpingtons, Missouri, 101 eggs; S. C. Buff Leghorns, Michigan, 100 eggs; White Orpingtons, Missouri, 99 eggs.

The ten highest pens to date are: White Wyandottes, Missouri, 304 eggs; R. C. R. I. Whites, New Jersey, 294 eggs; White Wyandottes, New York, 279 eggs; Buff Orpingtons, Missouri, 261 eggs; White Orpingtons, Missouri, 252 eggs; R. C. Reds, Missouri, 247 eggs; R. C. Reds, Missouri, 239 eggs; S. C. W. Leghorns, Missouri, 237 eggs; S. C. Reds, Iowa, 235 eggs; Buff Orpingtons, Missouri, 229 eggs.

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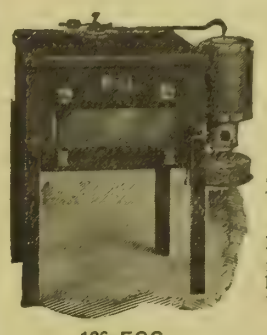

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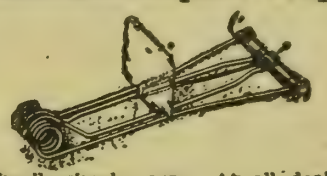

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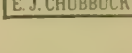

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Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P.P.I.E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

Superba World's Grand Champion Poland-China boar and one of the greatest sires of the breed. Spring boars ready for service, also few sows bred to this noted sire, reasonably cheap. Rough's Greenfields, Arlington Sta., Riverside, Cal.

Cholera Immune Berkshires—Fine sows, bred to excellent boars, for spring farrow $50 and $60 each. Splendid August and September boars and gilts $20 and $25 each. W. H. Waugh, Riverside, Cal.

Registered Poland-Chinas, prolific, fabulous, profitable, porkers. Choice young boars now ready for service, $25 each, weanlings $15 each. Dr. J. A. Crawshaw, Hanford, Cal.

Thirty Medium Big Type Poland-China boars for sale. Shipped on approval. We will send a good one for $30 and a crackajack one for $50. Bernstein Ranch, L. C. Trewhitt, manager, Hanford, Cal.

Rancho Rubius Durocs all sold except a few extra good July and September gilts. Write for prices. Elmer Lamb, Ceres, Cal.

HOGS

Choice Boar Pigs for sale. Sired by Superba 220620 champion Poland boar at San Francisco. Prices right. C. R. Hanna, Riverside, Cal.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, Cal.

Duroc-Jersey Hogs—Weanlings and gilts, open or bred. Write for prices. A. B. Johnson, Newport Beach, Orange Co., Cal.

Carruthers' Farm Berkshire Hogs. Our herd won Premier Exhibitor prize at the P. P. I. E. Exposition. Mayfield, Cal.

Durocs—Choice Sows, gilts and boars of best breeding. Ed. E. Johnson, Turlock, Cal.

Durocs—A few gilts of exceptional quality. H. E. Boudier, Napa, Cal.

Big Type Durocs—Quick maturing, easy keeping. F. M. Johnson, Napa, Cal.

LIVE STOCK

Live Stock Insurance: Registered live stock and farm work horses should be insured. The Hartford Company, strongest in the world, writing live stock. No trouble to answer questions. D. O. Lively, Special Representative, 215 Hobart Bldg., San Francisco.

Butte City Shorthorns, Shropshires, Berkshires and Ponies. Stock of all ages for sale. Can supply one or a carload. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., Cal.

For Sale—Fine four-year-old black jack, registered. Fifteen hands, standard. Excellent head, ear, foot and bone. Fine breeder; also some fine black registered jenneys and colts. Some good Holstein heifers. A. L. Allen, Perris, Cal.

At Last the Perfect Silo—the Stay Round. No hoops, no bolts. No experiments. Any one can erect. Close price. Address D. O. Lively, 125 Hobart Bldg., San Francisco.

Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco, manufacturers of Calf Meal, Balanced Dairy Feed, Balanced Hog Feed. Write for samples.

Fine Young Jacks and Jennies for sale. Black with white points. Eligible to register. Geo. A. Mast, Madison, Yolo Co., Cal.

The Best By State Fair Test Percheron stallions, mares and first and second prize filly colts for sale. H. G. Learned, R. 4, Box 22, Stockton, Cal.

Registered Shires — Blackhawk Stock Ranch. Importers and Breeders. Easton & Ward, Burlingame, Cal.

Twenty-four Mules for sale cheap for cash. Nine coming two, fifteen one-year-olds. C. Hubbard, Riverside, Cal.

For Sale—Fine registered Belgian stallion. S. D., R. 1, Box 24, Buena Park, Cal.

CATTLE

For Sale—From 1 to 100 extra fine, straight, well marked, light colored, highly bred, registered Holstein heifers from 6 to 12 months old. They are rich in the blood of King of the Pontiacs, Pontiac Korndyke, Hengerveld De Kol, Rag Apple Korndyke, 8th, King Segis and other most celebrated sires of the breed. Prices very reasonable. Write Geo. A. Smith, Corcoran, Cal.

Grandsons of Hengerveld De Kol and out of A.R.O. cows for sale. Prices reasonable. Write for pedigrees. Many years of constructive breeding has made my herd one of the prominent ones of the San Joaquin Valley. R. F. Guerin, Visalia, Cal.

For Sale—Registered Holstein bulls out of officially tested dams. Installment payments. For terms and pedigrees address E. A. Clausen, 1139 Devisadero St., San Francisco, Cal.

D. O. Lively, 215 Hobart Bldg., San Francisco, offers for sale a registered Hereford bull 22 months old and a registered Shorthorn bull coming three years old. Correspondence solicited.

For Sale—Choice herd of 20 high grade Holstein cows. Have had second and third calves. E. J. Haase, Orange, Cal. R. 2, box 45A.

We Have a Client who is in the market for 10 grade Holstein cows. Must not be over 4 years old. The University Realty Co., Palo Alto, Cal.

Have a Nice Registered Holstein bull calf from dam with 18.025 lbs. record. Is 3 years old. J. W. Benoit, Route C. Modesto, Cal.

Registered Guernsey Bull—High pedigree. Price $150. Two years old February. G. N. Hesgard, Newberg, Ore.

Venadera Jerseys, the herd with official yearly records. Calves of both sexes for sale. Guy H. Miller, Route 1, Modesto, Cal

Well Bred, Well Born—Well developed and well worth owning are "Rolling Meadows" Jerseys. Silverton, Ore.

J. R. Carhart, Fullerton, Orange Co., Cal. Registered Jersey bulls for sale or will trade them for heifers.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale

HORTICULTURAL PRINTING

Catalogues — Good Printing. Specialists in preparing nursery, seed, poultry and live stock catalogues and all kinds of commercial printing. For prices and information address WOLFER PRINTING CO., 115 No. Broadway, Los Angeles.

Perfect Printing Pays. We do it. Highest class work. Letter heads, folders, catalogues, etc. Write me before placing your order. G. C. Gallagher, The Service Printer, 441 Sacramento St., San Francisco.

DUCKS

Indian Runner, Mammoth Pekins and White Muscovy ducks. Toulouse geese. Breeding stock and hatching eggs for sale. Also White Leghorns, Barred Rocks, R. I. Reds. Beaver Grove Poultry Farm, St. Helena, Cal.

IRRIGATION ENGINEERS

Contour Tree Staking, pumping plants, pipe lines, flood control and conservation. Bennett & Duling, Engineers, 1125 Central Bldg., Los Angeles, Cal.

POULTRY

Baby Chicks, hatched from my own carefully selected and Hoganized flock of S. C. White Leghorns, $10 per 100, $95 per 1000, hatch eggs $5 per 100, $45 per 1000. I have built up a very good, pure-bred and vigorous flock of S. C. White Leghorns during the last 12 years, and as I use hatch eggs from my own flock exclusively and only from hens that are two and three years old, I can furnish a good, vigorous, thoroughbred chick at a reasonable price. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

Penn's Rocks and Reds: A Western bred strain that wins wherever shown. Utility and exhibition. P.P.I.E. winners. Barred Plymouth Rock and S. C. Rhode Island Red eggs for hatching. Barred Rock males $3.00 and up. Free catalogue. Golden Rule Poultry Farm, St. Helena, Cal.

East Side Poultry Yards, established 1904. Our object, egg type and size for ideal utility stock, thoroughly Hoganized, baby chicks, correctly hatched, dozen or thousand. White Leghorn 10c, R. I. Reds 13c in February. After that cheaper. Satisfaction guaranteed. 255 S. 18th St., San Jose, Cal.

Baby Chicks, reasonable prices—White Leghorns, R. I. Reds, settings, 100's-1000's. Hatched right in our $60,000.00 brick and concrete hatchery from our quality heavy layers. Stock, hatching eggs. Pebbleside Poultry Farm & Hatchery, Sunnyvale, Cal.

White Plymouth Rock, White Leghorn incubator chicks, breeding stock, eggs high class. Scientifically bred. Awarded all first prizes California State Fair 1916. Make your arrangements for 1917 delivery of chicks. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

Baby Chicks from mothers with 180 to 240 eggs each per year. S. C. White Leghorns, the best ever, $10.00 per 100, $90 per 1000; also Mammoth kale plants for sale 35c a hundred—$2.50 a thousand. Delivered free. A. P. Ward & Son, Box 100, Calistoga, Cal.

Santa Cruz Chick Headquarters. Call for folder and price list of our White, Brown and Buff Leghorns, Anconas, Minorcas, White and Barred Rocks, Reds and Orpingtons. B. W. Archibald, Soquel, Santa Cruz County, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

Lynnhurst Leghorn Layers Guaranteed pure bred S. C. White Leghorn chicks $12 for 100, $100 for 1000. Hatching eggs $1.00 for 15, $6.00 for 100. Send postal for booklet. Lynnhurst Poultry Ranch, 631 Penna Ave., Riverside, Cal.

Model Poultry Farm, White Leghorn specialists. Baby chix and hatching eggs from heavy laying stock, bred by us for thirteen years. Our prices are right. W. C. Smith, Prop., Corning, Cal.

White Leghorn and Brown Leghorn day-old chicks from healthy, vigorous breeders. "Chicks well hatched are half raised". Will be pleased to send you circular. San Jose Hatchery, 371 Meridian Road, San Jose, Cal.

Baby Chicks from select free range White Leghorn stock. Place orders now for early delivery. Prices on application. Western Hatchery, Petaluma, Cal. W. S. Waldorf, Proprietor.

200-290-Egg Leghorns, Rocks, Reds, Wyandottes, Anconas; eggs, chicks, stock. Surprisingly low—$10 profit each hen. Thousands satisfied customers. Beeson, Pasadena, Cal.

Rose Comb Rhode Island Whites—Have had this strain of general utility fowls for two years. Find them superior to any other strain I have ever raised. 15 eggs $2.25, 100 $10. S. Fairburn, Burbank, Cal.

Quality Single Comb White Leghorn Chicks and eggs for hatching. Utility strain. Bred to pay. Write for prices. Quality Egg Ranch, Artesia, Cal. Phone Artesia 7027.

Baby Chicks—White Leghorns, Brown Leghorns, Reds, Barred Rocks, Black Minorcas, Anconas. Prices on application. Orland Hatchery, Orland, Glenn Co., Cal.

Petaluma Hatchery, Established 1902. Capacity 16,000 chicks a week—the kind the hen hatches. Five varieties. Send for free circular. L. W. Clark, Petaluma, Cal.

Incubators—Essex Model Incubators at factory prices. Write Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco. Poultry supplies.

Rainescourt Reds—Eggs from prolific laying strain and exhibition winners from $1.50 up. Day old chicks $15 per 100. Rainescourt Poultry Ranch, Zelzah, Cal.

"Eastman's Bred-to-Lay" Barred Plymouth Rocks. Chicks and eggs. We Hoganize and trapnest. Fairmead Poultry Farm, Fairmead, Cal.

Day Old Chix—Barred Rock, R. I. Reds, White Leghorns, Black Minorcas, Light Brahmas, Buff and White Orpingtons. Enoch Crews, Seabright, Cal.

Baby Chicks, White Leghorns, from healthy, vigorous, heavy laying, two-year-old hens. Satisfaction guaranteed. John F. Forney, Kingsburg, Cal.

Baby Chicks—Now booking orders for spring delivery. White Leghorn and Anconas, also custom hatching. Wilmar Hatchery, San Gabriel, Cal.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Rural 1, Sonoma, Cal.

S. C. Rhode Island Red and Ancona Baby Chicks and eggs from bred-to-lay finely colored stock. Imwood Poultry Farm, Box 192, Folsom, Cal.

Wedgewood Poultry Plant. No better White Leghorn mountain baby chicks as my hens are bred for vitality and productiveness. Dutch Flat, Cal.

Hatched Chicks For Sale—Barred Rocks R. I. Reds and White Leghorns. Strong, vigorous chicks. Send for circular. G. L. Hawley, Madera, Cal

Baby Chicks—Fall and winter delivery White Minorcas and Golden Buff Leghorns. Sandridge Hatchery, Kerman Cal.

POULTRY

Extra Quality White Leghorn Chicks 12c each until March 1, then 10c. Carefully line bred from MacFarlane, Young, Cynhers and Martin strains of foundation stock. Eggs $1.50 per 15, $2.50 per 30, $5.00 per 100, $50 per 1000. Acres of free range connected with our breeding pens, 20,000 feet under roof. Only Jubilee incubators used, disinfected every hatch. Don't save 2c per chick in buying and lose a dollar per pullet in raising, get the best and succeed. Newton Poultry Farm, Dept. 3, Los Gatos, Cal. Catalogue free.

Roofden Ranch Chicks are well hatched from first class utility breeding stock; money making egg producers our aim, and the prices are right. 7 to 14c, depending on breed, month, quantity (dozen to thousands). White, Buff, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks. For Dollars and Sense. Send card for circular. Roofden Poultry Ranch and Hatchery, Campbell, Cal.

The J. K. Bigelow Poultry Ranch and Hatchery, 300 acres devoted to superb vigorous selected White Leghorns. The greatest egg farm in the West. Bigelow chix are incomparably superior to the product of commercial hatcheries. Price same as former seasons, 10c each till April 1, 9c during April and May, 8c thereafter. Shipped on approval; examination before paying. The Bigelow Poultry Ranch, R. R. No. 2, Sonoma, Sonoma Co., Cal.

The Reliable Poultry Exchange invites your correspondence on the Baby Chick business. We can start you RIGHT with strong, sturdy chix from the best thoroughbred flocks in Southern California. Also the best of breeding stock in poultry, rabbits, pigeons, of all kinds, etc. 741 Los Angeles St., Los Angeles, Cal.

Baby Chicks and Eggs for Hatching from pure bred McFarland strain of carefully culled and Hoganized stock; bred-to-lay S. C. White Leghorns. Write for folder of prices and terms. Sonoma Valley Hatchery and Poultry Ranch, R. F. D. 2, Sonoma, Cal. Box 48.

Baby Chicks—Hatching Eggs. White, Buff, Brown Leghorns, R. I. Reds, Barred Rocks; sturdy chicks from well mated fowls. Prompt, efficient service. Write for circular. Campbell Poultry Ranch, Campbell, Cal.

Blue Andalusian and Blue Orpingtons—Finest Blues on the coast. Stock and eggs for sale. Write for prices. J. R. Huddleston, 342 Edgeware Road, Los Angeles, Cal.

Up-to-Date Poultry Plant—Near Laveaga Park. Write owner for particulars. No agents. Address Box 595, Santa Cruz, Cal.

Pure Bred White Rocks, White Leghorn chix, quackless White Muscovy ducklings, Embden goslings. White Star Hatchery, Kerman, Cal.

Just "Reds". Bred to lay. Cockerels. Eggs. Send for list. E. P. Shier, Fellows, Cal.

Write for Free Catalog pertaining to Rhode Island Reds. J. M. Hacock, Fresno, Cal.

Limited Number bred-to-lay Barred Rock eggs $1.50 per 15. Order now for future delivery. T. H. Bourn, Woodland, Cal.

Turlock Hatchery—Baby chicks. A chick that will live. Turlock Hatchery, Turlock, Cal.

WANTED

Wanted—Man in each California county to represent established California company. Should have rig or auto to get around. Good pay and several weeks' work to right parties. Address J. H. Yetter, Sales Department, 810 Santa Marina Building, 112 Market St., San Francisco, Cal.

Wanted Information — A general plan showing best income from farming with $10,000 cash capital. Fruit, stock, crops, dairying or anything. Will give $10 for the best practical answer. Give location where plan can be carried out. C. Painter, Box 5, Laguna Beach, Cal.

Wanted—A slightly used 40 H. P. gas tractor and set of engine disc plows. Give make, condition, location and full description. Must be a bargain; no junk considered. Address VC, Cultivator.

Wanted—Salesmen and Agents in every city and town on this coast to represent this company. A cracker-jack proposition for live wires. General Sales Agent, 414-424 9th St., San Francisco.

Partnership—Advertiser with fine poultry ranch, stock and market, wants partner with capital. Give full particulars. Box 203, St. Helena, Cal.

Married Man wants position to take charge of ranch. 12 years' experience. Best of reference furnished. B. W., care Cultivator, Los Angeles.

Consumer wants to buy dried fruit, etc., from producer. Send samples and prices in small quantities to G. C. Gallagher, 427 Sacramento St., San Francisco.

Wanted—Lowest price on 2000 to 3000 Citrus Trifoliata Seedbed Stock. Give size, age and condition. Address Box B, Cultivator office.

TURKEYS

GIANT BRONZE TURKEYS

Let me tell you how to make more money on turkeys. Large turkeys can be raised at practically the same cost as small ones. It is in the strain. By scientific cross-breeding I have developed a strain of turkeys which mature rapidly, and attain unusually large size by holiday time. You can introduce some of this blood into your flock and make money by it the very first year. Gold Nugget strain wins again. At Pacific Coast largest shows, 1916, the California and Arizona State Fairs and San Diego, also the great Los Angeles Show 1917, eleven prizes eleven entries. Stock and eggs from my flock should put you in the Giant Bronze Turkey lead in your locality. Toms for sale, also eggs. Write for circular. Raised on 320-acre farm. Address J. Will Blackman, 607 East Third St., Los Angeles, Cal.

For Sale—Young bronze turkey hens, 6 to 8 lbs., $2 each. E. A. McKinley, R. F. D., Ukiah, Cal.

LUMBER

AAA—Lumber, New and Second-Hand; rough, $10 M; finished, $15; "A" R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St., San Francisco, Cal.

FARM LANDS FOR SALE

No Money in Fruit—Unless you have the right kind of an orchard. I have the right kind: 3¼ acres of Newtowns and Spitzenburgs which yielded 3300 boxes the past two years. The average price received was about $1.25, making over $4000 for the two crops. After deducting all spraying, irrigating, harvesting and marketing expenses there was left nearly $3000 from the proceeds of the two crops. The trees are getting bigger and better all the time and the market has averaged about the same—$1.25—for the past 11 years. Fine place for a cow and chickens, the ground being covered with clover and grasses, which grow luxuriantly. No cultivation needed. Big packing-house, five-room residence, city water, phone, electric lights, etc. This is not a farm, but choice city income property, well located in the finest residence city on the coast; Ashland, Ore., which has a population of 5000 and a great future as a health resort. Price $7500; incumbrance $1000. Reasons for selling are purely personal. Would consider trade for farm or acreage of similar value in low altitude. O. H. Barnhill, Ashland, Ore.

10 Acres, irrigated, 4-room house and barn, chicken houses, 2 miles out, $2000. 30 acres, irrigated, checked, nearly new cottage, 40x52 barn and tankhouse, with concrete floors, other outbuildings, fenced hog tight, $6500. 80 acres, on Highway, 2 miles out, very level, for alfalfa, corn, rice, $10,000. 145 acres, on river front, nothing better anywhere for walnuts, prunes, etc., 55 acres alfalfa, complete dairy, electric light and power, subdivision 1 mile selling at $250. My price $125 per acre. 640 acres, level and rolling, house and barn, finest soil for almonds, lands nearby selling at $75 and $100. My price $30 per acre. 720 acres in foothills, 15 miles from R.R., easy auto and stage road, 150 acres has been plowed, 35 acres alfalfa, 3000 cords of wood in large trees, no brush, 7 room house, barn and other outbuildings, windmill, garden and some fruit. A pretty and very cheap place at $15 per acre. JOHN C. MOGK, Colusa, Cal.

Wanted—Farmers, orchardists, live stock men to use classified liner advertisements like this. Thousands of people read every ad, and the cost is only 3 cents per word per issue, **minimum 35 cents.** Extra lines of white space above and below cost only 16 cents per line.

For Sale—80-acre improved foothill ranch. 12 miles east of Porterville. 30 acres citrus land now in wheat; 15 acres alfalfa land; hog fencing; pasture; timber; river; railroad adjacent. Modern new house (furnished if desired), gas plant, furnace, etc. Five outbuildings; implements; live stock. Nothing delapidated. Ideal place for country life. Sacrifice $25,000. $17,000 will handle. Address New, Box 3, California Cultivator.

Oregon & California Railroad Co. grant lands. Title to same revested in United States by act of congress dated June 9, 1916. Two million three hundred thousand acres to be opened for settlement and sale. Power site, timber and agricultural lands. Containing some of best lands left in United States. Large sectional maps showing lands and description. Price $1.00. GRANT LANDS LOCATING CO., P. O. Box 610, Portland, Oregon.

For Sale—320 acres fine sandy loam soil 5 miles northeast of Modesto, 1½ miles directly south of Riverbank in Modesto Irrigation District, average yearly water cost less than $1 per acre. Land suitable for alfalfa, grapes, deciduous fruits or farm trucking. Will sell as a whole or in 20-acre tracts. Average price $150 per acre. Will make suitable terms to parties buying for improvement. B. F. Kierulff, 757 S. Los Angeles St., Los Angeles.

California Land $1.00 Per Acre Cash, balance 90c per month per acre. Immediate possession given. No taxes, no interest. Level San Joaquin Valley. Only four hours from San Francisco. Five acres up. Clear; ready to plow. Open ditch irrigation $1 acre per annum. Particulars, maps, photos, free. Stevinson Colony, Desk E, 785 Market St., San Francisco.

160 Acres at $55 Per Acre Cash; in Yolo County, 2 miles from Hershey, on the S. P., Arbuckle; sandy loam; no improvements; 2 crops of corn or beans or peas should pay for the land; cash only considered; no exchanges; no agents.
CENTRAL CALIFORNIA ALMOND LAND COMPANY,
275 Post St.,
San Francisco, Cali.

California Nevada Lands. Ten years' time. Our specialty is land. When we tell you that the land we sell is the best, you can rely on our judgment. If there was any better land to sell we would have it. Remember us to your friends. Ask for our crop payment plan. Hubbard the Land Man, 660 Market St., San Francisco.

For Sale—Indio, Where Dates Grow, 5-10-20-acre tracts, one-tenth cash, balance ten years' time. 5-year bearing orchards $1000 per acre. Deglet Noor Dates will pay $2000 per acre net. Write C. W. King, Indio, Cal.

Tehama County Stock Ranch For Sale—600 acres: 200 acres sediment bottom land, 25 acres alfalfa. Running water year round, on Cottonwood Creek. Buildings, good fences; stock of hogs, cattle, horses. Lock box 338, Red Bluff, Cal.

Two-Acre Homesite on Grand Ave., Lake Elsinore. Garden soil, fine well, natural shade trees. $700, easy terms. H. J. Warr, Perris.

For Sale—Large alfalfa and grain farm, 30 miles from Sacramento. Can include 80 head grade Holsteins. Address C. E. Reith, Holbrook Bldg., San Francisco, Cal.

For Sale—40-acre dairy ranch north of Dixon. Write owner, H. H. Firchow, Dixon, Cal.

Free New Blue Booklet—State, government and Indian lands. Bargains overlooked. Joseph Clark, Sacramento.

Money to Loan on Farms, city and suburban property. C. G. Paul, 407 Chamber of Commerce Bldg., Los Angeles.

Write for List of ranches and homesteads Low Priced Lands Company, Carmel, Cal.

FARM LANDS FOR SALE

Placer Co., 20 acres fine fruit and poultry land. Cost $1500. Sell cheap on terms or exchange for small improved place or poultry. Box 203, St. Helena, Cal.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit". It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

Half Soles—Discovered substitute for leather for half soling shoes. Mail carriers this city wearing and proving it to outwear leather at one-third the cost. For $1 will send enough material for pair of half soles and heels, tell where to buy it in your town and how to put it on without shoemaker's outfit. Charles Seeley, San Luis Obispo, Cal.

Second Hand Pipe For Sale—All sizes standard water pipe and screw casing, half inch to ten inches. Also valve and fittings. Guaranteed good as new. Cheap for cash. Write for our prices. Weissbaum Pipe Works, 169 Eleventh Street, San Francisco.

Buy Salmon at Wholesale—Fish world's famous Puget Sound Salmon 100 lbs., net salmon in brine $6.50; 20 lbs. smoked salmon $2.50; 20 lbs. net salmon bellies in brine $2.50. T. A. Beard, 4322 Winslow Place, Seattle, Wash.

Study Telegraphy, Stenography, Bookkeeping, Law, English. Board, room and tuition may be earned. Catalogue free. Mackay Business College, 911 Main St., Los Angeles.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

For Sale—300,000 four-foot redwood grape stakes; first class. Rolla Bryant, Jr Rio Dell, Cal.

Flood Control—Plans and estimates. Consult Geo. Ian Maxwell. Phone Sunland 82, R. R. 11, Box 463, Los Angeles.

MACHINERY

FOR SALE, USED RANCH MACHINERY
No worry. Material guaranteed. Save you half. Why buy new, as it is second-hand after used few times, but not necessarily worn out.
WINDMILLS TANKS WINDMILLS
8-ft. Aermotors, other makes, $21.50; 10-ft. mills, $29.50; 12-ft. mills, $45 to $55; 16-ft., cost $250, for $85; 1000-gal. new galv. tanks, $29.50; 2000-gal. new galv. tanks, $39.50; 600-gal. used galv. tanks, $14; 4000-gal. fine redwood tank, $32.50; 1000-gal. nearly new wood tank, $17.50; 8000-gal. tank, fine shape, $60; 100,000-gal. fine 3-in. redwood, $400; wagon tank, fine shape, $38.
ENGINES PUMPS PIPE
Most all sizes—in good shape.
CENTRIFUGAL PUMPS—2-in., $24; 3-in., $35; 4-in., $45; 5-in., double runner, $95; all sizes in plunger pumps, $5 and up; new pump jacks, $12.50; Bulldozer pump, $38; double-acting No. 2 Ames deep well pump, $95; No. 3 Ames pump, 30-in., $150, cost $660; fine Means double-acting deep well pump, $350; pumps 50 inches.
BRASS CYLINDERS—ALL SIZES—HALF PRICE
Plunger rods, pipe, all sizes, pipe fittings.
RANCH MACHINERY SUNDRIES
Walking plows, riding plows, $15 to $22.50; fine 2-gang large moldboard plow, $45; 8-disc fine orchard cultivator, $27.50; 3 or 4-gang disc tractor plow, $55; Fresno, $10; spike harrows, $9.50; alfalfa renovator, $28; manure spreader; another fine BULL TRACTOR, $350; new Samson tractor, $550 on cars Thermal; steel cable, 5c; cement mixer, $35; sprayer, $19.50; mowers; Walter Wood 10-ft. rake, nearly new, $25; buck rake, $25; fine horsepower baler, $75; 250 feet 7-in. irrigating pipe, 16½c; bone grinder, feed cutter.
STEAM BOILERS, ENGINES AND PUMPS
8, 20 and 80-h. boilers, steam compressor, 12x12 belt-driven Union air compressor, $245; 3x12 Gould compressor, $27.50. Sundries.
WANT to buy first class material. No junk wanted. Pioneers in our line. Responsible and reliable. Trade us your machinery and little cash for what you need. DEMMITT CO., UPSTAIRS, 120 N. MAIN. YARDS, 816 YALE, LOS ANGELES.

2½ H. P. Alpha Engine, No. 2 Fairbanks pump head, 6x20-in. brass cylinder, 40 ft. 3-in. galvanized pipe and ⅝-in. galv. steel rod cut ten-foot lengths, 10 ft. 3-in. suction hose with couplings. Belting, etc. Used 10 days. H. J. Warr, Perris.

For Sale—100 H. P. Westinghouse motor, vertical C.C.L. type and 10-inch Byron Jackson vertical centrifugal pump, used 60 hours. Outfit complete $2000. For particulars address Frank Cox, Westley, Stanislaus Co., Cal.

For Sale—Luitweiler Pumphead (12-inch) —185 feet double rods and pipe, brass cylinder, geared hoist and wire rope at one-third price. 308 Citizens Bank, Pasadena.

For Sale—Universal tractor cultivator, 10-12 H.P.; good as new. Price $400. Fred Knopp, R. F. D. 4, Box 376, Santa Rosa, Cal.

AGRICULTURAL IMPLEMENTS

For Sale—One orchard cultivator, 1 disc harrow, 1 cross reach orchard truck, 1 walking plow, 1 drag harrow and several other implements. Also one second-hand wagon, slightly used. Cheap for cash or time. Arnott & Co., Wholesale Implements, 112 to 118 South Los Angeles St., Los Angeles.

For Sale—Panel top wagons, 3 open delivery wagons, 2 buggies. Cheap for cash or time. Arnott & Co., Wholesale Implements, 112 to 118 South Los Angeles St., Los Angeles.

FARMS WANTED

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

SEEDS AND PLANTS

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The Wallace Nurseries, office located at 507 I. W. Hellman building, Los Angeles, are receiving orders for citrus and olive trees for this year's planting. This information will be of interest to many buyers who are fearing a material shortage. At the best there is no great quantity of trees to plant this year, but the planter if wise will place an early order and the Wallace people will be glad indeed to give more extended information to all citrus growers.

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Household Department

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A little bewildered by the light and air,
But smiling secretly at all you learned,
Shaking the grave-dust from your shining hair—
I think if I should come with you to tea,
I should not find you changed or grave or sad,
But keen with talk of what there was to see,
Laughing the while in that frank way you had.
There would be stories of the shadowy host,
And sprightly comment on the things they do;
How this one was a most exclusive ghost,
Or that one was adorable in blue.
It would be good to hear the things you said—
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MEMORY AND A DRESS

"I HAVE really come on an errand," said Mrs. Cobb.

Jessie Stubbs caught her breath. She had begun to believe that her neighbor had actually come to call. It seemed, however, she had been mistaken.

"You know," went on Mrs. Cobb, "that we're getting up our play, 'The New Minister,' and tomorrow night is dress rehearsal. I can't find a thing that is suitable for me to wear. The costumes are all going to be old-fashioned, and I hate to have anything made up on purpose. I thought maybe you'd have something that would answer, Mrs. Stubbs."

Jessie Stubbs sat very quietly, considering. Pink spots had come out in her faded cheeks. "Yes, I have something," she said, at last, slowly.

"There!" cried Mrs. Cobb. "I knew you'd have. Do get it and let me see it."

Jessie Stubbs went into her bedroom, which was off the sitting room. She paused before the quaint bureau and opened a drawer. A scent of dried heliotrope came out. She lifted a sheet of tissue paper and took out a flowered silk dress made with a tight, plain waist and a full skirt. She laid the dress down tenderly and, going to the closet, brought forth a huge hat box, from which she drew a shaker bonnet. Laden with dress and bonnet, she returned to the sitting room.

Mrs. Cobb gave a scream of joy "Lovely! The very think I wanted!" she cried. "I'll take 'em right home and try 'em on, Mrs. Stubbs."

After she had gone Jessie Stubbs sat down in her chair and studied the stripes in the rag carpet. The pink spots had faded from her delicate old face. "I'm a fool," she said to herself. "I'd no busines to let that woman have my things. She won't take care of them, I know. But I had a longing to have 'em seen—to let folks here know I once used to wear silk if I do now go in calico. I'd like to have been in that play myself," she sighed, "but I knew, of course, they wouldn't ask me. However, my dress will be there."

All day long Jessie Stubbs wove rags of silk, cotton, or woolen into carpets, rugs, and curtains for the townspeople. Sometimes she earned as much as a dollar a day. This kept her in food and paid the rent of the remote, tumble down old house. She had nothing else to depend upon.

As she sat weaving her thoughts dwelt upon the flowered silk dress. It was the one tangible thing remaining from her past. When her husband died and his people had manifested only too clearly that they regarded her as an incumbrance she had come back to Fairview and taken up carpet weaving.

When the church which she attended had first begun to talk about producing the play called "The New Minister," she felt a curious longing to be included in the cast. She who was never seen save in faded black-and-white calico or a shabby black serge wished foolishly to blossom forth in flowered silk for one time more in her life. But the opportunity had not been given her. And now she had handed the flowered silk out to Mrs. Cobb! There was some satisfaction in the thought that the beautiful dress would be admired and cause wonder among those who had not dreamed she owned such array. There was fear also lest it be carelessly used.

She was busily weaving next morning when there came a knock at the door. She opened the door and instead of having to look far up into the face of the customer she expected she had to look far down into the face of a small girl who was laden with a large parcel.

"Mamma sent your dress back," she said. "She's sick and can't wear it. She's got the grip. She said for you to wear it and go in her place, 'cause —'cause—" She swung from side to side trying to recall all she had been told—" 'cause it'll break things up if you don't. And in there," she pointed to the parcel, "is something you're to learn. That's all."

She gave Jessie a bright smile and darted away.

With trembling fingers Jesie undid the parcel and shook out the delicate, shimmering folds. From them fell a paper. It contained the little speech she was to learn.

"My land, my land!" she thought, and her heart fluttered. "I wonder if I can do it. I wonder if I know enough."

Now that opportunity had come she feared to grasp it. But when Mrs. Grant, whom Mrs. Cobb sent, came to help her dress and tell her what she must do and guide her to the rehearsal, she began to feel that she was going to have a very good time indeed.

Her unexpected appearance occasioned astonishment. But everybody treated her so well she was stimulated to do her utmost. The flowered silk dress encouraged her. She seemed to be back again in her happy carefree young girlhood, the idol of her parents and the life of her circle. A smile came to her lips and eyes, her

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heart lightened. Every movement showed her happiness. Those who beheld her could scarcely believe that this radiant little figure was the old woman who toiled dully, passionately at the loom all day long.

When the rehearsal was over a man who had watched her a good deal came up to her. "I've been trying to make out who you are and where I'd known you," he said. "About 40 years ago I saw this same dress, or one just like it. I remember, because I thought it was the prettiest dress I had ever seen. And I thought, too, the girl who wore it was the prettiest girl I had ever seen. I danced with her four times. Her name was Jessie Lindon." It was a moment before she could speak.

"I was Jessie Lindon. And that night I danced with you, John Bruce, was the last time I ever danced with anybody. I was married a few weeks later and my husband did not permit such follies. And this is the very dress I wore. I am pleased to see you again." She dropped him a low courtesy. He returned it with a deep bow.

After that dress rehearsal it was noticed that the Widow Stubbs got a great deal of attention from John Bruce, the widower who kept the grocery store on Main street and had a nice little house in the upper part of town. It was no surprise to anybody, therefore, when the two were married. The bride's wedding dres was of flowered silk, which, in spite of careful remodelling, had a curiously old-fashioned look. Upon her breast she wore a spray of heliotrope.—Fresno Republican.

TEPARY BEANS

Tepary beans, recently introduced from Arizona where they have long been known by the Indians as heavy yielders on dry lands, have been quite extensively raised in California this year and are bringing good prices. Now that they are becoming so well known and a feature on the market the following recipe of Mrs. C. J. Wood of the experiment station farm, near Mesa, Arizona, is given. She has had excellent success in cooking tepary beans, according to the following procedure, which is her own:

Wash two cups of Tepary beans and put them to soak in one quart of lukewarm water in a graniteware or other suitable cooking vessel. Set the vessel on the back of the stove, where the water will keep warm, for two hours. Then drain off this water and add one quart of fresh water of the same temperature. Add three tablespoonsful of fresh butter or a piece of salt pork three inches square and boil for two hours. Take care not to burn the beans in cooking, stirring frequently to keep them from sticking to the bottom of the vessel. Add a teaspoonful of table salt when the beans are about done, and a tablespoonful of honey if it is available.

If the water is very hard a pinch of baking soda should be added to soften it.

Cooked in the manner described above Tepary beans are delicious, having a peculiar and very desirable flavor of their own and being preferred by those who become accustomed to them.

In addition the following recipes are given by C. R. Fillerup, farm adviser of Navajo-Apache Counties:

Baked Tepary Beans.—One quart tepary beans, one-fourth teaspoon soda, one tablespoon butter, one cup of tomatoes, one teaspoon mustard, one tablespoon molasses, pepper, salt. Look beans over carefully. Put into a kettle with enough water to cover. Add soda and boil five minutes, then drain soda water off and cover with cold water. Boil until tender, then add tomatoes, butter, pepper, salt and boil 30 minutes. Put into baking pan, well mixed with mustard and molasses. Bake in moderate oven two hours. Serve hot, or cold with meat.

Baked Tepary Beans.—One quart beans, one-fourth teaspoon soda, one tablespoon butter, one cup tomatoes, two medium chilis, half pound cheese, pepper, salt. Look beans over carefully, put into a kettle with enough water to cover. Add soda and boil five minutes, then drain soda water off and cover with cold water. Boil until tender, then add tomatoes, butter,

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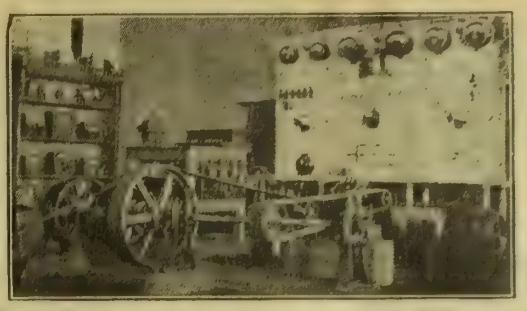

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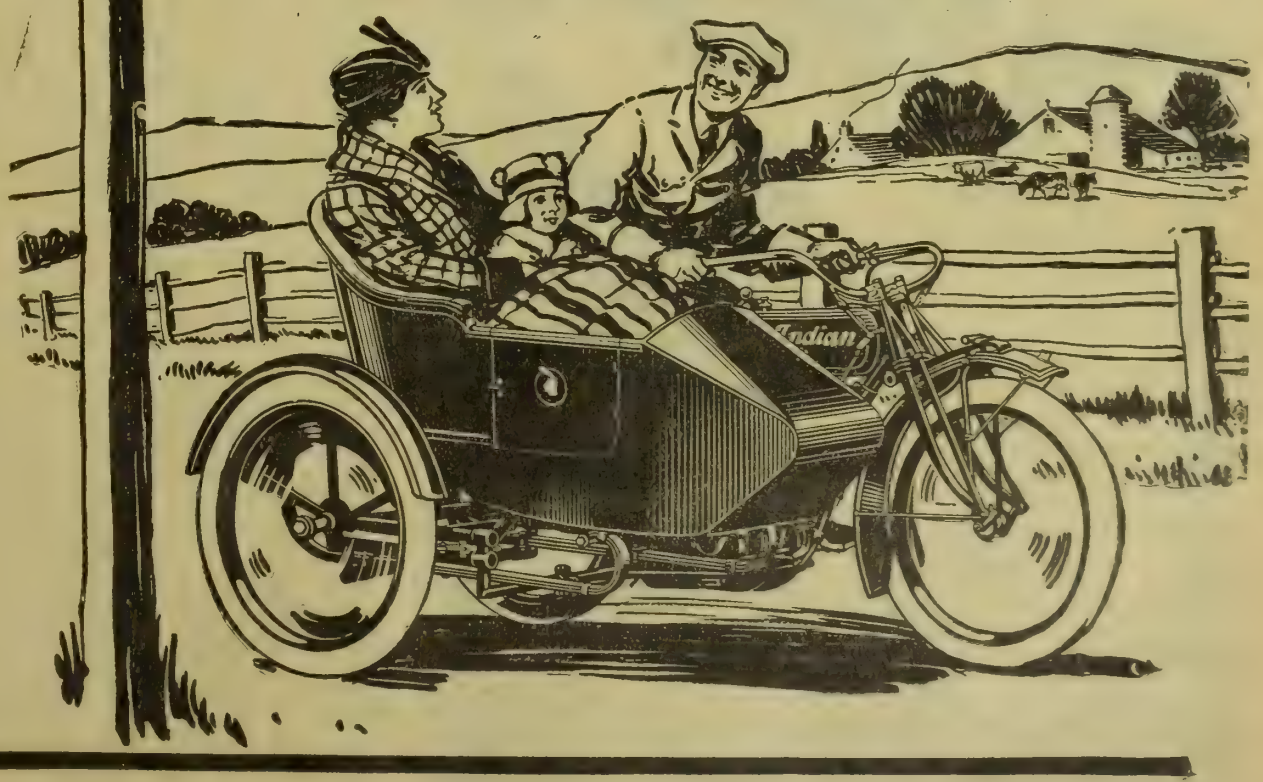

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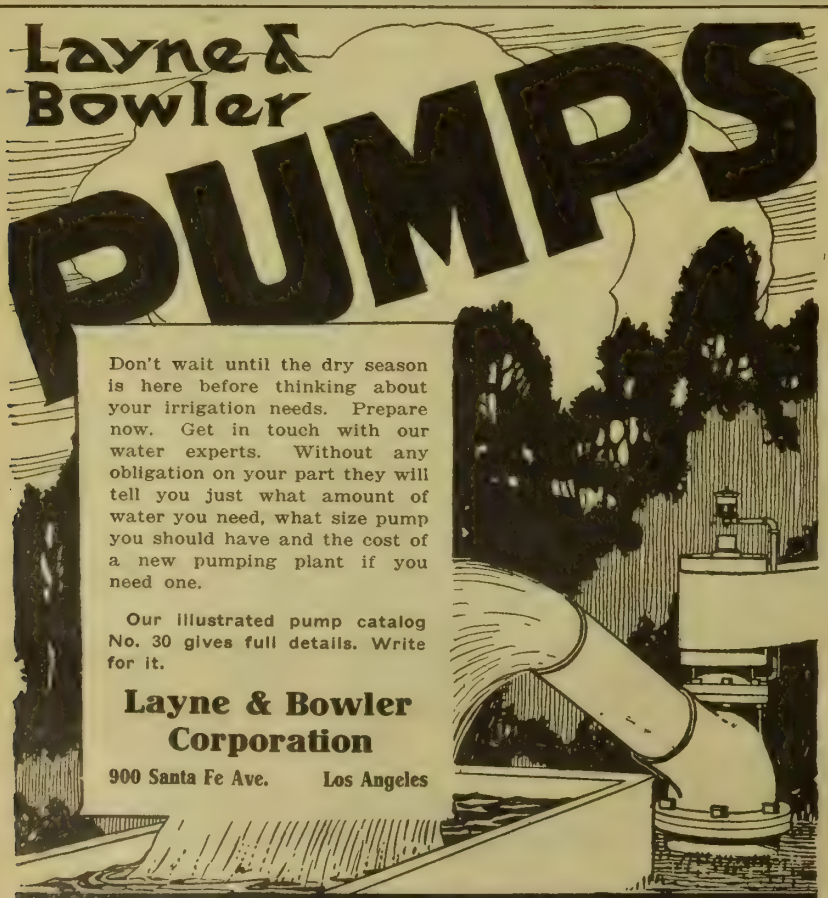

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chili, pepper, salt and boil five hours. Put into baking dish in alternate layers of beans and grated cheese and drop bits of butter on top. Bake 30 minutes in moderate oven, and serve hot in the same dish.

Tepary Bean Soup.—One pint beans, pinch of soda, two pounds ham or fat beef, one cup tomatoes, one onion, pepper and salt, one-fourth pound macaroni. Look beans over carefully, soak over night, drain. Boil in soda water five minutes, then drain. Add two quarts of water, tomatoes, onion, meat, salt, pepper. Boil six hours, remove the meat. Mash well and strain. Boil in separate dish one-fourth pound macaroni. Add macaroni to soup. Serve hot with meat and pickles.

PERSIMMON PUDDING

Part 1—One pint sugar, one pint of ripe persimmons mashed through sieve, one pint milk, one pint flour, two eggs and two crackers, one scant teaspoon soda, one teaspoon baking powder, half teaspoon cloves, one teaspoon cinnamon. Bake in slow oven from three quarters to one hour.

Part 2—One cup water, half cup sugar, one lemon, yolk one egg, one tablespoon flour, whites of two eggs whipped. Cook on top of stove and pour over part one when cooked. Serve with whipped cream. Very rich and on the order of plum pudding.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Unsigned communications receive no attention.

Taxes on Claim

Can the county collect taxes for improvements on a desert claim? I have not made my final proof. What will be the penalty if I do not pay them?—Subscriber, Inyo-Kern.

The exemption of public property from taxation does not extend to improvements on the public lands made by pre-emptioners, homestead or other claimants or occupants at their own expense, and these are taxable by the state. Of course it is frequently true that the assessor overlooks improvements and perhaps sometimes does not deem that they are of sufficient value to include in the tax roll, but unless the taxes levied against these improvements are paid, the tax collector may bring suit and seize them for the payment of the taxes and penalties.

Wife's Property

A woman owns piano and other valuables belonging to her before marriage. She has a child by a former marriage. Can she give her belongings to whom she wishes? Can her husband legally claim a part?

All property of the wife owned by her before the marriage and that she acquired afterwards by gift, bequest, devise, or descent, with the rents, issues and profits thereof is her separate property. The wife may, without consent of her husband, convey her separate property.

Wife's Share of Estate

What is wife's share of estate in California? No children, but husband has half brothers and sister.—Subscriber.

If decedent leaves surviving husband or wife and no issue the estate goes, one-half to the surviving wife and the other half to the decedent's father and mother in equal shares, and if either is dead the whole of said half goes to the other. If there is no father or mother, then one-half goes in equal shares to the brothers and sisters of decedent. The above applies to the separate property of the husband. In case property is community property, the wife upon the death of the husband is entitled to one-half of the community property, and then the first mentioned division applies to the other one-half. The husband is entitled to devise all of the property, however, to the wife by will duly executed.

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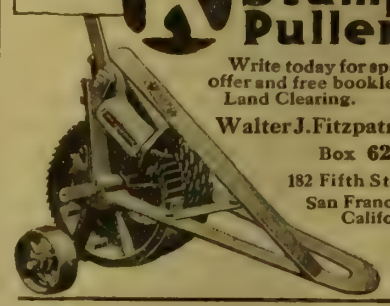

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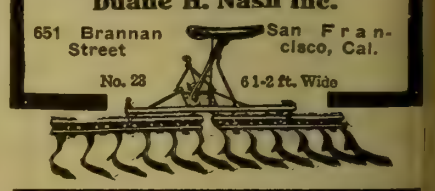

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Cucumbers, Hothouse, doz.	1.50@3.00
Eggplant	.18@20
Kale, doz.	.25
Horseradish, rt. lb.	.12½
Lettuce, doz.	.40
Leeks, doz.	.40@50
Mint	.40
Onions, green, doz.	.17½@20
Oyster Plant, doz.	.40
Peas, lb.	.12
Parsnips, lug	.50
Peppers, Bell	.35@40
Radishes, doz.	.25
Rhubarb—Crimson Winter	1.50
Romaine	.50
Spinach, doz.	.25
Squash—Hubbard, lb.	.2¼@2½
Chayote, lug	.85@90
Turnips, doz.	.45

FRUITS

Wholesale prices:

Apples—	
Bellflower	1.50@1.75
W. W. Pearmain	1.25@1.60
Newtown Pippin, Yellow	1.35@1.50
Bananas, lb.	.4¼@4½
Pears—Winter Nelis, lug	1.75
Persimmons, lb.	.9@10
Pineapples, lb.	.9@10
Pomegranates, ½ bx.	1.25

CITRUS

Navels	2.25@2.50
Lemons $1.75@2.50 Juice	1.25
Grapefruit	2.40@2.50
Limes, basket	.85
Tangerines, lug	1.25@1.50

NUTS

Prices named by Cal. Walnut Growers'

Assoc.	1914	1915	1916
No. 1	16.50	13.60	15.50
No. 2	12.00	10.60	12.50
Pkgs., 16 oz. Net	.....	.....	16.50
Budded	20.00	17.00	19.00
Jumbos	18.50	16.60	17.50

HONEY

Wholesale prices:

Extr. lb. White 8½@9½c; A. 8½@9c; W.W. 10@11c; Comb. lb. W. 12½c; Lt. A., 12½@14c; W. W. 14½c

Beeswax, lb.	.32

BEANS

Wholesale Prices:

Lady Washington	12.50
Limas	9.00@9.50
Pinks	8.50
Manchurian Reds	7.80
Baby Mex.	6.00
Small White	12.50
Blackeyes	5.50
Tepary	7.50
Garvanzos	6.50
Lentils	18.00
Idaho Pinto	5.00

HAY

Market very quiet with some hay, especially alfalfa, selling slightly under quotations.

We quote ton f.o.b. L. A. to producers:

Barley	14.00@18.00
Oat, tame	15.00@18.00
Alfalfa, local	17.00@20.00
Northern	15.00@17.50
Stock	11.00@14.00
Straw	9.00@11.00

GRAIN

Wholesale selling price f.o.b. L. A.

Wheat—No. 1	3.25
Corn—No. 2 yellow, 2.55; white	2.60
Oats—California feed	2.80
Standard	2.40
Texas Red	2.90
Cal. Seed Oats	2.60
Barley—No. 1 bright feed	2.50
No. 1 dark feed	2.45
Seed	2.60
Milo	2.30
Egyptian Corn	2.40
Rye	3.25

FEED STUFF

Wholesale, cwt. f.o.b. L. A.

Alfalfa Meal	1.45
Bran, heavy	2.00
Shorts and Middlings	2.35
Alfalfa Molasses	1.50
Meat Scraps, accd. to quan.	3.20@3.30
Beet Pulp	1.50
Cracked Corn	2.60
Cracked Wheat	3.40
Cotton Seed Meal	2.40
Bone Meal	2.45
Feed Meal	2.75
Green Bone	2.25
Middlings	2.40
Oil Cake Meal	2.40
Fish Meal	3.60@3.70
Rolled Barley	2.55
Rolled Oats	2.45
Hulled Oats	3.30
Feed Meal 2.65; Scratch Feed	2.60@2.70
Oil Cake Meal	2.40

San Francisco Markets

SAN FRANCISCO, Feb 10, 1917.

BUTTER

Dairy Exchange quotations, lb.:
Rcts. wk. ending Jan. 29, 296,500 lbs.

Fresh extras	.38
Prime firsts	.37
Firsts	.36

CHEESE

Dairy Exchange Quotations:

Cal. Flats	.18@19	Y. Am.	.20@21
Ore. Trip.	.21	Y. Am.	.21½

EGGS

Dairy Exchange quotations:

Fresh extras	.34
Select Pullets	.32½

POULTRY

We quote from producers, lb.

Hens, large	.22@24; Leghorns .19@21
Fryers, lb.	.25@26
Broilers	.28@33
Roosters, old	.15@16; young .25@26
Squabs, doz.	3.00@3.50
Ducks	.20@22
Geese	.19@21
Turkeys, dr. 26@29; live	.23@25
Belgian Hares, live	.14@15

LIVE STOCK

Prices gross weight:

Cattle:

Steers, lb., 7½@9, cows and heifers, 5@8; calves, 7@9½.

Sheep:

Wethers, 9@9½; shorn, 1½@2c less; ewes, 8@8½; lamb, lb., 11½@12½.

Hogs:

Hard grain fed, wt. 100 to 150 lbs., 9¼@9½; 150 to 300 lbs., 10¾@11; 300 to 400 lbs., 10¼@10½; undesirable, 6@7.

POTATOES

Wholesale selling prices at wharf:

Delta and Oregon Burbanks	3.50@3.75
Sweet, Cellar	3.00@3.25

ONIONS

Wholesale selling price on wharf:

Cwt.	8.50@9.00
Garlic, lb.	.3@5

VEGETABLES

Wholesale selling price:

Artichokes, doz., large 80-85; small, 40-65	
Celery, cr., large 3.50@4; small,	2.25@2.75
Cucumbers, bx., hothouse	1.00@2.00
Lettuce, cr.	1.25@1.50
Peas, lb.	.6@8
Rhubarb, box	1.75@2.00
Squash—	
Cream, bx. 1.25@1.75; Hub. lb.	2.00

FRESH FRUIT

Wholesale selling price:

Apples, bx.—Bellefleur	.60@75
Newtown Pippins	1.10@1.25
Bananas, bunch	1.00@1.50
Pears—Winter Nelis	2.50@3.00
Pineapples, doz.	2.25@2.50

CITRUS FRUIT

Wholesale selling price:

Lemons	1.50@3.25
Lemonettes	1.00@2.00
Limes, Mexican, cs.	4.00@5.00
Grapefruit	1.50@2.50
Navels	1.25@2.50
Tangerines, half orange box	1.50@2.00

PEACH PRICES

The California Peach Growers announces price list No. 6. Please note the following advance in prices, effective Saturday, November 18, 1916, at 6 p. m. All prices are f.o.b. factories, California common points, but no orders will be confirmed by us, at the following prices, unless f.o.b. factories where grades and varieties desired are available. All quotations are subject to our approval of variety and assortment, subject to our confirmation and subject to advance without notice: November, December and January shipment.

Price list No. 5 is hereby withdrawn, and ineffective after 6 p. m. Saturday, November 18, after which time prices herein quoted shall apply.

	Yellows.	Muirs.
Standard Peaches	.06¼	.06¼
Choice Peaches	.06½	.06½
Fancy Peaches	.07¼	.08⅛
Extra Fancy Peaches	.08	.08⅝
Slab Peaches	.05½	
Choice Peeled Peaches	.09¾	
Fancy Peeled Peaches	.11	

Above prices bulk basis.

For 50-lb. bxs., unfaced, add	½c
For 50 lb. bxs. faced, add	⅝c
For 25-lb. bxs., unfaced, add	⅝c
For 25-lb. bxs., faced, add	⅞c
For 10-lb. bxs., unfaced, add	1¼c
For 10-lb. bxs., faced, add	1½c

For prices on graded peaches, original, in bags, add ⅞c to the bulk basis prices above quoted.

	—Per Lb.—	
Ungraded, original bags	.07⅛	.07⅜
Choice Unpld. 1-lb. cart.	.08½	.08⅝
Choice Unpld. 5-lb. cart.	.08¼	.08⅜
Fancy Unpld. 1-lb. cart.	.09¼	.09⅜
Fancy Unpld. 5-lb. cart.	.09	.09¾

	Per Lb.
Choice Peeled 2-lb. Cartons	.12
Choice Peeled 5-lb. Cartons	.11¾
Fancy Peeled 2-lb. Cartons	.13¾
Fancy Peeled 5-lb. Cartons	.13¼

The above prices are guaranteed against our own decline to March 1, 1917, and apply only to sales and shipments made direct to the recognized jobbing trade. No goods will be confirmed at above prices to Coast or Eastern brokers, or to speculators, it being our object to eliminate speculation in dried peaches, we preferring to carry our stock in storage here on the coast until actually required by the jobbing trade.

DRIED FRUITS

Wholesale quotations:

PRUNES—Bulk basis, per lb.: 30s and 40s, 6½c; 50s, 6¾c; 60s, 7¼c; 70s, 7¼c; 80s, 7½c.

Other fruit, 50-lb. boxes:

	Standard	Choice	Extra Choice	Extra Fncy.
Apples	8 c	8½c	9 c	....
Apricots	15¾c	15⅞c	16 c	16⅝c
Peaches	6¾	7 c	7½c	8½c 9½c
Pears	8 c	8½c	9 c	10¾c ....

California Associated Raisin Company's prices on 1916 crop: Package Sun Maid Seeded, 36-16s, per case, $3; package Sun Maid Seeded, 48-16s, per case, $3.95; Bakers Sun Maid Seeded, 25-lb. boxes, per box, $1.75; fancy Seeded Muscats, 36-16s, per case, $3.05; fancy seeded Muscats, 45-12s, per case, $3.15; fancy bulk Seeded, 25-lb. boxes(per box, $1.75; choice Seeded Muscats, 36-16s, per case, $2.90; choice Seeded Muscats, 45-12s, per case, $2.95; choice bulk Seeded, 25-lb. boxes, per box, $1.75. (Wood cases if desired.)

Loose Raisins in 50-Lb. Boxes

One-crown loose Muscatels, floated, per box, $4; 2-crown loose Muscatels, per box, $3.25; 3-crown loose Muscatels, per box, $3.50; 4-crown loose Muscatels, per box, $3.75.

London Layers

Three-crown London Layers, 20-lb. boxes, per box, $1.50; 4-crown clusters, 20-boxes, per box, $1.75; 6-crown Imperial Clusters, 20-lb. boxes, per box, $2.60; 5-lb. boxes, 50c additional; 10-lb. boxes, 25c additional; fancy clusters, 1-lb. cartons, 20 to case, per case, $1.85; fancy clusters, 2-lb. cartons, 12 to case, per case, $2.20; fancy clusters, 5-lb. cardboard cartons, 4 to case, per case, $2.35. oulk layers, in 50-lb. boxes, per box, $3.25; bulk layers, in 100-lb. boxes, per box, $6.25.

All f. o. b. common shipping points. Regular California dried fruit terms. Prices guaranteed to April 1, 1917. All raisins not shipped before January 1, 1917, to be paid for at that time. The company will carry the raisins free of expense to time of shipment, which must be before March 1, 1917, unless otherwise arranged.

No export rebate will be allowed.

Prices subject to change without notice.

NUTS

Jobbers' Prices:

Almonds.—Exchange opening prices: Nonpareil, 20½c; Ne Plus Ultra, 17c; IXL, 18c; Drake, 16c.

Peanuts	5½@6½

BEANS

Jobbers' prices, cwt. recleaned:

Limas	8.60@8.75
Bayous	7.20@7.35
Garbanzos	4.50@5.00
Small White	10.50@11.00
Mexican Red	7.75@8.00
Large White	10.40@10.70
Pinks	7.50@7.60
Horse Beans	5.00@5.25
Black Eyes	5.15@5.25
Red Kidneys	11.75@12.00
Cranberry California	8.00@8.25

HONEY

Jobbers' prices:

Comb, lb., W.W., 13@15c; A.,	8@10c; Lt. A. 11@12
Ex. Fy. lb.	9c; Lt. A. 6@8
Beeswax	.20@32

HOPS

Prices to growers at shipping points:

Sacramento, lb.	.8@9
Sonoma	.10@12
Mendocino	.9@10
Oregon and Wash., lb.	.6@10

HAY

Scott, Magner & Miller say under date of February 10:

Receipts past week 1806 tons, last week 1361 tons. Market conditions are about the same. Hay has been moved from tracks without difficulty and increased receipts have been taken care of without reduction in price. Trade throughout the city is very quiet. Some hay is moving for export. Demand for alfalfa hay has been good throughout the country districts.

We quote car lots f.o.b. San Francisco.

New crop.

Wheat, Fy., lt. bales	21.00@22.00
Wheat or Wh. & Oat, No. 1	19.00@20.50
Wheat or Wh. & Oat, No. 2	17.00@19.00
Oat, Choice Tame	19.00@21.00
Other Tame	16.00@19.00
Wild	16.00@19.00
Barley	16.00@19.00
Alfalfa	15.00@18.00
Stock	15.00@16.00
Barley Straw No. 1	.80@1.00

GRAIN

Grain Exchange prices, cwt.

Wheat, California Club	2.60@2.65
Wheat, No. Bluestem	2.90@2.95
Corn, Eastern Yellow, sk.	2.20@2.22½
Corn, Egyptian White	2.15@2.35
Oats, White Feed	2.00@2.05
Black	3.00@3.50
Barley, feed	2.20@2.25
Shipping	2.32½@2.37½
Rye, cwt.	2.65@2.75

FEEDSTUFFS

Wholesale prices per ton:

Bran	30.00@31.00
Cornmeal feed	48.50@49.50
Rolled Barley	45.00@47.00
Cracked Corn	49.50@50.50
Middlings	35.00@37.00
Alfalfa Meal, carlots	21.00@22.00
Shorts	31.00@32.00

SEEDS

Prices in round lots, lb.:

Millet, recleaned	3½@4
Alfalfa	.20@21
Rape	2¼@2½
Flax	.6@6

Citrus Fruit Market

LOS ANGELES ,Feb. 14, 1917.

Lower grade stuff is suffering and unfortunately there is considerable such fruit going forward. Shipments are ranging from 100 to 160 cars per day. Strictly first class fruit has been commanding fair prices, even higher than last week.

Lemons are selling well.

Shipments

Shipments of oranges from Southern California since November 1, 1917, 6708 cars, lemons 1462, total 8170; to same date last season, oranges 6130, lemons 1571, total 7701. From Central California to date this season, oranges 4008, lemons 149, total 4157; to same date last season, oranges 4163, lemons 127, total 4290. From Northern California to date this season, oranges 842; last season 609.

FROM THE AUCTION

February 9

New York: Ten cars navels, 2 lemons. Navels, $2.60@3.85; lemons, $2.85@3.30.

Boston: Six cars. Navels, $2.60@3.55; lemons, $3.40@3.85.

St. Louis: Seven cars. Navels, $2.35@2.90; lemons, $2.50@3.20.

Pittsburg: Navels $1.65@2.85; lemons, $1.15@3.25.

Cleveland: Four cars. Navels, $1.85@3.45.

February 12

Boston: Fifteen cars. Navels, $1.50@3.45; lemons, $2.30@3.85.

February 13

New York: Twenty-two navels, 3 lemons, lower on poor grades. Navels, $1.80@3.95; tangerine halves, $2.00; lemons, $2.70@3.20.

Boston: Five cars. Navels, $1.90@2.65.

EGGS BY PARCEL POST

The Wallace egg carrier is the latest for eggs and for parcel post deliveries. It makes an exceptionally attractive package, is light, is firm, and will carry eggs safely to any distance. A sample of one of these cases is at the Cultivator office and we do not see how a more satisfactory carrier could be provided. It has been in practical use for over two years and every egg shipper who has used it is free in praise of its advantages.

It may even be used as a hamper, that is, a portion of the case given up to eggs and the remainder to other high grade farm products. Write the Wallace Egg Carrier Company, 451 Third Street, San Francisco.

EVEN TO THE SCREW HOOK

"Better Farm Implements and How to Use Them", is the latest publication of the John Deere Company. We would suggest that every reader of the Cultivator who uses a plow, cultivator, drill or almost any other farm implement should write to John Deere Company, Moline, Illinois, and ask how a copy of this manual of farm implements may be had. It is a book of nearly 160 pages with innumerable illustrations and descriptions of farm implements, how to use and care for them and get the most out of them, and, best of all, it has a strong cord with which it may be suspended and a little steel screw hook with which to support it on some convenient corner of the desk.

WEATHER CONDITIONS

For the Week Ending February 10, 1917

	Rainfall Wk	Rainfall Season	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	.02	16.56	27.17	60	36
Red Bluff	.00	11.14	15.21	72	38
Sacramento	.00	6.54	11.90	68	40
San Francisco	.00	10.16	13.93	70	42
San Jose	.00	6.50	9.96	72	34
Fresno	.00	5.23	5.72	72	40
San Luis Obispo	.00	14.99	11.98	80	36
Los Angeles	.00	9.92	9.19	82	44
San Diego	.00	6.66	5.97	72	44

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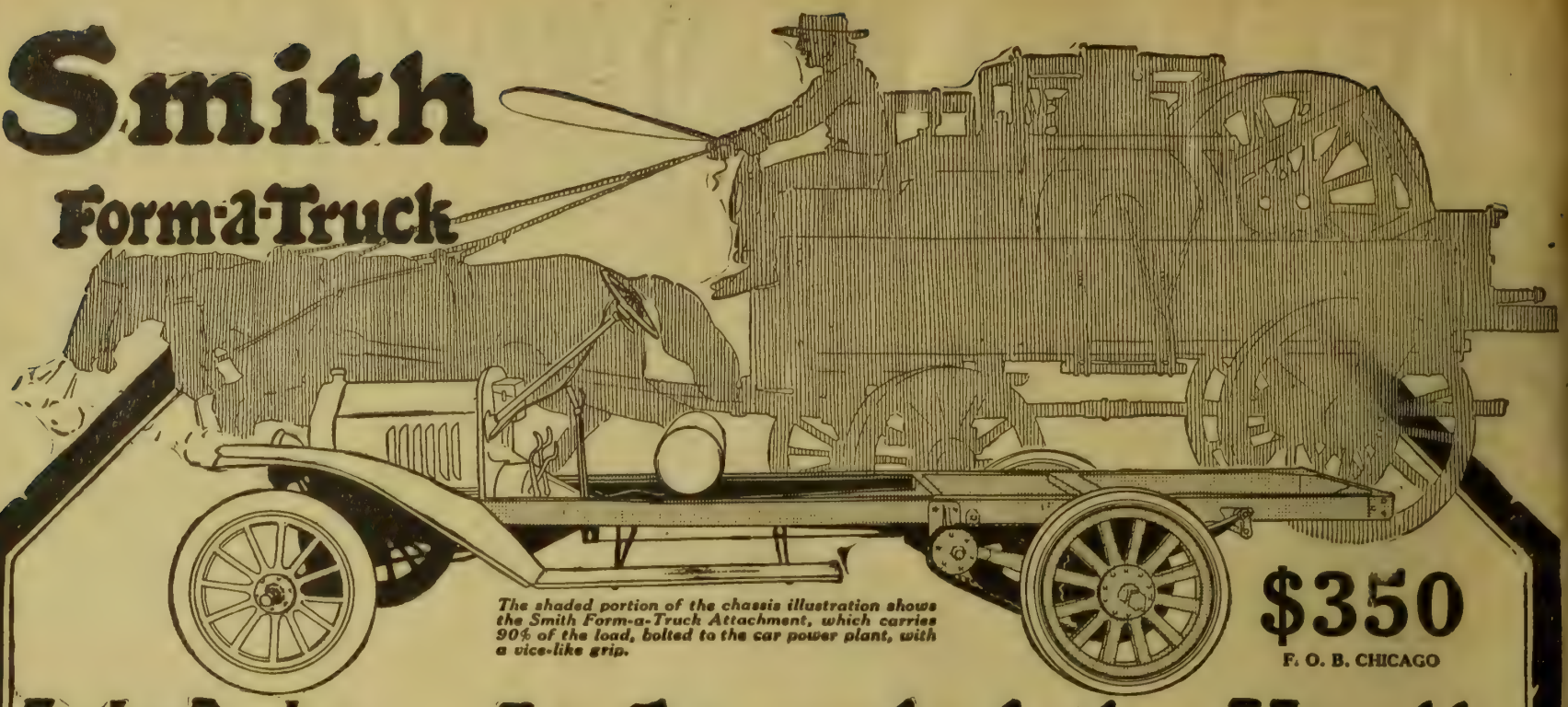
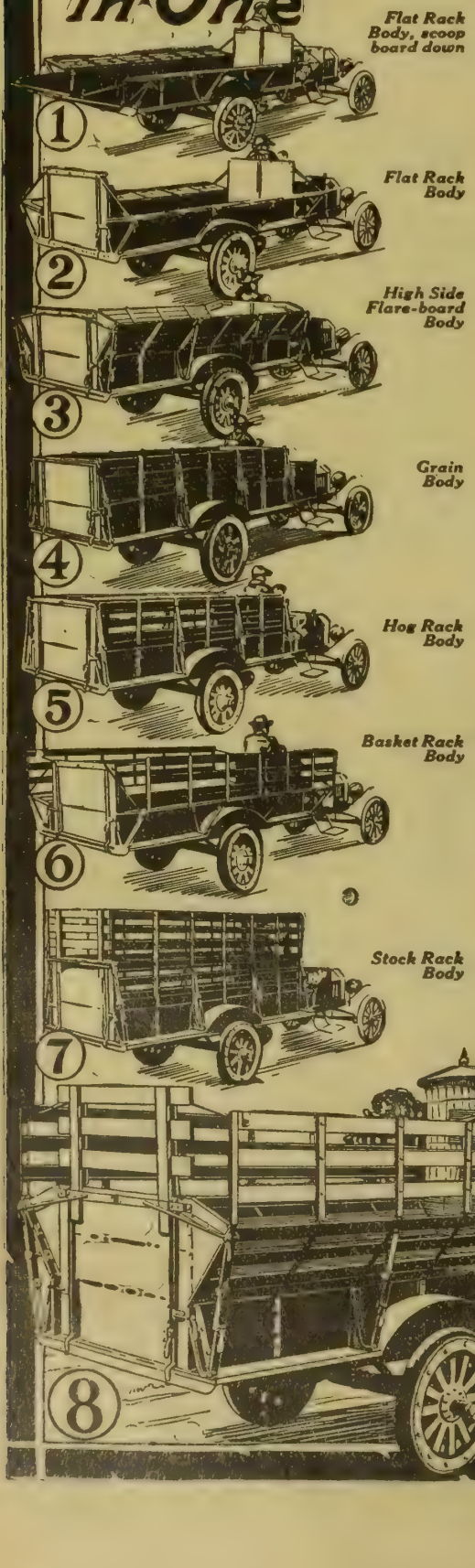
Smith Form-a-Truck



The shaded portion of the chassis illustration shows the Smith Form-a-Truck Attachment, which carries 90% of the load, bolted to the car power plant, with a vice-like grip.

$350
F. O. B. CHICAGO

Eight Bodies in One



It Sounded the Knell of Horses in all Farm Hauling

HUNDREDS upon hundreds of up-to-date farmers, who figure time in dollars and cents, have made tremendous savings with Smith Form-a-Truck. It is taking the place of horses for hauling milk and farm products to town. It is doing heavy service work of all kinds about the farm.

With their Smith Form-a-Trucks they are carrying loads that are impossible for horses—*twice* the load of any team. And they are doing the work in *half* the time. Think what this means in time and money.

Idle Horses Cost Money—Idle Trucks Cost Nothing

Agricultural experts state that farm horses work but 1000 hours a year—100 days of 10 hours each. Over *two-thirds* of the year they are eating their heads off. They need stabling They need veterinary attention. They need the attention of your hired help. And you get 100 days work for this 365 days of expense and attention. Think of it.

Your Form-a-Truck costs you nothing when it is idle. It requires feed (gasoline) *only when it is working.* So you save the expense of horses during 265 days of idleness. And it does your work far cheaper than horses.

Yet this remarkably efficient, money saving Smith Form-a-Truck which does the work of *two* teams at *half* the expense costs no more than a *single* team. Think of it!

You are replacing old fashioned farming methods with modern labor-saving, time-saving machinery in other branches of your farm work. The time has now come to discard the old-fashioned expensive methods of hauling. Put a Smith Form-a-Truck on your farm now.

The Smith Form-a-Truck combines with any Ford, Maxwell, Dodge, Buick, or Overland Car, to make a fully guaranteed one-ton truck. 9,652 users in every line of business in the country are now saving money with the Smith Form-a-Truck. Hundreds upon hundreds of farmers have made tremendous savings. You, too, can do what these farmers have done.

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Every possible use for a truck on the farm is covered in the new collapsible farm body—an exclusive feature of Smith Form-a-Truck. Pull the lever and you get any one of eight combinations of farm bodies—Stock Rack body—Hay Rack—Basket Rack—Hog Rack—Grain—Flat Rack—High Flare board—flet back—swoop board down. Change from one type to another in an instant—without a single tool.

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Send for our big illustrated farm booklet. It will show you just how you can begin to put money in the bank that you have hitherto been putting into feed for horses.

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Gentlemen:—Without obligation on my part please send me full details of your farm attachment and the new convertible body for farm use I am interested in how the Smith Form-a-Truck can save me money and give me better service than I am getting with horses

Name .....

Town.....*County*.....

State.....*Number acres owned*.....

CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES February 24, 1917 SAN FRANCISCO

The Imperial Assembly

Enthusiastic Meeting of County Farm Bureaus. Most Instructive Addresses Made

ONE of the strongest factors for the advancement of the Imperial Valley is its farm bureau, and next to the activities of the adviser its most helpful feature is the farm "center" which holds monthly meetings attended by the farm adviser and often by others who bring inspiration and information for those who are developing that strange and wonderfully rich section. Then annually there is held the assembly. Last year's assembly at Brawley brought into the valley some of the best talent of the state university, and several meetings were held simultaneously. It was a complete success. This year it was determined to center the enthusiasm into one meeting and one day's session. One of the largest assembly halls in the valley was secured, that of the Imperial high school, and the people of Imperial extended invitation to all to come and eat of Imperial's good things, and they did entertain the crowd most royally. The most interesting moment of that entertainment is shown in one of the photographs on this page. The "bread line" looked as if there were thousands, though only a few show in the photograph. In fact, there were hundreds, but when all had finished eating there were still luscious morsels left in the barbecue pits and abundance to feed other hundreds.

The auditorium of the high school, photograph of which is also given on this page, was admirably adapted to such a meeting, excepting that it proved inadequate to hold the hundreds that attended. We have never seen a state convention more enthusiastic or displaying more genuine interest than was shown at this annual assembly. When it came to the endorsement of the two and a half million bond issue which will soon be voted upon to strengthen and improve the valley's irrigating system there was no dissenting vote. The matter was presented to the assembly by Consulting Engineer G. E. Anderson, and while the intense interest in the effort was such that many questions were put to Mr. Anderson, they were answered in such spirit and with such clearness that entire satisfaction was manifested.

Imperial Union High School
Attendants at the second annual farm bureau gathering

Director R. H. Forbes of the Arizona state university presented the matter of date culture, showing some of the problems confronting date culturists in his state and commenting on conditions as they obtained in the Imperial and Coachella Valleys. He said that the culture of dates had not yet reached a stage where it could be called an industry. However, cultural experiments are being made in such a large way that within a short time it is hoped it may be put upon an economic basis, which will mean the addition of much wealth to the state.

One of the principal features of the present work is the growing of seedling dates. Until recently it has not been possible to secure from suckers more than five or at least ten per cent of live palms. With propagating house methods this per cent is being increased. Meantime the seedlings are developing and even giving so much fruit at three or four years of age as to show the character of the tree.

In his state practically all of the most desirable dates have to be ripened; there has been much difficulty with fungous diseases attacking the fruit if allowed to ripen on the tree. Most interesting was the exhibit of a five pound crate of fresh dates ripened artificially five months ago and kept in cold storage. At this period of the year he said these dates could be shipped into any Eastern market.

Considerable interest was manifested in the debate: Resolved, that live stock is more profitable to Imperial Valley than cotton. Messrs. Robinson and Simon took the affirmative and Messrs. Wilsie and Conkling the negative. The judges ruled that the affirmative produced the best arguments, but, as Director Forbes said afterward, it was a most useless discussion, for in his estimation it was not a case of live stock or cotton, but if Imperial looked to her welfare it would be live stock and cotton and in addition many other crops which were succeeding there and adding to the security of the farmer who practices intelligent diversification.

Farm Adviser Paul I. Dougherty told of some of the things a farm adviser can do and gave a bit of the history of the farm bureau of the Imperial Valley. He said that its accomplishments seemed much like the growth of a tree; at the end of a year it was larger but its growth was not so visible. The average attendance at the farm bureau centers has been 61 per meeting. Amongst the activities of the farm bureau during the past year, in addition to the farm assemblies, has been a cotton conference, grasshopper campaign, organization and encouragement of pig clubs, pig club show at which bronze medals were distributed, establish-

Continued on Page 225

Imperial County "Bread Line"
At the Imperial Barbecue and Outdoor Banquet

Imperial Valley Cotton, Gin in Background.

Since 1902

Pomona DUPLEX-PLUNGER Pumps

Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface. Send for catalog 115.

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The Yuba Ball Tread Tractor runs easier; performs a greater variety of work; costs less for upkeep; delivers more power at the drawbar per horsepower generated, than any tractor made.

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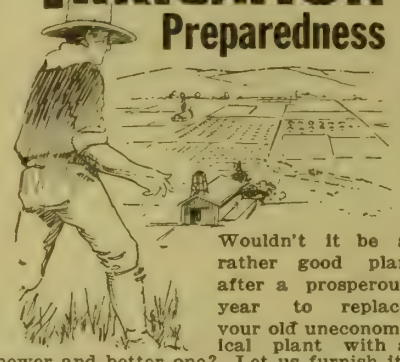

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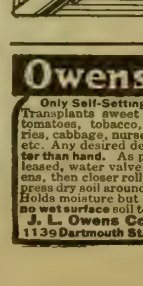

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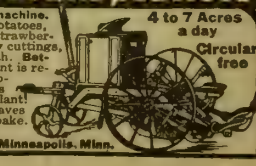

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Ruins Trees
Destroys Crops
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Limbs split and decay

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Remedies all this
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This method will work over your citrus trees and vines with practically perfect results.

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in quantity.

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The right tree for intersetting in Olive or Walnut groves. Why not try

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Bear early. Bear heavily. Bear regularly. Keep well. Carry well.

Plums—Luther Burbank's new varieties and all standard sorts.

Get the Catalog that Tells the Truth

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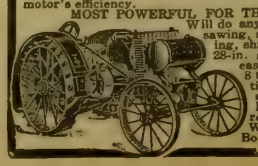
Square pulling, easily started, four wheels. 12 full h. p. on draw bar, with surplus of 4 h.p. by actual dynamometer test, 20 horse power on belt. Four cylinder, water cooled, long stroke, modern motor. Transmission a unit with motor. By actual test requires only 13.3 per cent of motor's power to propel itself, delivers at the draw bar 86.7 per cent of the motor's efficiency.

MOST POWERFUL FOR THEIR WEIGHT



Will do any portable engine job, sawing, silo filling, corn shelling, shredding; easily handle 28-in. grain separator; pulls easily three 14-in. bottoms 8 to 9 in. deep in clover or timothy sod. Unexcelled for road building. My new 1917 catalog is ready. Ask for it today.
WM. GALLOWAY CO.
Box 3015 WATERLOO, IOWA

California Cultivator

Vol. XLVIII No. 8 LOS ANGELES: February 24, 1917 One Dollar Yearly

Sale at Berkshire Congress

A Great Event in Berkshire Circles. Valuable Discussions Precede Sale of Lively Bidding

Written for California Cultivator
By W. S. Guilford

"ALMOST unusual and highly successful event". This was the concensus of opinion regarding the third annual meeting of the Western Berkshire Congress held at the university farm at Davis, February 13, 14, 15, 1917.

There were judging contests taken part in by breeders, ladies and students, a motion picture show of a hog cholera serum plant, a trip over the farm, a real "pig" banquet and love feast and a sale in which the animals sold averaged $145 per head.

Berkshire enthusiasts were present from Hawaii, Illinois, Oregon and all over California.

The faculty and students of the university farm, including Dean Hunt, Dean Van Norman, Professors True, Thompson, Woll, Voorhies, Miller and Royce, Herdsman Jack Findley and a splendid lot of students, won the hearty commendation of the Western Berkshire Congress officers, members and visitors, for the whole hearted hospitality accorded to all.

Officers of the Western Berkshire Congress were elected for 1917 as follows: F. R. Steel, Grants Pass, Oregon, president; C. M. Talmadge, Newport, Washington, vice president; Arlington

Continued on Page 232

Knocking Down the Top-Notcher at the Berkshire Sale

Photos at Left

With cane and coat, A. W. Foster of Hopland Ranch, and A. F. Healey of the C. C. Moore Ranch. With paper in hand, Wm. Carruthers; with overcoat in the background, T. J. Gilkerson. Trio below is Mrs. E. M. Holtje and Mr. and Mrs. Homer Hewins, Jr. Next, E. H. Murphy and Mr. and Mrs. Maurice Rucker. Next below, Dean Thomas F. Hunt, A. J. Lovejoy, Prof. H. W. Van Norman and W. S. Guilford. In the alleged auto are Farm Advisers H. J. Baade, Carl J. Nichols, Mark Lee and T. C. Mayhew.

Photos at Right

With pencil, F. A. Brush of Santa Rosa; gentleman in front of rose bush, A. L. Nelson. Second from top, left to right, L. E. Frost of Chicago, W. S. Guilford and A. B. Humphrey Next below, at left, Arlington M. Smith. The gentleman with the package under his arm is F. R. Steel of Oregon. At the bottom with the cane, H. C. Moore, while the man with his hand on his pocketbook is L. K. Smith, who came from Hawaii and purchased some good hogs.

All photos taken by Cultivator staff

Grafting---Do It Now

Geo. C. Roeding Revises Points on Grafting of Olives, Walnuts and Figs

IT is a comparatively easy matter to work over unprofitable trees and vines into better varieties. With old trees lacking activity of growth and consequent productivity, working over increases their vigor and adds to their longevity, and at the same time makes them very profitable in almost all cases.

Methods

There are two methods which will answer for all practical purposes; one the cleft or wedge, and the other, the bark graft and which has been found very satisfactory for figs and all varieties of evergreen trees.

Cutting Scions

Just at this time the most important step is to cut the scions. The sooner this is done the better, for they should be taken when in the most dormant period. The scions should caliper not less than one-quarter inch and up to one-half inch, and the wood should be thrifty and of the current year's growth, except in the case of figs and walnuts, when the two-year-old growth, unless the one-year wood is hardened and without much pith, is always preferable. No matter for what purpose scions are cut they should be heeled in in damp sand on the north side of a building, having the butt end buried about six inches. Never bury the stick entirely, as just as soon as the warm weather sets in in the spring the buds will swell, which is a decided objection.

The Operation

Our experience has been that with figs, olives and oranges the bark method of grafting is the safest and best, while with all other deciduous trees both methods may be employed to equal advantage. The benefit to be derived by following this plan, particularly when a large number of deciduous trees is to be worked over, is that the cleft graft may start in the latter part of January or the early part of February while the trees are still dormant. The bark method must be deferred until March or April or as soon as the sap commences to flow freely. Never forget one point, and that is that it is of the utmost importance to cover over with a new tissue the stump which has been cut off and grafted. Where only one scion knits the cambium layer is so slow in developing that a dry rot often sets in in the sap wood, causing a weak union of the graft with the subject, and in cases of high winds the graft often blows off. This happens quite frequently in

Manner of Cutting Walnut Scions.

For Sale

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One and two-year-old Eureka Lemon, Valencia Late and Washington Navel Orange Trees. All stock clean and free from scale. Write for prices and amount wanted.

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15,000 One Year Eureka Lemons
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Prices consistent with quality of trees.

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Real Estate exchanges considered. ORDER NOW.

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Growers of the highest grade budded trees in commercial quantities. Thirty varieties. All field grown stock. Our years of experience will be of great value to those considering a spring planting. Come to our nurseries and see the wonderful growth of our trees.

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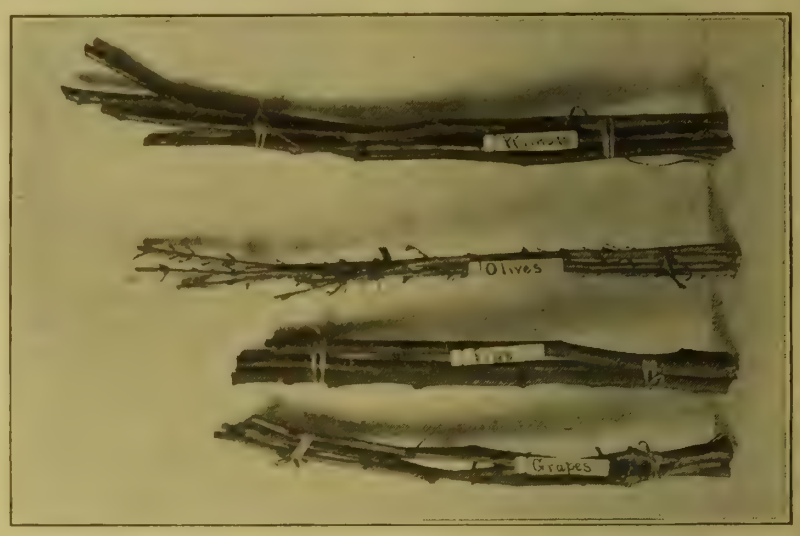
Request your storekeeper to supply the goods advertised in the California Cultivator.

working over large stumps from eight to 12 inches in diameter, and it is for this reason that our preference is for the bark grafting in handling such subjects. In cleft grafting it is practically impossible to place more than four scions in a stump, and in a heavy branch unless care is taken to drive wedges into the cleft to remove the pressure on the scion, the cambium layer will be crushed and the scion fail to grow. On a large stump the advantage of the bark method is apparent at a glance. The scions may be set two inches apart. If a few of them fail to take there are always enough remaining which do start to cause a rapid development of the cambium layer and a quick healing over of the stump. Never cut out any of the scions until the stump is almost completely covered with new wood. It is always a comparatively easy matter to remove the interfering branches in after years when the union is complete, but it is entirely out of the question to get any new scions to take the following year on the same stump where a poor stand has been obtained. We have repeatedly had our attention called to statements made by writers on the subject of grafting, in which they recommend, where all the scions grew all but one should be cut out. No man with any practical experience in this work would make such a recommendation. The usual practice of splitting the stump we have improved upon by making a vertical incision in the stump with a saw and then cutting out a section on the side of the stump to which the scion is to be fitted. This method of procedure requires more painstaking work and more time, but it has a distinct advantage in that there is no danger of crushing the cambium layer in the scion, as is often the case in large stumps unless they are properly wedged. Further than this the split made by the chisel has a tendency to split wider open when the warm weather sets in, and it also takes a longer time for the wound to heal over. In cutting a scion, and particularly where considerable pith is encountered, be sure to make the cut on one side of the scion heavier than the other so that the pith will be surrounded by hard wood on all sides, thus avoiding the splitting of the scion when forced into place. After the grafts are set be sure to wind heavy

Grafting the Olive

An olive stump showing method of lifting bark for inserting scion, with scion cut for insertion. Other stump showing three scions set and tied ready for wax. Note twig buds on scions. These should be obtained if possible. Scions one-fourth to three-eighths inch in diameter.



Types of Scions Recommended to be Used for Grafting.

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The R. M. TEAGUE CITRUS NURSERIES

Successors to

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Teague Trees are Quality Productive Trees

Because properly grown and budded from selected trees producing abundantly only quality fruit. Buds cut from carefully selected fruiting bud-wood only. In addition we give quality service in the way of digging, packing and delivery that insures success to the planter. Correspondence and inspection invited; our treatise on "Citrus Culture" and annual Price List sent on application.

R. M. TEAGUE, Manager

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50,000 CITRUS TREES

Valencias, Navels and Eureka Lemon Trees

A1 Stock - - No Junk

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Citrus trees grown in the San Fernando Valley, which is free from scale.

Write or call for prices.

WALKER-HUBBARD NURSERY CO. Successor to **T. J. WALKER NURSERY CO.** First National Bank Bldg. **San Fernando, Cal.**

twine around the stump to hold them in position, and in large stumps of 12 inches or more use a single strand rope. The untarred lath yarn is the best for this purpose. Give this a heavy coating of grafting wax.

To Make Grafting Wax

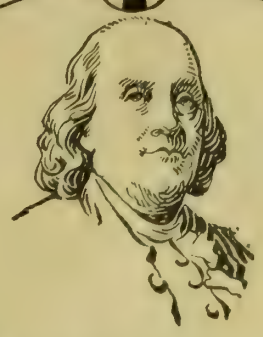
This should be melted in a pot until it is of the consistency of thick paint which should be put on with a brush made of rope unraveled and tied to a stick. Do not fail to wax the tip ends of the scions and to give the surface of the stump a heavy coating. It often happens when the growing season commences that the excess of sap will cause the wax to split and crumble, permitting air to penetrate. Whenever this occurs remove the old wax and repeat the first operation. The best results have been secured by using a wax made of one pound beeswax, three pounds resin and three ounces raw linseed oil by weight. Place the beeswax and resin in a kettle and cook until thoroughly dissolved. Add the oil and allow the ingredients to cook slowly for ten or 15 minutes longer. Remove from the fire and as soon as the wax has cooled somewhat pour a small quantity into a bucket of lukewarm water. Grease the hands and take the congealed mass and knead and pull it until it becomes very tough; wrap in oiled paper and it is ready for use. By preparing the wax beforehand the ingredients are mixed in proper proportions, which is not easy to do when you have a large amount of work to do in the field. This wax is far superior to wax which has not been pulled. It is entirely practical in grafting over large trees to use asphalt in the following proportions: six pounds of asphalt to one and a half pounds of resin. The two ingredients should be melted together in a pot and applied with a brush. Be careful not to have the asphalt too hot; otherwise it will burn the bark of the scion as well as the bark of the subject to be grafted, causing them to die.

After Care

As soon as the grafts have knitted well, and this usually occurs by July 1, be sure to make incisions into the waxed string binding the scions to permit of their expansion and to admit air. Under no condition overlook this point. If you do the bark will be smothered and turn black and it will take several years for nature to provide new bark and overcome your negligence. Do not remove the wax on the stump proper. The natural tendency of grafts after they once commence to grow is to make a heavy upright growth. This growth must be held in check by pinching, and this must be done a number of times during the summer months, and must be followed by reasonable thinning (but do not remove any of the original scions) and severe shortening in of the branches for several years in the winter months. This causes them to grow stocky, creates elbows which act as braces, and promotes a vigorous growth of the cambium layer over the stump. After three years this work need not be so severe, and a reasonable crop of fruit may be expected.

Cutting Tops

Years of experience in this work have demonstrated the advisability of not cutting the subjects to be grafted too close to the point of divergence from the main body of the tree. Cut the branches to be worked over to within five feet of the main body with ordinary fruit trees, but in the large walnuts do not cut back any more than you absolutely have to. Whenever it is practicable do not have the stumps to be worked over more than four inches in diameter. Always in grafting fruit trees leave from one to two branches in the center of the tree, shortening in the tops slightly. These are left to take care of the excess of sap and to shade as far as possible the branches that have been grafted to prevent sunburn. In the coast countries fig trees, and other trees as well, can have their entire tops removed and still withstand the shock, the scions taking readily if properly inserted, but in the interior valleys where the atmosphere is dry and warm to remove the entire top of a fig tree close to the main body would result in the loss of the tree, a fact which has been fully demonstrated by actual experience. The two branches which have been allowed to



"A Word to the Wise is Enough"

Beny Franklin

AND when you're buying tires follow Poor Richard's advice and say only the one word, "Firestone." This word is not only the name of a tire foremost in quality, it is the name of a man who is personally responsible for that quality, which means safety, comfort, mileage, for you.

The vital strength of Firestone Tires makes them oppose equally the tug of rough roads or the test of friction when you "let her out" on smooth stretches.

The Firestone Non-Skid Tread means extra rubber. Those angled letters not only hold the car true in slippery going and protect against skid, but there's "comfort value" in the added rubber piled onto the regular tread.

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Foot-hill grown trees are immune from crown-gall and root-knot
Roots such as are grown only on our foothill soil and location.
THEY ARE TREE INSURANCE

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Don't Gamble on the Future of Your Orchard

Don't risk the loss of several years of your time and the waste of your money by getting nursery stock that may be infected with crown-gall or root-knot.

If You Buy Our Foothill Grown Trees

they will come to you clean. The foothill lands on which we grow our trees are immune from crown-gall, root-knot and diseases common to other localities.

PRUNES	ALMONDS	PLUMS
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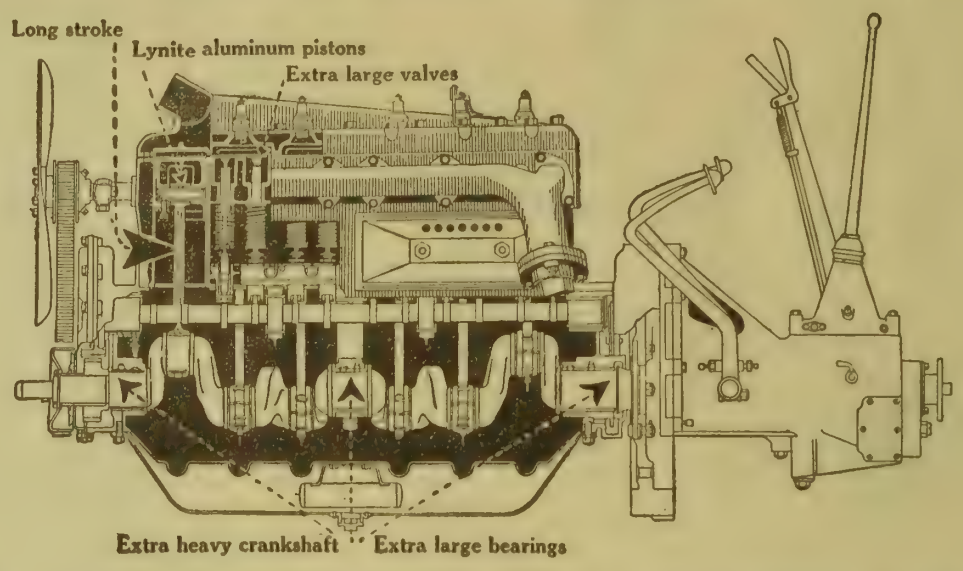

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The engine of the Chalmers 6-30 is very rugged. Yet simple. Modern in everything, but not extreme in any. A good, safe engine. Reliable. Well lubricated. Of good bearings. Accessible. And one that "stays put." Has plenty of power. Though it is not a big engine. The power is well proportioned to the weight of the car. Thus making hills easy going. The power is smooth, too.

Specifications

Engine—6 cylinders, bore 3¼ ins., stroke 4½ ins., piston displacement 224 cu. ins. Power—45 h.p. (on the brake test.) Starter—Westinghouse 2 unit. Carburetor—Stromberg, horizontal, hot air heated. Clutch—Dry disc, asbestos on steel. Fuel feed—Stewart-Warner vacuum system. Ignition—Remy distributor, Willard 80 ampere hour battery. Tires—32 x 4, chain tread on rear. Wheelbase—115 ins.

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Five-Passenger	Touring,	$1090	f.o.b.	Detroit	Seven-passenger	Sedan,	$1850	f.o.b.	Detroit
Seven	"	1350	"	"	Seven	"	Limousine, 2550	"	"
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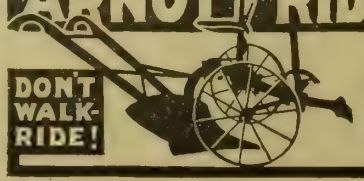

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remain can be sawed off entirely the following season, or they can be in turn grafted if the scions of the year before have not taken well or if you have not sufficient branches from your preceding season's grafting to form a good head on the trees. After having sawed off the branches the stumps or subjects to be worked on should have the tops neatly smoothed over with a sharp knife so as to leave a clean, smooth surface, particularly along the edge. The outline of the scion is cut into the stock so that when the bark is removed the scion fits closely into the groove made for it.

Select a scion of the proper size, making a sloping cut along the lower end as long or somewhat longer than the incision on the stock. The scions should be cut the same as for a whip graft except that the cut is all on one side and should have a little more bevel, and the second cut for the tongue of the whip graft should be omitted. The scion should be of such a size that it fits snugly into the open-

Walnut Grafts

The first year growth. Next winter the stump will be completely covered over and the union will be perfect.

ing in the stock so that the bark on both sides of the scion touches the bark of the stock.

Grafting Olives

In olive grafting the method followed is to make an incision from the top of the stump down, just as would be done in setting a bud, and slip the scion into this incision. In following this method the wedge should extend farther up on the scion and should not be as abrupt as the cut on the scions for either fig or walnut grafting.

In selecting olive scions, as far as possible have the little twig buds on each scion, as these very rarely fail to start out while sometimes the ordinary buds do.

Walnut and fig scions should never be less than three-eighths of an inch in diameter, and always avoid very pithy wood. Olive scions should be not less than one-quarter inch in diameter.

The accompanying illustrations tend to make the descriptions very clear of the V-shaped or, perhaps more correctly, U-shaped cut in the bark of the fig stock carried down to the alburnum or sap wood, and the scion with its proper oblique cut, even and smooth, so that it plants itself evenly on the bared sap wood and is held firmly against it by the wrapping of cotton twine.

Grafting Grape Vines

For field work the only practical method is the cleft graft. Dig the soil away from the vine and cut the entire top off down to a point where the roots commence to branch out. With resistant stock this plan should be modified by grafting slightly above the surface of the soil and the soil heaped around the scion temporarily until it has knitted, when it may be removed. One of the most frequent causes of failure in field grafting the

grape is caused by the workmen endeavoring to cross the cambium layer of the scion with the outer or false bark of the vine instead of the true bark. The outer bark strips off readily, exposing the true bark which is of a flesh-reddish cast. In setting grape scions, split the subject with a heavy knife or grafting tool, and on large stock place at least four scions, making two incisions into the stock away from the center. Try and secure wood at least three-eighths of an inch in caliper and if possible with the nodes close together. Cut your scion as directed for a cleft grafting and have from four to eight inches long. The length is dependent on how far the stock is cut off below the surface of the ground. After the scion is cut the earth should be well firmed around it and hilled up, leaving one eye above the ground. If it is possible to irrigate, by all means do so, as this settles the earth far better than it can be done by hand. Never use grafting wax or any other material in working over grape vines, as it is unnecessary. In addition to this any material which will cause the sap to be held in check is more than likely to cause souring and will kill the scion. Severe pinching of the new growth during the summer months should be closely followed.

NO NAME

Written for California Cultivator

THE Peach Growers' Association is after a name for "peeled peaches" which are not peeled. We take it that this fruit is given a lye treatment and peel removed in pure water, but the department of agriculture has made a ruling that these "peeled peaches" are unpeeled and refuses to permit their marketing under that trade name. To most of us this seems an unfair ruling, though strictly technically it is possible that all the peeling is not removed in the process used, but certainly all the objectionable matter is taken from the peach. Therefore the Peach Growers' Association is seeking a name. "The problem," as Editor Rowell of the Fresno Republican puts it, "is simple—say 'peeled peaches' so the people will understand it, but the law won't."

In the campaign for this name which would express so much to consumers and so little to the federal department $100 was offered to the one who should suggest the best designation. The campaign brought in, it is estimated, over 70,000 suggestions. None, however, were quite satisfactory. It seems to be an exceedingly hard problem; some of the suggestions given below certainly did not come easy.

Nose-Kin, "Okay," Rid-O-Skin, Calipared, Sun-Nursed, Sunshined, Minuskin, Rid o' peel, Chemapeel, Sutzmi, Knoskin, Gotemskind, Knopeel, Knoskin, Ulelikem, Cant-Skin-Em, No-Fuz, Mechapeeled, Calibest, Peachmeat, Al-Skind, No-P-Lon, Gotemskind, Eureka, Red E Skind, Red E Peeled, Cno Skin, Peelt, Nugget, Minuskin, Peel-lac, Skin-lac, Skinshy, Lesaskin, Calacoskin, Lacopeel, Calacopeel, Calacskin, Caliskined, Gotemskind, Sanskin, Calicured, Nudo, Absen-peel, Ribanpeel, Fuzoff, Nofuz, Skynof, Shorn-O-Peel, Lac-O-Peel, Nudelyn, Calinuda, Knoskin, Scatskin, Nuway, Kno-skyn, Cote-off, Lesapeel, An-U-Skin, U-Peach, Betta, Utastnopl, Calipeel, Insideout, No-Needa-Skin, Kleen-Maid, Maid-Nude, Appeeled, Appeel, Skin-o-no, Mi-nuskin, Skinoff, Calipared, Nudried, Lack-Skin, Koatles, Knopele, Kotoph, Peel-o, Skinshed, Fuzz-no, Peacherino, Sunlov, Minopeel, Skindless, Skind, Capeco, Skin-solved, Flayed, Skinfree, Skinoff, Knupeel, Redipeeled, Skinoff, Hasnoskin, Hasnofuzz, Knopeel, Sanskin, Knoskin, Ridofuz, Delicia, Read-I-Tu-Eat, No-pel, Bare-O'Skin, Paregon, Ulika, Bareface, Sanspeel, Nopeel, Nofuz, In-d-Man, Pare-Me-Well, No-More-Fuz, Peelgon, Nupeel, Not-A-Fuza and Allgonskin.

What's the matter with Skin-nay?

Prepare your seed-bed properly. Keep the harrows going till it is in perfect condition. An extra stroke of the harrows may mean many bushels more per acre.

Adopt proper crop-rotation on your farm. Growing the same crop year by year on the same land must result in decreased yields and soil-impoverishment.

Roeding's Page on Trees

OLIVES

WHO would have believed twenty years ago that California would be supplying the European countries with the various fruits that she originally exported to the United States?

Today there is not a fruit grown in the great Mediterranean section in Europe, which is not being successfully produced and marketed in California. The success of the olive is a notable example.

Our Nurseries have been more closely associated with the growing of the olive than possibly any other concern in the State.

Twenty-five years ago we were growing over 30 varieties of olives At that time our attention was given to both the oil and the pickling varieties.

Now that it has been demonstrated that a good pickling olive makes an excellent grade of oil in nearly all cases, the elimination of so many varieties has been very pronounced. The demand has dwindled down to a few standard varieties which seemed to meet the exacting demands of firms engaged in the business commercially.

We have devoted our attention particularly to growing the best types of these recognized standards.

There are thousands of acres of fine land available for olive trees in California.

While olives can be grown on dry lands and the trees maintained by intense cultivation, it is not best to attempt to grow olives for pickling purposes except on land where irrigation can be practised.

VARIETIES TO PLANT

When planting an olive orchard, it is well to remember that the Manzanillo Olives are picked and in the vat before even commencing to pick the Mission Olives.

It is not wise to confine your planting to one variety of olives.

The Manzanillo is one of the standards for green and ripe pickles. It also produces oil of a very high grade. It is a very hardy, regular and prolific bearer.

Outside of the Sevillano or Queen Olives, which are so largely shipped as the green olive from Spain, the Manzanillo is the only variety exported from that country.

The Mission has always been a popular variety. The tree is a handsome upright grower; very fine for avenues; the fruit is medium to large; makes excellent pickles and a superior quality of oil.

A large grower and packer in California advises planting a portion of an orchard to Manzanillos and another portion to Mission Olives; by so doing the fruit will not all ripen at the same time, thus allowing the orchardist more time in which to harvest his crops.

Space on this page does not permit of us going into the subject as fully as we would like, but if any one interested in olive culture will write to us, we will be very glad to furnish additional information.

Orders for any considerable number of citrus trees received from all points in Southern California will be filled from our Nurseries at La Habra, Orange County, thus saving time and freight.

CITRUS TREES continue to be profitable. It was not so many years ago when it was generally believed that there was an overproduction, but improved marketing conditions have kept pace with the increasing production. Today there is a strong, growing demand for California Oranges, Lemons, Pomelos and Avocados. Any one who has suitable land, with water, need not hesitate a moment about planting citrus trees, for these trees, with proper care, will return a greater revenue per acre than most any other crop.

Oranges
Lemons
Grape Fruit
Avocados

WALNUTS AND PECANS should be extensively planted. They do well in many sections of California and return a good revenue to the orchardist. There are thousands of acres throughout the great valleys in our Coast counties which should be devoted to nut culture.

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We have called attention frequently to the desirability of planting Persimmons. The commercial importance of the Japanese Persimmon is well established. We have an excellent stock of the best known varieties of these trees.

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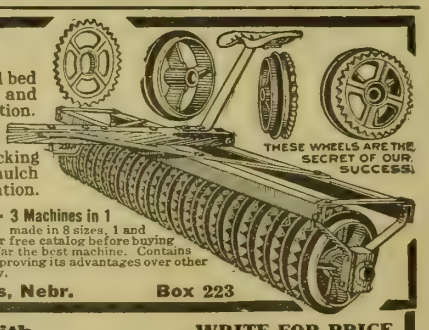

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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Roup

One of our hens choked to death and we found her windpipe completely closed with a cheesy, spongy, yellow substance. Several have had the same thing come in the eye, and one in the corner of her month. We treated with iodine and olive oil, which soon cured the trouble. The hens have a good appetite, droppings are natural and seldom do they quit laying. What is the cause and what can we do to prevent it? It is not contagious as we have 300 in flock and but six so far have had it. We noticed the first case after a liberal use of air slaked lime about the houses and yards.—Subscriber, Corona.

The symptoms are those of roup, but the fact that only six out of 300 birds are affected seems to indicate that the trouble is individual rather than sanitary. Sometimes in a cold season like the present certain birds which have for some reason or other a predisposition to colds will be affected while the rest of the flock is apparently immune. You will try of course to find anything which may be at fault in the sanitation of your houses, such as lack of sunshine or ventilation, cracks or knotholes which let in a draft on the head of the nearest birds. You will also visit them at night to see whether they are spread out over the roosts or crowded together in a corner, and you will, without fail, isolate every bird that shows similar symptoms. With these precautions the approach of warmer weather and your successful treatment of the disease when it does appear, I don't think you need fear an epidemic. It is just possible that the lime, while it could not produce roup, has made the throats and eyes of the birds more sensitive than they should be. The use of lime is not generally recommended because it is apt to be injurious when used liberally.—J. A. K.

Yard Room For Hens

How many square feet of yard room is necessary to handle 50 laying hens if they are kept in this enclosure all the time?—Subscriber.

The amount of yard room given to hens is largely a matter of individual taste and available land. Some very successful poultry men advocate the no-yard plan, maintaining that hens lay better when they are kept in roomy, well-ventilated houses without any yard at all. Some others keep their hens mainly in the houses but give them small yards in which to take the air. Others give small houses and as much yard as is convenient. I recently saw 600 hens kept in a space not more than 75x200 feet and 200 on a single 50-foot lot. I should not like myself to give 50 hens less than the amount of room contained in a yard 30x50, which is 1500 square feet or 30 square feet per hen, but most commercial poultrymen give considerably less. There is this to be considered however, that where 1000 hens are kept in a yard 200x80, as is the case with one poultryman I know, each hen can run over the whole 16,000 square feet, so, though she has actually but 16 feet she can call her own she has really more room for exercise than the hen in the 30x50 enclosure. The best plan, where hens are to be kept yarded is to have two yards and plant them in alternation to grain and other greens.—J. A. K.

Rennet

Will you please give directions for preparing rennet from freshly killed calves. The commercial rennet reads "With white wine 15 per cent alcohol." What is white wine?—Subscriber, Santa Barbara.

The ordinary source of rennet is the fourth or digestive stomach of the calf. Regarding its preparation we quote from Wing's "Milk and Its Products." The rennet skin should be obtained from an animal of some age. Still-born calves, or calves less than three days old, furnish a rennet of very inferior quality. The calf should be slaughtered three or four hours after it has had a full meal, and the fourth stomach carefully taken out. This should be emptied by turning inside out and any particles of foreign matter carefully picked off; it should not be washed with water. It should then be sprinkled with salt and stretched in such a manner that it will readily dry." Regarding the preparation of rennet extract this is entirely a commercial proposition. To make the commercial preparation with white wine, according to labels on commercial packages, involves the services of experts with proper equipment.

Overpasturing by Bees

Have from 100 to 150 colonies of bees. Last year a neighbor half a mile away brought in a lot of bees and since then mine have not done well. Is there a law to compel this man to move his bees?—Subscriber.

There are no legal steps which may be taken to prevent overpasturing by bees. "By right of discovery" does not hold with bee pastures, so that a newcomer may put in as many colonies as he wishes.

Water Delivery

I would like some information in regard to methods of delivering water to patrons of irrigation districts. There is an irrigation ditch running through my land but no gate or weir for taking out the water. The ditchman measures the water about a quarter of a mile away. Is this proper and what means have I of knowing whether I am getting the amount of water to which I am entitled? Would like to learn regarding the practice in other sections.—Subscriber.

This matter of water delivery is controlled entirely by local conditions

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We will send P.& O Catalogs to any address. While P & O Implements are sold only through established implement dealers, we welcome correspondence from farmers in all sections.

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and the agreement originally made with the company or association. Often it is at the highest corner of each water-user's place, again it is at the nearest gate or ditch on the company's line. In your case if the company agreed to deliver at the highest corner of your land the upkeep of the ditch to your place would be entirely the company's affair. In the Imperial Valley and other sections the custom is for delivery to be made at the nearest company canal gate or "check." The upkeep of ditches away from this canal is entirely up to the water user.

Cutting Alfalfa

Mr. C. W. Brown of Tulare writes:

We have been cutting our hay for the dairy cows for a number of years with good results. We use a 16-inch ensilage cutter. Your Tulare subscriber who inquired as to cutting hay could call at the ranch, four miles north of Tulare, and investigate for himself.

Acid on Alkali Lands

Answering inquiry as to method of applying sulphuric acid to alkali lands, Manager S. P. Frizelle of the Kearney Vineyards writes:

"The amount was slightly in excess of one ton per acre. This was applied by attaching home made sprinklers to acid drums. The acid was shipped in tank car and was drawn off into the drums and applied directly to the land. The alkali content of the land was extremely high, being three and four per cent in the surface soil in some places. It was so bad that under the best conditions we were unable to get a stand of either barley or maize, in fact an abandoned field. The amount of acid applied was first determined by an analysis of the soil and acid enough to neutralize the amount of salt present was put on."

THE IMPERIAL ASSEMBLY

Continued from Page 217

ment of a hog cholera serum plant which is now supplying to members of the bureau about $200 worth of serum every month, and the cow testing association, or department, of the bureau with a membership of 4000 cows. This is the largest cow testing association in the world and employs four testers continually in the field. Then there was the live stock fair, another result of farm bureau effort, and now comes the greater ambition of this fair to own its own grounds. The last of the activities of the bureau is the formation of farm loan associations of which six have already been organized in the valley. With all these accomplishments many activities are planned for the future.

Dr. Elwood Mead, chairman of the commission on land colonization and rural credits, was listened to most intently in his talk on land colonization as it is conducted in some other countries and as he thinks it should be conducted in California. Too many farmers enter into contracts which with the abilities and capital at their command they can never complete. They must be educated to use their heads and their pencils more. To that end he hoped a bill presented to the present legislature empowering a commission to make an experiment somewhat along the lines of the land colonization work carried on in Australia, would pass. This would enable buying one or perhaps more tracts of land, to be investigated by experts of the state who would give information as to the crops it was qualified to raise. These experimental plats or farms to be sold to farmers of ability, yet of small capital. What these experiments might lead to Dr. Mead leaves to the future. It is to be hoped that the legislature will follow the recommendations of the commission.

The assembly was a credit to Walter E. Packard of the experiment station staff and president of the county farm bureau, who had the arranging of the program; also to C. F. Boarts, chairman of the committee on arrangements; to County Farm Adviser Dougherty; also to every other officer, director and member of the bureau.

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For full particulars and name of nearest dealer. Write

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The two best commercial varieties

Splendid, well-grown stock, perfectly clean of all insect pests, with a splendid fibrous root action, in prime condition to plant.

Olives are one of the coming and most important of all economic fruits grown in California. There is a constantly increasing demand for California Ripe Olives, to say nothing about the value of the crop for the production of oil. They require but little attention, compared to other fruits; they grow with a minimum amount of water. Hilly land unsuited for ordinary fruiting crops, will suit them perfectly, and can be made not only productive, but highly remunerative.

The stock we offer is A-1 in every respect. If you are in the market for a large or small quantity, you will find the prices more than attractive. If you have some vacant land and are wondering what to plant it with, it will pay you to investigate the prices we can quote you on these trees. Sample trees may be seen at our Sales Department at Ninth and Olive. We can furnish them in the following sizes:

½ to ⅝-inch caliper.
⅝ to ¾-inch caliper.
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1 to 1¼-inch caliper and over.

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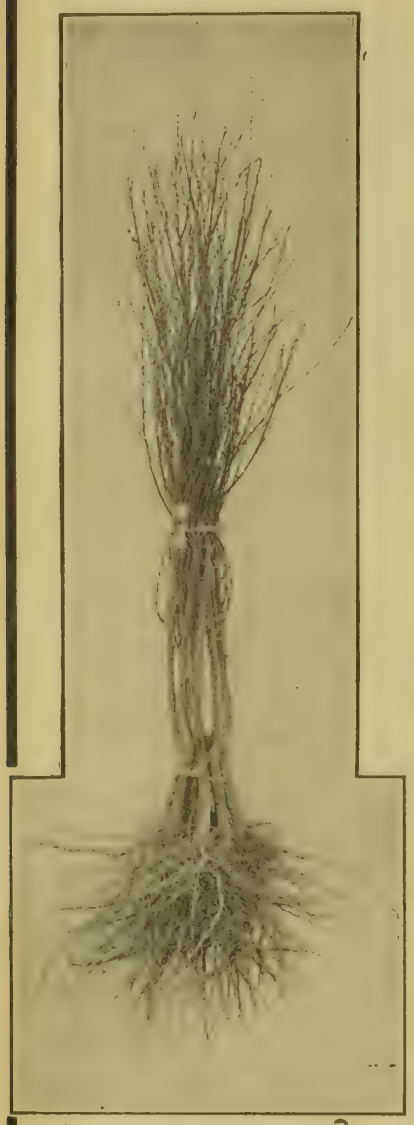

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Will bring big money, either for the local or long distance market

ALMONDS, CHERRIES, TUSCAN CLING PEACH
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the old and safe standbys

Fine Assortment Pears and Plums

FOR AVENUES

Elm, Maple, Plane, Mt. Ash, Mulberry, Poplar, Tulip Tree, Walnuts, etc. 6-8 ft. size, low prices.

Leonard Coates Nursery Company

Morganhill - - California

Highway Planting in California

Written for California Cultivator By E. Braunton

IN Eastern states where nature sleeps all winter and rains fall throughout the summer; where, east of the Missouri and Mississippi Rivers, no alkali is found, the highway tree problem is beset with fewer and lesser problems than in the Far West, where soils, climates, water supplies., etc. are at great variance and of great variety.

Here the problem is to take trees from any and all quarters of the earth and create, so far as we may, the special artificial conditions under which these trees will thrive and eventually pass from the necessity of care by man. It seldom happens that the rainfall is here excessive, though this may be true of low lands subject to flood and overflow. If so the excess water has to be drained off either in open ditches or underground conduits. In some cases soils are too heavy or impervious to water and must be dug deeply or blasted and some material introduced to keep them open. Sand, ashes, stable manure or other organic matter, or perhaps lime alone may be the proper material to overcome the deficiency.

Again the soil may be so light and porous, so deficient in organic matter that it not only lacks the plant food necessary to normal tree growth, but may fail to sufficiently retain soil moisture. This may necessitate the introduction of animal manures, composts, or perhaps heavy loam or clay in sufficient quantity to enable young trees to get started aright for the first few years. An excess of alkali may also require temporary treatment to serve as a neutralizing agent or demand permanent drainage.

It may also be necessary to give some special cultivation or preparation to ameliorate existing unfavorable conditions. Deep culture is generally desirable on any soil and often will free the surface from excess alkali, break up a shallow hardpan or too heavy subsoil, mix a rich subsoil with an impoverished or naturally poor surface soil, permit a drying out or sweetening of an acid or foul soil, as is often the case when stagnant water remains too long near the surface, and correct such a number of evils as to warrant the universal practice of turning up all soils as deeply as possible. There is herein indicated some of the bad conditions one may find even in a roadside stretch of a single mile, or all of them may be present in the same mile. It is hoped those who have the task of planting in hand will study well local conditions before an attempt is made to induce any one kind of tree to adapt itself to a great range of bad or unnatural conditions.

Watering Highway Trees

Where there are stretches of highway trees needing much summer watering, as in the case of dry and easily drained soils, the tank wagon method of irrigation is not the most economic. A continuous line of pipe would in the end prove cheapest and would give service even for a score or more of years and if required over a long term would necessitate but a portion of the expense incumbent upon hauling water.

A valve attachment could be placed at every tree, and portable gas engines are common in California. A water supply is generally available every mile or two and a 15-horsepower gas engine with a four-inch centrifugal pump will force water a distance of two miles. While such an initial outlay seems proportionately large, careful estimates of known examples have proven the cost of three years' service to be less than one-half that of hauling water in tanks if the trees receive the needed amount of water.

Backward Garden Season

For three months past the low temperature made a season of forced inactivity in the garden. In my own place plants put out three months ago are scarcely larger—and less vigorous—than when planted. At that time I planted four species of native lilies: pardalinum, Parryi, Humboldtii, and Washingtonianum. Not one of these has shown above the soil, though they are surrounded with a little pure sand, in a soil just worked over three feet deep, and therefore none have rotted. Everything else in plant life, nearly, has likewise stagnated. All this points to the fact that we may now plant all those same things we put in the soil three months ago and harvest flowers from the two lots at nearly the same time. A bed of cinerarias in my garden has scarcely developed any growth in three months, but among them some Primula Malacoides have blossomed abundantly. It is a winter gem.

Garden Season Is Now

It must be apparent to all that the season of active gardening is the present, and not, as in normal seasons, a month or two back. Last October I was advocating broadcasting seeds of a little orange daisy from South Africa by the interesting name of Dimorphotheca aurantiaca. I planted mine over three large beds of bulbs, and while the latter are up the daisy seeds rotted by reason of excessive and continued cold and sunless days. Seven other kinds of seeds of annuals suffered the same fate. Seeds of poppies alone survived the ordeal. I would therefore advocate the immediate sowing of spring and summer annuals at this time, for seeds of poppies of four kinds, sown in October are now but one-eighth inch high. Seeds sown now will produce flowers as soon as will the October sowing.

Propagate Bedding Plants

Now that real cold weather is past we are safe in propagating all sorts of bedding and herbaceous plants. A good box of sand in a protected, half shady place that is neither too hot nor too cold is the best location for it. In this box put cuttings of begonias, carnations, fuchsias, heliotropes, marguerites, salvias, and all sorts of lowly border plants. If one had a hot bed it would insure a far larger percentage of rooted cuttings, but even without bottom heat, if conditions are favorable and no bad weather conditions ensue, the treatment herein outlined will give a goodly lot of vigorous young plants for summer flowers.

Harmony With Native Plants

Aside from the peculiar climatic suitability of native plants for garden use comes in the matter of harmony with local landscapes. Our rounded hills and undulating mountain ranges with but minor crags and peaks, calls for softened rounded outline of tree top and bush top, and what can better supply the ideal form than plants native to California? Plants always appear most at home or in natural surroundings that most closely harmonize with the landscape both far and near. Do not place trees with spike-like tops where one may get above them and look down, or there may come the suggestion, not a pleasant one, that we might fall upon these bayonets and be injured. Keep points at extreme top points and rounded outlines below.

PROFIT comes from fruit, not foliage. On Citrus fruits use immediately available

Nitrate of Soda

It works while the fruit buds are forming.
"Orange Culture" is a valuable book I will send to you Free if you will but ask for it. Send post card.

DR. W. S. MYERS
Chilean Nitrate Propaganda
25 Madison Avenue, New York City

Lime or Gypsum

Lime $4.25 Ton Carlot Gypsum $4.50 Ton Carlot
H. B. Matthews, 485 Jackson St., Pasadena

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Unsigned communications receive no attention.

Promissory Note

A homesteader owes "A" $25 and gave "A" the following promissory note: "I, John Doe, mortgage one mare, color bay, also one spring wagon for the amount of $25. The above amount I agree to pay not later than April 5, 1917." Is this legal, or does it have to be drawn up before a justice of peace or a notary public? And if it is legal can "A" attach this mare and spring wagon and collect the money? As John Doe is a homesteader would this mare and wagon be exempted even if he has mortgaged it to "A".—Subscriber.

The contract as stated might possibly be valid as between the parties, but it is totally void as against creditors of the mortgagor, or subsequent purchasers or encumbrancers of the property attempted to be mortgaged, unless it is accompanied by affidavit of all the parties that it is made in good faith and without any design to hinder, delay or defraud creditors, and unless it is acknowledged and recorded in like manner as a deed. If you should take it before your justice of the peace he could undoubtedly improve greatly upon the form of the mortgage. If there is a valid chattel mortgage the homesteader cannot claim his exemption as against it.

Chickens Trespassing

I have a fruit orchard and raise potatoes, melons, corn, alfalfa, and vegetables between the rows of the trees. My neighbor across the road raises chickens and turkeys. He lets them run on my place, destroying my crops. I have asked him to keep them off, but he won't do it. My place is not fenced. What can I do to have him keep his chickens off my place?—Subscriber.

Your lands not being fenced, you cannot take advantage of the "Estray Act." However, you might bring an action for damages against the owner of the chickens for the loss caused. From a practical standpoint in some cases a number of chicken dinners have a very good effect.

To Terminate Life Estate

What procedure is it necessary to go through to terminate a life estate after the death of the person holding such interest?—Subscriber.

A verified petition must be filed in the superior court, setting forth the fact of the death of the party and the nature of the estate under which the land is held, by any person interested in the property. Thereupon, after such notice as the court may order, including service of copy of notice upon the state controller, the court hears the petition and the facts offered, and if upon such hearing it appears that the life estate of the deceased is absolutely terminated by reason of his death, or that an estate vested in any survivor, or in the case of a homestead in the survivor of the marriage, a decree is made to that effect. A certified copy of such decree is then recorded in the office of the county recorder, which vests complete title in the person to whom the estate survives.

Recording Expiration of Contract

In case a contract for a limited time is made with a real estate agent for the sale of property and the contract recorded, will it subsequently affect the title if some note of the expiration of the above contract is not recorded, or is this unnecessary, no sale having been made by agent?

It depends very largely upon the character and form of the contract. With some contracts it would necessitate an action to quiet title; others, probably not.

THE NITRATE SITUATION

In "The American Fertilizer" we note that the committee on public relations of the American Electrochemical society has submitted the following recommendations to the government relative to provisions for an ample supply of nitrates.

"It will take a considerable time to build a plant for fixation of atmospheric nitrogen using any of the known processes. Even on a war basis with all questions of cost sacrificed several months would be required. We therefore urge the necessity of providing at once 18 months' supply, on a war basis, of Chilean nitrate, using government ships if necessary, this reserve to be stored at various strategic points.

"As the government should have information regarding developments in each of the processes proposed to date, in order to be able to act in case of emergency, we add our endorsement to the recommendation that a committee of appointees by the president visit each of those groups of men who control these processes and have intimated their willingness to furnish proper representatives of the government with full confidential data.

"As we confidently hope that this country may never be involved in war, while thoroughly believing it should be prepared for immediate defense, it should be remembered that the great peace use of fixed nitrogen is as a plant food, and it is therefore desirable that private interests be allowed to develop the best and cheapest process on a peace basis without either government aid or government hindrance unless equally applied to all comers. We are therefore opposed to a government subsidy to any particular process at the present time because the relative merits of the several processes cannot yet be clearly seen."

HAD THE PROOF

An earnest preacher in Georgia, who has a custom of telling the Lord all the news in his prayers, recently began a petition for help against the progress of wickedness in his town, with the statement:

"Oh, Thou great Jehovah, crime is on the increase. It is becoming more prevalent daily. I can prove it to you by statistics."

There Are Dollars In Your Subsoil. Get Them Out!

The value of your land can be greatly increased by means of subsoiling.

Beneath the surface soil of your fields, which has been thoroughly stirred by your plow and kept fertile by the rotation of crops, there lies a subsoil that you have never touched.

This subsoil is probably either one of two things—rich soil of which you should be getting the benefit, or a hardpan which is obstructing drainage, deforming the roots of plants and trees, and in other ways lessening the value of your land. In either case it should be broken up by means of

HERCULES DYNAMITE

If the underlying soil is fertile and rich so much the better. Subsoiling with Hercules Dynamite will stir it up, bring part of it to the surface where it will be at the disposal of your crops, loosen it so that the roots can penetrate it easily and get out of it all the good there is in it.

On the other hand, if the subsoil be a hard, impervious layer beneath the cultivated soil it is imperative that it be broken up in order to facilitate drainage, give roots a chance to spread naturally, and get out of it the mineral food it contains.

By means of subsoiling the yield of thousands of acres in this country has been increased anywhere from 10% to 200%, depending on the crop and local conditions. Soil that has been utterly unproductive has been made fertile.

If you have not looked into this question you should. As a first step write for our book, "Progressive Cultivation". It will be sent free on request. It not only discusses in detail the matter of subsoiling with dynamite but also tree planting, irrigation, drainage work, rock and stump blasting, etc.

You will find it worth reading. Send for your copy today. Please use the coupon below.

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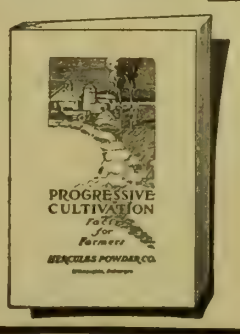

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Gentlemen:—Please send me a copy of "Progressive Cultivation".

I am interested in dynamite for_____

Name_____

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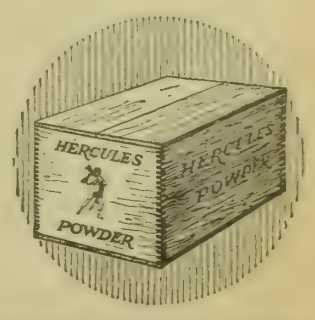

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The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday Feb. 24, 1917

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

This week's cover is rather different. Readers may note that the advertiser is rather encroaching upon our space, and to save a bit of that which is so valuable these days of high cost of paper, we talk about and illustrate the Imperial Valley Farm Bureau Assembly and give a view of one of the Brawley cotton gins and the stack of cotton which is piled around it. The Valley is producing some 60,000 bales this year and talks as if she would like to produce twice that number another year. In any case the industry is growing. The Imperial Valley? Yes, it is growing too.

SHOP EARLY

The railroads are appealing to farmers who contemplate using implements, fertilizers or other supplies in the near future to place orders at once. The shortage in transportation facilities daily becomes more acute. It will mean great loss to the farmer whose work must be finished in season not to have supplies. His needs should be anticipated by weeks, if possible, by months.

GARDEN

A number of articles are appearing in the household department which we believe it would be well for every reader of the Cultivator to peruse. They have to do with the kitchen garden. We were recently in the Imperial Valley and saw several gardens which have not only added much to the variety and attractiveness of the daily menu but also to the comfort of the family in cash returns from sales of fresh vegetables to other families in the neighborhood who did not believe in gardening. "Because of the war" even vegetables have gone up in price. Let's grow our own. Only one of these articles appears in this issue. Others next week.

NEW BEAN CONTRACT

Lima Bean growers of Ventura County are securing action in the signing up of contracts for next year. The new contract is so written as to protect the association as well as the grower. Under this contract the grower will pay the association two cents per pound for all uncleaned beans or seed beans he fails to deliver to the association. The best of it is that the new contract is being almost unanimously endorsed.

ORANGE SHOW ON

The National Orange Show is now on at San Bernardino and will be till the end of the month. The splendid displays of previous years are bringing even greater crowds of attendants this year in spite of the damp weather, for such weather cannot dampen the enthusiasm of citrus lovers of California. This show is staged as a splendid spectacle; it is also an educational feature which everyone who possibly can should visit.

A TRIBUTE

ANSWERING a request of the editor for a word of appreciation as to the work which Arnold V. Stubenrauch did, which will benefit California and all America, Dean Thomas Forsyth Hunt of the College of Agriculture, University of California writes:

"Your kind favor relative to the death of Professor Arnold V. Stubenrauch has been received. The shock has been so great and the personal loss is so keenly felt that it does not seem possible at this time to write at length of his contributions to horticulture.

"His loss to the state and to the university is irreparable. He was the accepted leader among college men in the field of transportation and marketing. He was a most simple and sincere man, never by word or deed drawing attention to himself personally. He could always be depended upon to take the sound view. He was not only fundamentally trained in the technique of his subject, but he grasped its larger aspects as few men do. The word 'lovable' was commonly used in referring to him, which accounts for the fact that he was a leader of men both young and old."

FARMERS PROTECTIVE LEAGUE

Since the first eight hour campaign in California the Farmers Protective League has been true to name. Its greater activities have been in the northern part of the state, though it has had affiliating organizations in the southern end. Now, however, a definite effort is being made to organize the southern end of the state as well. President McKevitt has had a conference with producers at Los Angeles, and C. C. Teague has been made chairman of the organization committee to work up a live and energetic membership in the South.

The farmers need such an organization to have oversight of legislative and other matters affecting producing interests.

GRAFTING

When we recently asked Mr. Roeding to give us the latest in methods of grafting, he referred to an article which he wrote for California Cultivator readers a couple of years ago and said that it, with a few revisions, would be as good as he could give to us. These revisions he has made, and the article appears in this issue.

We wish to repeat one remark Mr. Roeding made when we suggested that we wished instructions so plain that the veriest novice could graft over his trees. He said: "You must bear in mind that success is in the man and not in the method nor the tool," which sounds very much like some of the advice given for years in the columns of the Cultivator. It's the "man behind" and the energy and intelligence which he puts into his job that counts. If one wishes to graft over an orchard the first thing necessary is thorough mastery of the principles and then the best of practice.

ORANGE DAY

Orange Day is March 10.

When the celebration of Orange Day was first suggested, Los Angeles, in the center of a section which receives much benefit from this industry, with its usual enterprise got busy and organized an Orange Day committee. We believe there was no idea of excluding other sections; on the contrary the purpose was to inspire all sections to observation of the day and to secure the cooperation of all who would aid in this movement. Correspondence has been taken up with all sections of the United States. Some papers in the Northern California citrus sections have referred to the fact that there is a bit of restiveness in the northern sections because there are no northern men on this committee.

There is no reason whatever why Northern and Central California, and, in fact, Florida, might not most profitably use every effort to secure not only a national, but an international, observation of this day. The idea is to eat oranges, to drink oranges, to use orange and lemon juice in the bath and as a medicine. Without question, Florida last year received great benefit from the efforts of California orange growers; she certainly will this year.

There is no reason why all should not unite in one grand boost.

RAINING AGAIN

California's best year seems to be upon us. The rains began early and have continued with fair regularity. As we go to press a glorious soaker is coming down which is reaching all over the state.

The world is crying for food. Actual starvation is facing millions. There is a great duty before all America. Its $13,500,000,000 produced agriculturally signifies large prices rather than large quantity. The quantity must be increased.

Internationally our own affairs are somewhat involved, but one of the greatest protective measures is the securing of ample food supplies. Europe is proving this today. Let California do all in its power.

Along this line, do you know that there are 6,000,000 less cows in the United States than there were five years ago and that there are 24,000,000 more people? This affects not only the food but the apparel problem.

Take every possible advantage of these timely rains.

North of the California boundary the rains have not been so plentiful and the Sacramento and San Joaquin Valleys could accommodate slightly more. The present storm seems more of a southern one. Los Angeles receiving 1.79 inches, Riverside, Redlands, and other similar sections 1.5 to 1.75 inches, Fresno about a half inch, with Sacramento Valley points about the same.

A New, Better and More Satisfactory
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For Everyone Out of Town Who Wants a More Livable, BETTER Furnished Home!

We maintain a Personal Service Shopping Bureau especially for the benefit of our out-of-town customers. Every order is given the same attention by our expert shoppers who buy FOR YOU, as though they were buying for themselves. They seek the very best values in our stock FOR YOU. They take advantage of the very best BARGAINS. They give your instructions the greatest possible care.

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All goods GUARANTEED ABSOLUTELY AS REPRESENTED, and SATISFACTION ASSURED. Write us. Address MAIL ORDER DEPT.

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IS YOUR SOIL 100 PER CENT EFFICIENT?

Few Ranchers Realize Full Possibilities of Their Land

It is an astonishing fact that the great majority of California ranchers and fruit growers are suffering a very serious loss every year, of which they have little or no knowledge. That is, their crops do not begin to measure up to the maximum possibilities of their lands. This is a condition which would not be tolerated in any other line of business, and there is no good reason why it should be endured in farming—the greatest business in the world.

If you do not get a full crop from your fruit orchard, your alfalfa land or grain field, it is probable that the principal fault is in the soil itself.

It is impossible to tell from the looks of a soil whether it is in perfect condition, and soil experts are, of course, expensive.

Every rancher will learn with interest, therefore, that a little device has been perfected which will test soil accurately, and show just what is needed to bring it up to the maximum of bearing efficiency. The initial cost of this little machine is very nominal, considering its great value to the rancher in increased crops. Once the device is obtained, the cost of each soil test is only a few cents.

These soil testers are being distributed on the Pacific Coast by Mr. Clement B. Stern, 612 Central Mortgage Bldg., San Diego, California, who will be glad to mail literature and full information regarding them to any reader of this paper who will simply drop him a line.

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Agricultural News Notes of the Pacific Coast

Northern California

Sacramento is to have a union stock yard.

The farm adviser movement is arousing much interest in Butte County.

Entries for the California Jersey Breeders' Futurity stake will close March 1.

Considerable quantities of low priced rice are being fed to stock with excellent results.

The Arbuckle chamber of commerce has fixed September 13 and 14 as dates for the 1917 fair.

Shipments of the Colfax Fruit Growers' Association through 1916 were double those of 1915.

The Western Berkshire Congress convene at the university farm at Davis February 13-15.

It is estimated that 100,000 acres will be planted to rice in the Sacramento Valley this year.

The next meeting of the Jersey Breeder ' Cattle Club will be held at the university farm at Davis April 13.

Ten carloads of oil were received in the Durham district last week to be used in smudging in the almond orchards.

The Capay Ranch northeast of the Orland project will soon be thrown open to settlers. The ranch contains 9000 acres.

Napa County farm bureau members are planning for this year's county fair, which will be held the week following the state fair.

One of the features of the third annual Butte County Spring Exposition will be a milking contest. The exposition will be held some time in May.

There is reported to be an egg war on, directed against the new association of poultry producers of Central California. A former large buyer of eggs is said to have notified members of the new association that he will purchase no more eggs from them unless they withdraw from the association.

Central California

A number of Calimyrna fig growers of Merced are forming a pooling association.

The Dinuba Grape Growers' Association shipped out 30,717 crates of Malaga grapes last season.

Voters of the Turlock district will vote on $65,000 bonds for building a new high school on March 3.

Japanese vineyard workers of Fresno have returned to work on a schedule of $2.50 for a nine hour day.

A farmer of French Camp secured a jail sentence of one day against a man who shot his gopher-hunting cat.

There are reports that a new sugar factory is to be erected near Stockton in time for the next summer's run.

As an outcome of the fig institute held recently in Fresno an effort is being made to pool this year's fig crop.

The Dallas reservoir of the Modesto Irrigation District, which has been out of use for two years, is now being filled.

County Horticultural Commissioner Harry Ladd of San Joaquin states that the heaviest planting of orchard trees is of prunes.

Construction work on the Terra Bella Irrigation Project is in full swing. Pipe layers at the southern end of the district are laying 3000 feet of pipe per day.

The executive committee of the Fresno County Raisin Festival Association is holding many meetings these days and making many plans for the success of Raisin Day April 30.

The Dairymen's Cooperative Creamery Association of Tulare has elected Allen Thompson, president; W. J. Higdon, secretary. J. P. Murphy has been named manager for another year.

A new butter selling agency has been established in Los Angeles by the Danish Creamery of Fresno, the Riverdale Cooperative Creamery and the Dairymen's Cooperative Creamery of Tulare. The new combination expects to furnish one-fourth of Los Angeles' butter supply.

Southern California

Hueneme is to have a canning factory.

The Yucaipa Apple Association has 125 members, whose acreage totals 2000.

There is a report that Covina will soon secure the location of a citrus by-products manufacturing plant.

A farm survey of the Hemet district is to be made this spring by the United States department of agriculture.

The Orange County Harbor Commission recommends the construction of a channel 700 feet wide and 40 feet deep from the entrance of the harbor to Newport.

To attendants at the National Orange Show all railroads in Arizona, Nevada and California are offering fare and a third rates to San Bernardino next week.

Ranchers of the Imperial Valley are urged to plant more alfalfa another year as the demand, especially from cattle men of Arizona and New Mexico has sent prices sky high.

At the last monthly meeting of the directors of the Beaumont Fruit Growers' Association a profit for the year of $1076 was reported. Apples in cold storage yet unsold amount to 1200 boxes.

State Highway Commissioner Darlington has informed the supervisors of Ventura County that funds are now available for construction of the highway between Ventura and Montalvo bridge, which will close the last gap in the state highway.

The Yucaipa Apple Association is making plans for its next apple show. It has elected the following directors: L. P. Black, P. B. Hasbrouck, C. W. Partin, B. N. Boggess, A. A. Adams, George W. Taylor, Frank Dillion, C. H. Smith and K. B. Ward.

Vegetable and fruit growers of Riverside organized an association at Riverside on February 3. The object of the association is to encourage plantings of fruits and vegetables which will find readiest market and to look after the marketing end of the business.

The Coast

Seattle reports sales of Yakima Gem potatoes at $65 a ton.

Cold storage holdings of apples are 40 per cent less than last year at this time.

Omak, Washington, reports shipping out 200 more carloads of fruit than last year.

Cranberry growers of the lower Columbia have organized a marketing association.

Washington corn took the sweepstake award at the St. Paul, Minnesota, corn show.

An effort is being made at North Yakima, Washington, to sign up 10,000 acres for sugar beet planting.

The new stock raising homestead law permits the entry of 640 acres of non-irrigable, non-timbered land.

The Colorado State Dairymen's Association held its annual meeting recently at Fort Collins during the sessions of the Colorado Farmers' Congress.

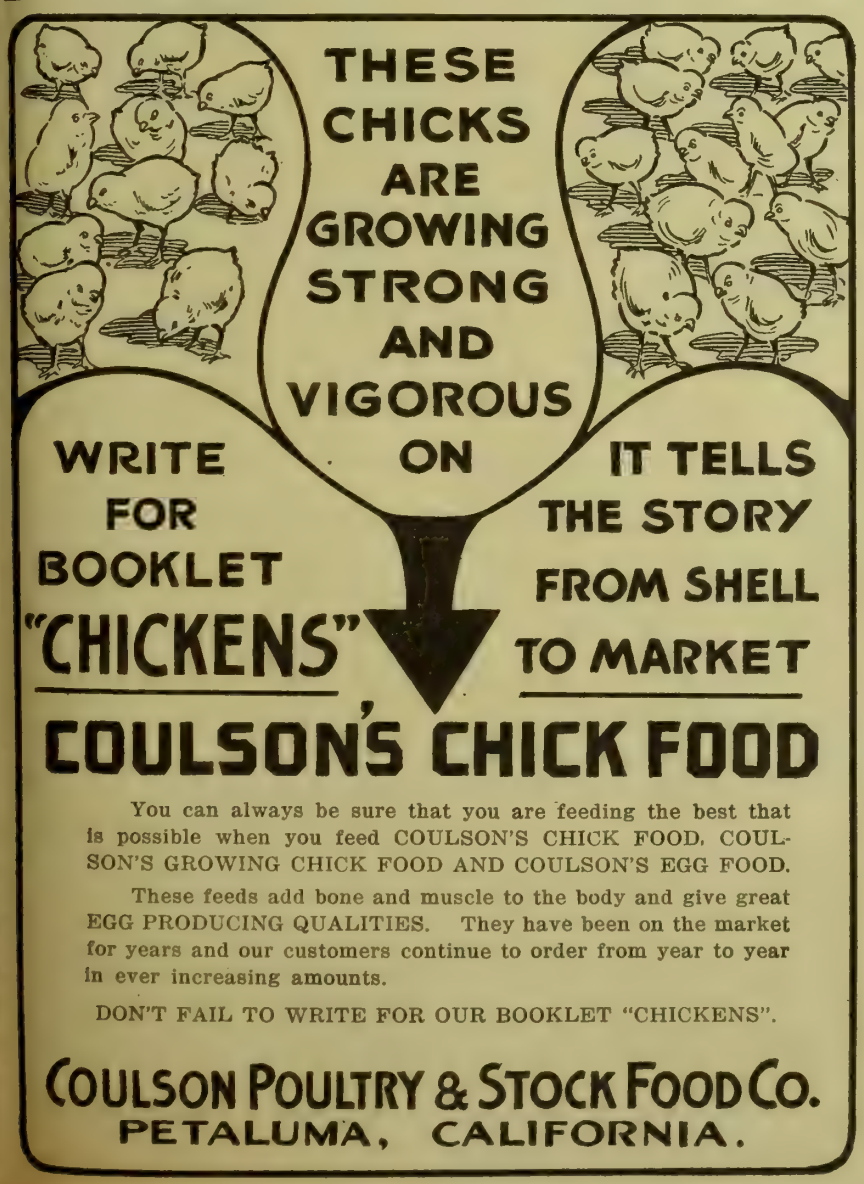
Dairymen who recently formed an association to purchase lands at Richland, Washington, for raising their own feed are now planting 300 acres to alfalfa.

At the recent annual of the National Wool Growers' at Salt Lake City F. J. Hogenbarth of Salt Lake City was reelected president and S. W. McClure of Salt Lake, secretary.

A new by-products plant has been established at Wenatchee by representatives of the Northwestern Fruit Exchange. Evaporated fruits, jelly, cider and vinegar will be handled.

Colorado fruit growers have organized an association, electing Herbert Chase of Delta president and Dr. E. T. Sandsten of the agricultural college at Fort Collins, secretary-treasurer.

Farmers living along the Columbia River in Wahkiakum, Washington, are cooperating in building dikes, by which they expect to redeem 3000 acres of rich land from river overflow.


THESE CHICKS ARE GROWING STRONG AND VIGOROUS
WRITE FOR BOOKLET "CHICKENS"
ON
IT TELLS THE STORY FROM SHELL TO MARKET
COULSON'S CHICK FOOD
You can always be sure that you are feeding the best that is possible when you feed COULSON'S CHICK FOOD, COULSON'S GROWING CHICK FOOD AND COULSON'S EGG FOOD.
These feeds add bone and muscle to the body and give great EGG PRODUCING QUALITIES. They have been on the market for years and our customers continue to order from year to year in ever increasing amounts.
DON'T FAIL TO WRITE FOR OUR BOOKLET "CHICKENS".
COULSON POULTRY & STOCK FOOD CO.
PETALUMA, CALIFORNIA.

1917
Seed Catalog
NOW READY
IT IS FREE—mailed on request. It tells how and when to plant garden, flower and field seeds.

SEED POTATOES We now have a fine stock of Oregon-grown AMERICAN WONDER, EARLY ROSE and LOW TOP BURBANK. WRITE FOR PRICES.

ALFALFA SEED We always lead in this item.

Send for samples and prices of GRIMM, HAIRY PERUVIAN, TURKESTAN and COMMON CHILIAN ALFALFA SEED.

Extra Fancy Sudan Grass
Lb. 40c, 10 Lbs. $3.50
100 Lbs. $30.00, Delivered
BUY NOW

LONG RED MANGEL—for stock feeding
Lb. 50c
10 lbs.....$4.50

We Pay the Freight To All Points

Valley Seed Co.
5th and Jay Sts. Sacramento, Cal.

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The **LONG DRY SPELL** makes the need of a Silo exceptionally **GREAT.** Hold what feed you can against **THE HIGH PRICES** which are sure to prevail during **NEXT WINTER.**

A REMCO SILO

will solve your problem and **MORE THAN PAY FOR ITSELF THE FIRST YEAR,** giving you a life time of profitable service **AT NO FURTHER EXPENSE.**

REMCO PIPE

is cheaper than any other efficient irrigation pipe. Delivered at once. **EASY TO LAY.** It will give you irrigation facilities at low cost and last your life time.

HUNDREDS OF MILES OF REMCO PIPE IN CALIFORNIA.

Write us for details.

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Santa Anita Rancho

Anoakia Breeding Farm

ARABIAN-THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned Imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent **Santa Anita, Cal.**

Another Shipment of **Shorthorns** Just Arrived

35 Registered Scotch-Topped Bulls
15 Registered Scotch and Scotch-Topped Cows and Heifers

All This Stock is Tuberculin Tested.
They are Large, Rugged Individuals with Excellent Bone and Quality

A Few Choice Berkshire Boars and Gilts For Sale

H. L. & E. H. Murphy, Perkins, Sacramento Co., Cal.

FOREST GROVE LAUREL 8TH
First and Reserve Grand Champion
California State Fair 1916

The Type We Are Breeding For

Hardy, prolific sows of best blood lines and breeding. Strong, upstanding, prepotent boars. In short the best possible specimens of the Berkshire breed. We plan to do this by breeding large numbers and from them making a rigid selection.

James Mills Orchard Corporation

Hamilton City, California

When writing advertisers, mention The Cultivator.

Economical Feeding of Hogs

AT present prices it is comparatively easy to devise a ration for hogs which leaves a margin for profit, but the margin may be widened with reasonable care. Some time ago we wrote Mr. R. K. Walker of the Fontana Land Company as to producing at home as much feed as possible and as to what methods he would advise —this with especial reference to green forage crops which might be grown either summer or winter. For the winter feeding note that he recommends and storing in a cool well ventilated place. These are both great worm preventives and splendid succulent feeds.

"For winter roughage, I know of nothing better than well cured alfalfa. This may either be ground into a meal, or if no grinder is available may be fed as hay in racks. Many farmers say hogs won't eat alfalfa hay. They will however if it is cured right, and this is how to cure it: Cut young before there are any blooms or buds and cure thoroughly in the cock. Cure until it

CHAMPION JUNIOR FOUR-YEAR-OLD

A great Holstein performance is that of Queen Piebe Mercedes 154610 owned by E. C. Schroeder of Minnesota. The figures of her world's record as a junior four-year-old are 30,230.2 pounds of milk and 1111.56 pounds of fat, equivalent to 1389.45 pounds of 80 per cent butter in 36 days. In no month of the year did she fall below 2000 pounds milk or below 100 pounds butter. Her average fat test for the whole year was 3.6 per cent. Besides holding the world records for both milk and butter in the junior-four class, she is the only heifer in the world with 30,000 pounds milk to her credit.

citrons, pumpkins and like crops. It will soon be time for planting these, and before the evenings shorten too much it may be well to look over opportunities for such planting for this season. Mr. Walker says:

"It has been my experience that none of the so-called nitrogenous forage crops produce well north of the Tehachapi. (In the Imperial Valley of course they have alfalfa almost the year around). The best succulent feeds for winter feeding are obtained by growing citrons or pumpkins in the summer and holding them over for winter feeding. This can be done by handling them so as not to bruise them will not go through the sweat whe stacked. This makes brittle instead tough hay, and the hog can handle very nicely and will eat it with relis

"Don't make the mistake of tryir to get all their protein from roughage I believe there has been too much e phasis placed on the protein conte of grasses. Add a little tankage (fi or ten per cent) of the grain ratio There is far too much fiber in a roughage for the protein it contain We can't expect to raise good chea pork without grasses, and the nitr genous ones are the best, but the ma protein supply will have to come in concentrated form, such as tankage.

Feed for Calves

MILK is so expensive nowadays that the farmer can't afford to pamper his calves on such a luxury. So the University of California has been experimenting for the past two years to find out the best way of raising strong and healthy calves on separator skim milk, mixed grain feeds and hay. The successful results are told by F. W. Woll, professor of animal nutrition, and E. C. Voorhies, instructor in animal husbandry in the University of California, in a bulletin on "Feeding Dairy Calves in California" which may be obtained free by writing College of Agriculture, Berkeley.

They recommend that the new-born calf be left with its mother for a day only (unless the cow's udder is greatly inflamed or the calf very weak) that the calf be fed whole milk for about two weeks, at first three times a day, later twice a day; and then gradually changed to warm skim milk, in the course of a week or ten days, since skim milk costs only about one-eighth as much as whole milk. When the calf is put on a skim milk diet it should receive a small amount of a grain mixture, gradually increased from less than a quarter of a pound daily to about two pounds at weaning time, four or five months of ag Bright, fine alfalfa hay or grain h should be kept before the calves, well as clean drinking water and sa The grain mixture can be made from standard dairy feeds, such rolled barley, dry beet pulp, mi kafir, cocoanut meal, crushed car pods, etc., according to the spec feeds available or economical. In t case of more or less delicate calv that do not eat their feed readily, small proportion of linseed meal m be included in the grain mixture.

Linseed meal is not necessary, a

HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from bes families. Some of serviceable age.

REGISTERED BERKSHIRE PIG

Masterpiece, Longfellow and Robi Hood Strains. Fine individuals both sexes—we pay registration fee.

Careful attention given to ma orders.

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Whittier, Calif.

Famous Blackhawk Shires

AGAIN demonstrated their superiority by their winnings at the 1916 California State Fair.

At this fair Blackhawk Shires won all first prizes except two, and in one of those classes had no entry.

A mare bred and developed at Blackhawk Ranch won Grand Championship over imported mares of the first quality, thus demonstrating the quality of stock we are breeding right here at home.

Anwick Arthur and his get again won the California Stallion Registration Board Special, for stallion and three of his get, over all breeds.

Do not Forget that Blackhawk Shires Won 68 Prizes at the Great Exposition Show at San Francisco in 1915.

If you need a first class Shire stallion or mare we can please you from a wide selection that have weight, quality and right draft type.

Our Shires are bred and raised under good healthy breeding conditions—they are not pampered—and we deliver to you horses in breeding condition that will breed, and at a price well within their value. Correspondence invited. Visitors welcome.

Blackhawk Stock Ranch

Easton & Ward, Props. Burlingame, Cal.

Write for Photografic Catalog of Blackhawk Shires

Gertie's Son's Victor No. 123159
Dam, Victor's Lady Kate, (R.O.M.) of 537 lbs. Butter in 303 Days as a 4-year-old.
135 Registered Jerseys in my herd, including 18 Register of Merit Cows.
Blue Ribbon winners at 1916 Kings, Kern and Tulare County Fairs.

Invest in Jerseys and Start Right

Visitors Welcome Correspondence Solicited

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Here's the Important Part
Bag Balm is a healing ointment of great penetration—fine for any udder sore, cut, scratch or bruise and a sure, quick relief for caked bag, inflammation, chafing or chaps
Generous package 50c, at feed dealers and druggists. Useful booklet, "DAIRY WRINKLES," sent free.
Dairy Association Co.
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BAG BALM
MADE BY THE ROW-KURE PEOPLE

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Get Rid of the "Boarders"

Do you keep cows or do they keep you? Do you know which are earning a profit and which are merely paying their board? One community increased the average net profit per cow 129% in a few years by testing. Cows from regularly tested herds sell for more money and so do their offspring. Knowing beats guessing in dairy work. Get our free booklet, "What is Accomplished by Testing Cows" and learn how to build up your herd from animals of known production. Every farmer should read this booklet. It's free. Send a postal today.

The American Jersey Cattle Club
356 West 23d St. New York City

BLACK LEG LOSSES SURELY PREVENTED by CUTTER'S BLACKLEG PILLS

Low-priced, fresh, reliable; preferred by western stockmen, because they protect where other vaccines fail.

Write for booklet and testimonials.
10-dose pkg. Blackleg Pills, $1.00
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Use any injector, but Cutter's simplest and strongest. The superiority of Cutter products is due to over 15 years of specializing in VACCINES AND SERUMS ONLY. INSIST ON CUTTER'S. If unobtainable, order direct.

The Cutter Laboratory, Berkeley, California

does not produce better gains than grain mixtures which omit linseed meal, but linseed meal makes the mixtures more palatable and to some extent improves the calves' appearance and handling quality. It is not necessary, therefore, to make this usually high priced feed a part of the grain ration for thrifty calves that have been successfully brought over to a skim milk diet.

The university farm proved that calves can readily be brought up to a weight of over 450 pounds at an age of six months on a ration of skim milk, alfalfa hay and a suitable grain mixture, at a feed cost of a little over four cents per pound of gain in body weight from the time the calves are put on skim milk.

A mixture of beet pulp and barley, fed with skim milk and alfalfa hay, was found to have a nutritive value about ten per cent higher than that of cocoanut meal fed in similar amounts and combinations. The dried beet pulp is generally cheaper than cocoanut meal. A good mixture is two parts of rolled barley to one each of beet pulp and cocoanut meal.

As an essential suggestion in the successful building up of a dairy herd, Professor Woll and Mr. Voorhies urge that farmers raise heifer calves only from the good cows in their herds. They point out that no farmer can expect to make a real success of dairying unless he places at the head of the herd the best pure bred dairy bull that he can secure. "The bull is half the herd," says the proverb, and they declare that a good bull who will transmit to his offspring the capacity for large dairy production bred into his line for many generations back is likely to be worth all that he costs and much more.

WESTERN DAIRY PRODUCTS SHOW AND CONVENTION

In connection with the Western Dairy Products Show to be held in Portland, Oregon, March 1 there will be program of addresses on dairying problems before a convention of the Western Dairy Instructors' Association. Discussion of addresses will be an important feature.

Subjects to be considered are; Sterilization and Care of Utensils, Pasteurization of Market Milk, Inspection of Market Milk, Standardization of Cheese, Pasteurization for Buttermaking; Neutralization of Cream; Butter Standardization, Needed Oleo Legislation.

There will be exhibits of butter, cheese, milk and cream. The object of the show is to assist in establishing a uniform standard of excellence for these dairy products, to improve their quality and thereby increase their consumption and to afford proper recognition and encouragement to the producer of high class products. It is hoped through it to bring the producers of dairy products into closer relation with each other and with the dairy instructors, to the benefit of all concerned. In fact the show is intended to fill a place here in the West similar to that filled by the great shows held in the East.

JERSEY CATTLE CLUB

We have letter from Richard H. Daniels, president of the Jersey Cattle Club of Bitter Root Valley, Montana, in which he refers to the good work being done by the Bitter Root Valley Jersey Breeders' Association. This is a comparatively recent organization, organized to encourage the breeding of Jerseys and especially the improvement of dairies in that section of Montana. To that end pure bred Jerseys will be brought in from other sections and dairymen will be urged to join their neighbors in the purchasing of pure bred bulls. Cow testing associations will also be organized and feed will be purchased in carlots. The officers are Richard H. Daniels, president; Robert H. Marks, vice president, and Ben F. Plummer of Stevensville, secretary.

D. O. Lively Stock Farm, Inc., announces the purchase of the registered Herefords from the Whitehall Estates, at Tracy. There are 67 head of these cattle, and Lively, who knows cattle, says that there are animals in the lot that are the equal of the best in the United States. A public sale of Herefords will be held at the D. O. Lively Stock Farm on May 2, due announcement of which will appear in the advertising columns of this paper. Mr. Lively is now in the Middle West selecting a herd for the grand lot of females that make up this herd. He has purchased a great young Hereford bull of the Warren McCray herd.

Choice Holsteins

Well Bred—Good Individuals

will be found in the Dispersal Sale of Lakeside Dairy Herd owned by H. I. Shaw, Lakeside, California

22 REGISTERED HOLSTEIN-FRIESIAN COWS AND HEIFERS
2 REGISTERED HOLSTEIN-FRIESIAN BULLS
27 HIGH GRADE HOLSTEIN COWS AND HEIFERS

Among the registered females are seven daughters of a 32-pound sire, and that is not all. He is by Pietertje Hengerveld Segis, 66 A.R.O. daughters, a son of King Segis, and his dam is a 32.45-pound daughter of Hengerveld De Kol, 116 A.R.O. daughters. Then there are five daughters of Captain Julip Zampa, 9 A.R.O. daughters; two daughters of Arcady Pontiac Wayne Hengerveld, 24 A.R.O. daughters with records up to 28.08 pounds; a daughter of Juliana King of Riverside, and out of a 26.56-pound dam. These are good enough for any man's money.

The two herd sires to be sold are worthy of especial attention. One is a son of King Prilly Segis, whose sire is King Segis, and whose dam is the famous Prilly. His dam is a well bred cow carrying largely the blood of the great Sadie Vale Concordia. The other is strong in the blood of Colantha Johanna Lad on the sire's side and is out of a dam whose sire is a son of De Kol 2nd's Butter Boy 3d and Belle Korndyke, one of the greatest transmitting cows of the breed.

You can make no mistake buying this kind.

DAIRYMEN: We will also sell on the same date, Mr. Shaw's entire herd of high grade Holstein cows and heifers, numbering 27 head. They are a choice lot of the profitable producing kind, well marked, and a sound healthy lot.

Sale will be held on the Thum Ranch, one half mile east of Lakeside, twenty miles east of San Diego, California, on Thursday, March 15, at 10 o'clock a. m. Lunch will be served at noon.

For catalog and other information address

CALIFORNIA BREEDERS' SALES & PEDIGREE CO.

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COL. BEN A. RHOADES
Los Angeles

Sales Manager
C. L. HUGHES
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A properly constituted Calf Meal is equal to and better than cow's milk for raising calves, because it takes the place of milk, thus saving 50% of your feed bills.

LILLY'S Calf Meal

is thoroughly cooked under 60-lb. steam pressure. It is all food, easily digested, fresh and sweet with that nutty flavor so relished by calves.

Most Dealers sell it. If yours does not, write

LILLY'S Seattle, Portland

EMPRESS LASS 218446
Grand Champion Washington, Oregon California and A. Y. P. Exposition

2.95 Pounds Butter Daily for 158 Days

has been produced by Empress Lass under dairy conditions. Still working. Her sons and grandsons are from big producers of show type. Prices right.

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Breeders of Jersey Cattle and Chester White (O. I. C.) Swine.

LOCKEFORD, San Joaquin County, CAL.

A GUERNSEY BULL

used in a grade herd in Ohio *sired daughters* that produced *50% more milk* and *70% more butter fat as 2 year olds* than did their dams when mature.

GUERNSEY MILK contains 5% Butter Fat

Write for our beautiful free booklets about Guernseys

THE AMERICAN GUERNSEY CATTLE CLUB
BOX P.C. PETERBORO, N. H.

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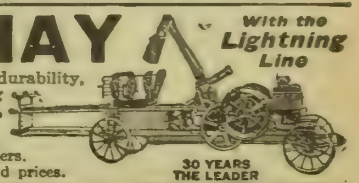

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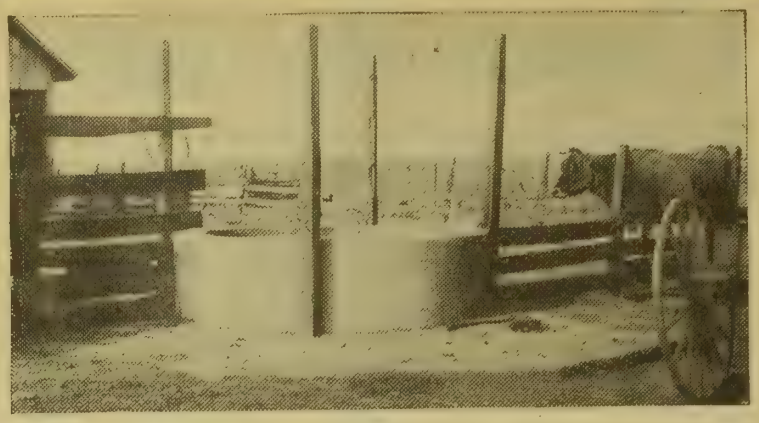

Build a Concrete Stock Tank

A concrete stock tank keeps the water sweet and cool. A concrete floor surrounding it does away with the muddy bog where the stock must stand and drink. The stock tank and the floor are simple and inexpensive to build.

Concrete can never rot nor rust. There are no rusty nails, splinters or sharp edges about a concrete stock tank. Use common lumber for the forms—haul your own sand and pebbles from the pit—and see your local dealer for your Portland cement. Mix the materials ONE part Portland cement, TWO parts sand and THREE parts pebbles. This is the same material as that used in the Galveston Sea Wall, which saved that city from destruction in the great storm of 1915.

Write today for our booklet "Concrete Troughs, Tanks, Hog Wallows, Manure Pits and Cisterns." Just say "Send me Booklet No. 142."

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PARKERSBURG, Union Trust Building
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SEATTLE, Northern Bank & Trust Bldg.

CONCRETE FOR PERMANENCE

SHORTHORNS **BERKSHIRES**

Hopland Stock Farm

Fifteen head Shorthorns at State Fair awarded 19 premiums. Herd boar awarded Reserve Grand Championship. Grand Champion Sow now added to our herd.

Bulls, Boars, Bred Sows and Gilts

San Francisco Office: 1210 Flood Bldg.

A Great Bull For Sale

Teddy R, a grandson of Stoke Pogis of Prospect, 4 years old. Every daughter great udders fore and back. Have small herd and sell so not to inbreed. A great bargain. Also two sons from champion cows, 14 to 16 months.

JERSEY QUEEN FARM, San Jose, Cal.

Rossmead Farm

POLAND-CHINAS

Won second on boar and sow P.P.I.E. 1915. Champion sow at Fresno and Hanford 1916. Young stock of this breeding for sale.

F. D. ROSS - Hanford, Cal.

Finely Bred Holstein Bulls

from dams of the best blood lines. They are well developed, of splendid individuality and type. Our place is within one mile of the city, so they are easy to see.

H. B. Cowan

Modesto, - - California

Berkshire Hogs—Milking Shorthorns

Breeding Stock For Sale

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Yearling Steers and Stock Cattle

Northern Arizona, mountain bred, heavy bone cattle. Fenced range.

A. L. SPELLMEYER

Apache Cattle Ranch, Cibecue, Ariz.

Until Mar. 1st address care 320 American Bank Bldg. Los Angeles, Cal.

Registered Holsteins

Young bulls backed by a long line of heavy producing dams. Write for pedigrees and prices to

F. M. Bibens

MODESTO, CAL. Route 1, Box 307

DUROC JERSEYS

Sows, gilts and a few boars of the best breeding FOR SALE

H. P. Slocum & Son R 1 Willows, Cal.

SALE AT BERKSHIRE CONGRESS

Continued from Page 219

M. Smith, Visalia, secretary-treasurer.

The next congress meeting will be the show held at Salem, Oregon, the last week in September, 1917. This show will be largely attended by breeders from all over the West.

At the Davis meeting there were no speeches, no papers read, no set program, just a real good fellowship, get-together affair that everyone enjoyed.

In the students judging contest nearly 200 students judged four different classes. Winners of first in each class were awarded Berkshire watch fobs by L. E. Frost of the Berkshire World.

The ladies' judging contest was the sensation of the meeting. L. E. Frost conducted the contest and awarded the 14 $50 silver trophies. He pronounced the winners to be judges of exceptional merit. "It was positively uncanny the way some of those ladies knew the best hog and how well they could tell it," he said.

Following are the winners: California National Bank trophy, Mrs. L. B. Landsborough; Grape Wild Farms trophy, Mrs. W. P. Dwyer; Sacramento Bee trophy, Mrs. H. F. Hammond; Butte City Ranch trophy, Mrs. G. M. York; Silver Birch Farms trophy, Mrs. C. E. Barrows; First National Bank of Willows trophy, Mrs. Gordon H. True; Gossard Corset Company trophy, Mabel D. White; Gossard Farms trophy, Miss D. Fritz; D. C. Burn trophy, Mrs. C. A. Briggs; Berkshire World trophy, Mrs. Flora C. Hayes; Mills Orchard Corporation trophy, Mrs. Homer Hewins; Travelers Hotel trophy, Mrs. Marion Poundstone.

A BLUE RIBBON TIME

Written for California Cultivator
By C. A. Briggs

BERKSHIRE swine breeders with their wives and friends met at the university farm at Davis on Tuesday, Wednesday and Thursday of last week. The occasion was the regular meeting of the Western Berkshire Congress with a sale of probably the finest specimens of Berkshires ever offered at auction in the West. The meeting and the sale were successful. Everybody had a good time. Dean Hunt and Dean Van Norman welcomed those attending, and the student body as one man "did things" to everyone attending in a way that made every one happy. Berkshire men were there from many points in the corn belt of the Middle West, from all the coast states and from far distant Hawaii.

The program was unique, and interesting, many new "stunts" being introduced. The university farm students judged hogs and the wives, daughters and women friends of the breeders contested in the judging ring for beautiful engraved silver trophies. Leading breeders of other breeds were present to add their token of good will.

At the sale the bidding was brisk and competition keen. Hogs sold, going to points as widely separated as Indianapolis and Honolulu. Prices ranged high, which was not surprising when the high quality of the offerings is considered.

The Berkshire men are to be complimented on their ability to bring to a successful conclusion such an enjoyable and helpful occasion as this meeting and sale.

UNIVERSITY EXTENSION IN CALIFORNIA

The report of the extension division of the University of California is being mailed and gives detailed account of the various activities of that department of the university. It appears that this division received in direct appropriation $20,000, and also receives from fees $29,400 biennially. In a prefatory note it is stated that the university of Wisconsin spent on university extension $239,110 and Minnesota, which has recently taken up university extension work, spends $89,350. This is a valuable work and "carries the college to the people."

The latest and newest of the breed papers to be reviewed is "The Shorthorn in America", a monthly magazine filled with illustrations and text of value to Shorthorn people. It is published by the American Shorthorn Breeders' Association, 13 Dexter Park Avenue, Chicago.

Prepare for Spring Calving

By Ordering

HOOD FARM BREEDING POWDER

In order that you may treat every cow after calving with this Powder. It is the most economical thing you can do, because it keeps cows in a normal, healthy breeding condition; makes them clean quickly; breed readily; there is less use of the bull, and little danger from abortion. You should also order

JERMKIL

to prevent and check infectious diarrhoea and white scours in young calves.

For ordinary scours caused by indigestion, order

HOOD FARM CALF SCOUR TREATMENT

consisting of Hood Farm Calf Scour Remedy and Hood Farm Digestive Powder. Include in the order

HOOD FARM MILK FEVER OUTFIT

and

HOOD FARM GARGET REMEDY

and you will be well prepared to meet the emergencies which frequently arise at calving time.

Prices, information and advice gladly given. Mention this paper.

C. I. HOOD CO., Lowell, Mass.

$16.95 Upward ON TRIAL

American FULLY GUARANTEED CREAM SEPARATOR

A Solid Proposition to send new, well made, easy running, perfect skimming separator for $16.95. Skims warm or cold milk; heavy or light cream. Different from picture, which shows larger capacity machines. See our plan of

MONTHLY PAYMENTS

Bowl a *sanitary marvel* easily cleaned. Whether dairy is large or small, write for free catalog and monthly payment plan. *Western orders filled from western points.*

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Box 4104 Bainbridge, N. Y.

Bernstein's Ranch

for the Bigger, Easier Feeding

Poland China Hogs

I sell two grand boars and fifteen splendid sows in the sale March 7th at Hanford. Write me for catalogue.

L. C. Trewhitt, Manager

W. Bernstein, Proprietor

Purebred Registered

HOLSTEIN CATTLE

The scope of its labors and the numerous details involved in the administration of the affairs of the Holstein-Friesian Association are best comprehended by a consideration of the fact that, during the fiscal year ending April 30, 1916, $158,994.50 was received by the secretary's office for the registration of pedigrees and for transfers. This volume of business required 46,760 entries in the cash books, and the issuance of 142,120 certificates, and this prodigious labor is demanded for the conduct of but one department of the greatest dairy cattle breeders' association in the world.

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The Holstein-Friesian Association of America,
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Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.
Unsigned communications receive no attention.

Poison

I have lost six fine, fat calves just ready to wean and wish some advice regarding the trouble. They were fed on skim milk and alfalfa hay and seemed to thrive splendidly up to the time of taking sick. Sometimes they last only a few hours and sometimes a day or two. They refuse to eat or eat reluctantly and act like a locoed horse, going round and round in a circle sometimes until they fall. There is no diarhoea and little signs of constipation. In the stomach I find a hard curd and am sending some of it under separate cover. Have kept the calves in a pen made of redwood boards and notice they have chewed the boards a great deal. Thought maybe the redwood formed a poison with the milk. Can you suggest a preventive or cure? —Subscriber, Lancaster.

The sample of the contents of the stomach that you sent is natural, being only the coagulated milk after being acted on by the gastric juices of the stomach. Am inclined to think it poison of some kind, maybe from the redwood. This I do not know. Can only suggest that they be tied so they can not chew the redwood and watch other conditions.

Sick Sow

What is wrong with a brood sow that is perfectly healthy and a hearty eater while carrying her pigs and then about five or eight days after farrowing will suddenly stop eating and lie around for several days or more with no inclination to eat or drink, after which she begins to recover by eating a little each day until gaining a good appetite again, but is lame in one hind leg or hip which seems drawn and somewhat shrunken.—Subscriber, Gardena.

The symptoms are very much like those in the horse when having azoturia. That disease is not well understood yet. It seldom occurs in animals unless they are very fat and have had very little exercise. Feed her sloppy and laxative feed and keep her in the sunshine as much as possible. Also get these powders; half an ounce of salicylate of soda, one ounce of bicarbonate of soda and two ounces of farina. Mix and divide into 20 powders, giving one in the feed morning and evening.

LIVE STOCK SALES

Pure Bred Duroc-Jersey Hogs, Brawley, California, Monday, February 26, J. P. Williams, Mgr.

J. Frank Walters' Duroc-Jersey Sale, Grape (Imperial Valley), Monday, Feb. 26, 1917.

Kings County Third Semi-Annual Poland-China Breeders' Assn. Sale., Hanford, March 7, 1917.

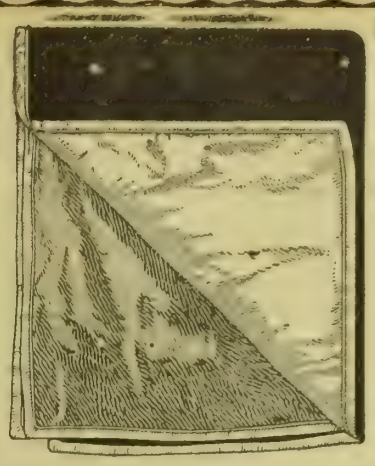
Bernstein Ranch Poland China Hog Sale, Hanford, March 7, 1917.

California Breeders Sales & Pedigree Co., Holstein cows, heifers and herd bulls, Lakeside. San Diego County, Thursday, March 15.

Stephenson Holstein Herd, Lake Mills, Wisconsin, May 1, 2, 1917.

D. O. Lively Stock Farm Sale, Hereford Cattle, Mayfield, May 3.

Lake Mills Holstein Breeders' Consignment Sale Co., Lake Mills, Wisconsin, May 8, 9, 1917.



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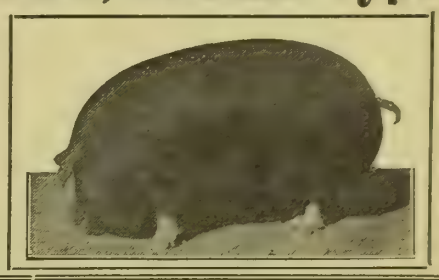

M. Bassett

Hanford, Kings County, Cal.

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This grand bull heads my herd. His first two daughters made 17 and 19 pounds as junior yearlings. His sire, King of the Pontiacs, has 190 A.R.O. daughters. His dam, K.S.B. Netherland, has a three-year-old record of 24 pounds. Her sire, King Segis Pontiac, has 42 A.R.O. daughters. Why not get one of his fine sons to head your herd? There are none better. Come and see them or write to

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Prunes, Pears, thousands, trees all kinds, buy direct from the man who grows. Save 50 per cent. Write for planters' catalog and price list. 26 years in business. Carlton Nursery Co., Carlton, Oregon.

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Broad Leafed Mission and an extra early strain of Manzanillos. If you want the early ripening and early bearing kinds, we have them. Every tree guaranteed. Olives exclusively. H. Detmers & Son, Exeter, Cal.

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For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

Apricots and Olives—Royal Blenheim and Tilton apricots. First class trees. Large stock of Mission, Manzanillo and Ascolano olives, Balled or open root. No scale, no defoliation. C. E. Moyer, Hemet, Cal.

For Sale 23,000 trees, Valencia oranges, 18,000; Eureka lemons, 5000, all two years old, extra fine this spring. Frank R. Baxter, R. F. D. 1, Fullerton, Orange County, Cal.

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For Sale—Excellent citrus trees, principally Eureka lemons and Marsh grapefruit, 2 years old. B. C. Dodson, Glendora, Cal.

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5c up, 5c up, 5c up, 5c up, 5c up
The largest in the state to select from. Carsten Truelsen, Nurserymen, Hemet, Cal.

Mission Olive Trees—Raised from my own bearing trees. This is only sure way to get what one wants. W. A. Hayne, Box 461, Marysville, Cal.

Olive Trees—Mission, Manzanillo, Ascolano. Propogated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, Cal.

For Sale—Improved Seedless Grapefruit, Valencias and Lemons. All buds carefully selected. Low prices. Sherwood Nurseries, Fullerton, Cal.

TREES

For Sale—3000 trees of A1 nursery stock, half Valencias, half Navels, two years from bud. Prefer to move in bulk, but will sell part, price favorable to buyer. Please communicate with us at once. Los Angeles Ice & Cold Storage Co. Home 10053, Sunset, Main 8191. Box 643, Station C, Los Angeles.

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HOGS

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Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

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"Eastman's Bred-to-Lay" Barred Plymouth Rocks. Chicks and eggs. We Hoganize and trapnest. Fairmead Poultry Farm, Fairmead, Cal.

Day Old Chix—Barred Rock, R. I. Reds, White Leghorns, Black Minorcas, Light Brahmas, Buff and White Orpingtons. Enoch Crews, Seabright, Cal.

Baby Chicks, White Leghorns, from healthy, vigorous, heavy laying, two year-old hens. Satisfaction guaranteed. John F. Forney, Kingsburg, Cal.

Baby Chicks—Now booking orders for spring delivery. White Leghorn and Anconas, also custom hatching. Wilma Hatchery, San Gabriel, Cal.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Rural 1, Sonoma, Cal.

S. C. Rhode Island Red and Ancona Baby Chicks and eggs from bred-to-lay finely colored stock. Imwood Poultry Farm, Box 192, Folsom, Cal.

Wedgewood Poultry Plant. No better White Leghorn mountain baby chicks as my hens are bred for vitality and productiveness. Dutch Flat, Cal.

Hatched Chicks For Sale—Barred Rock, R. I. Reds and White Leghorns. Strong, vigorous chicks. Send for circular. G. J. Hawley, Madera, Cal.

Baby Chicks—White Minorcas and Golden Buff Leghorn. Two popular breed Cockerels for sale. Sandridge Hatchery, Kerman, Cal.

POULTRY

xtra Quality White Leghorn Chicks 12c each until March 1, then 10c. Carefully ie bred from MacFarlane, Young, Cyphs and Martin strains of foundation ock. Eggs $1.50 per 15, $2.50 per 30, .00 per 100, $50 per 1000. Acres of free nge connected with our breeding pens, ,000 feet under roof. Only Jubilee inbators used, disinfected every hatch. on't save 2c per chick in buying and se a dollar per pullet in raising, get the st and succeed. Newton Poultry Farm, ept. 3, Los Gatos, Cal. Catalogue free.

oofden Ranch Chicks are well hatched from first class utility breeding stock; oney making egg producers our aim, d the prices are right. 7 to 14c, deending on breed, month, quantity (dozen thousands). White, Buff, Brown Leghorns, Black Minorcas, Rhode Island eds, Barred Rocks. For Dollars and nse. Send card for circular. Roofden oultry Ranch and Hatchery, Campbell, al.

he J. K. Bigelow Poultry Ranch and Hatchery, 300 acres devoted to superb gorous selected White Leghorns. The reatest egg farm in the West. Bigelow ix are incomparably superior to the oduct of commercial hatcheries. Price me as former seasons, 10c each till pril 1, 9c during April and May, 8c ereafter. Shipped on approval; examiation before paying. The Bigelow Poulry Ranch, R. R. No. 2, Sonoma, Sonoma o., Cal.

armers, sell your scrub stock and order some thoroughbred White Leghorn or hode Island Red Chicks from us. Legorns $10 per 100, Rhode Island Reds .2.50 per 100, from March 20 to July 1. rooke Farm (Rancho Del Paso), Office 7 J Street, Sacramento.

aby Chicks and Eggs for Hatching from pure bred McFarland strain of refully culled and Hoganized stock; red-to-lay S. C. White Leghorns. Write r folder of prices and terms. Sonoma alley Hatchery and Poultry Ranch, R. F. . 2, Sonoma, Cal. Box 48.

aby Chicks and Eggs for Sale—Hoganized Cyphers strain of Barred Rocks nd McFarland strain of White Legorns. I. B. Williams, Route "B". Box 3, Kingsburg, Cal.

lue Andalusian and Blue Orpingtons—Finest Blues on the coast. Stock and gs for sale. Write for prices. J. R. uddleston, 342 Edgeware Road, Los Aneles, Cal.

aby Chicks from select free range White Leghorn stock. Place orders now for rly delivery. Prices on application. Western Hatchery, Petaluma, Cal. W. S. Valdorf, Proprietor.

arred Rock Cockerels for Sale. Fine selection, thoroughbreds, Choice eggs for atching. Price consistent with this class tock. F. H. Wier, San Ysidro St., Bell, al.

elected S. C. White Leghorn and Barred Rock eggs for hatching, from hens yped to lay 200 to 260 eggs per year each. 5.00 per 100, $1.50 for 15. Jay Maxwell, Iadera, Cal.

Irs. R. E. Allen's beautiful prize Columbian Wyandottes, winners at Boston, an Diego, Los Angeles shows. Unexelled for eggs, broilers and table use. tock and eggs for sale. Fullerton, Cal.

ip-to-Date Poultry Plant—Near Laveaga Park. Write owner for particulars. No gents. Address Box 595, Santa Cruz, al.

arl E. Sanders, Modesto, Cal., breeder of M. B. Turkeys, S. C. White Minorcas, . C. Black Minorcas and S. C. Barred lymouth Rocks. Nothing but the best.

hoice White Minorca Hatching Eggs—America's finest breed. Mating list ree. Leech Poultry Yards, 1170 West 7th Place, Los Angeles, Cal.

ure Bred White Rocks, White Leghorn chix, quackless White Muscovy duckings, Embden goslings. White Star Hatchery. Kerman. Cal.

ncubators—Essex Model Incubators at factory prices. Write Geo. H. Croley o., Inc., 631-637 Brannan St., San Franisco. Poultry supplies.

Eggs for Hatching—Blue Orpingtons, Partridge Rocks, Rose Comb Rhode Island Reds and Silver Laced Wyandottes. Cribble Nurseries, Elk Grove, Cal.

Ancona Hatching Eggs—Peerless strain, Hoganized stock $1.50 per 15, $7.00 per 00. Roseville Poultry Ranch, Roseville, al.

White Leghorn Eggs—Tancred strain, 184 average. Black Minorca average 10 eggs. McConnell strain, trapnested. Particulars H. Tarratt, Corning, Cal.

Just "Reds". Bred to lay. Cockerels. Eggs. Send for list. E. P. Shier, Felows, Cal.

Pure Buff Rock setting eggs our specialty, 15 for $2.50. Eugene Stoddard, Star Route, Orland, Cal.

Write for Free Catalog pertaining to Rhode Island Reds. J. M. Hacock, Fresno, Cal.

Chicks For Sale at C. A. Gray's Hatchery, Lemoore, Cal. Brown, White Leghorns, .0c.; Anconas, Rocks, Reds, 12½c.

Turlock Hatchery—Baby chicks. A chick that will live. Turlock Hatchery, Turlock, Cal.

Buff Minorca Eggs for hatching $1.25 for 15. Mrs. N. Schilling, Alpaugh, Cal.

TURKEYS

GIANT BRONZE TURKEYS

Let me tell you how to make more money on turkeys. Large turkeys can be raised at practically the same cost as small ones. It is in the strain. By scientific cross-breeding I have developed a strain of turkeys which mature rapidly, and attain unusually large size by holiday time. You can introduce some of this blood into your flock and make money by it the very first year. Gold Nugget strain wins again. At Pacific Coast largest shows, 1916, the California and Arizona State Fairs and San Diego, also the great Los Angeles Show 1917, eleven prizes, eleven entries. Stock and eggs from my flock should put you in the Giant Bronze Turkey lead in your locality. Toms for sale, also eggs. Write for circular. Raised on 320-acre farm. Address J. Will Blackman, 607 East Third St., Los Angeles, Cal.

For Sale—Young bronze turkey hens, 6 to 8 lbs., $2 each. E. A. McKinley, R. F. D., Ukiah, Cal.

FARM LANDS FOR SALE

10 Acres, irrigated, 4-room house and barn, chicken houses, 2 miles out, $2000. 30 acres, irrigated, checked, nearly new cottage, 40x52 barn and tankhouse, with concrete floors, other outbuildings, fenced hog tight, $6500. 80 acres, on Highway, 2 miles out, very level, for alfalfa, corn, rice, $10,000. 145 acres, on river front, nothing better anywhere for walnuts, prunes, etc., 55 acres alfalfa, complete dairy, electric light and power, subdivision 1 mile selling at $250. My price $125 per acre. 640 acres, level and rolling, house and barn, finest soil for almonds, lands nearby selling at $75 and $100. My price $30 per acre. 720 acres in foothills, 15 miles from R.R., easy auto and stage road, 150 acres has been plowed, 35 acres alfalfa, 3000 cords of wood in large trees, no brush, 7 room house, barn and other outbuildings, windmill, garden and some fruit. A pretty and very cheap place at $15 per acre. JOHN C. MOGK, Colusa, Cal.

For Sale—320 acres fine sandy loam soil, 5 miles northeast of Modesto, 1¼ miles directly south of Riverbank in Modesto Irrigation District. Average yearly water costs less than $1.00 per acre. Land suitable for alfalfa, grapes, deciduous fruits or farm trucking. Will sell as whole or in 20-acre tracts. Average price $150 per acre. Special inducements to possible purchaser of entire tract. Will make suitable terms to parties buying for improvements. B. F. Kierulff, 757 S. Los Angeles St., Los Angeles.

For Sale—$18,000. 60-acre irrigated dairy and hog ranch. 30 acres alfalfa, balance in grain. All leveled and checked. Modern bungalow. Up-to-date dairy barn, concrete floors, Louden steel stalls and stanchions. 80-ton silo. All other necessary buildings. Close to town and school. My equity $12,000—includes dairy cows and heifers, team mares, brood sows, farm implements. Income from start. For further particulars address Owner, care California Cultivator.

Wanted—Farmers, orchardists, live stock men to use classified liner advertisements like this. Thousands of people read every ad, and the cost is only 3 cents per word per issue, **minimum 35 cents.** Extra lines of white space above and below cost only 16 cents per line.

For Sale—80-acre improved foothill ranch, 12 miles east of Porterville. 30 acres citrus land now in wheat; 15 acres alfalfa land; hog fencing; pasture; timber; river; railroad adjacent. Modern new house (furnished if desired), gas plant, furnace, etc. Five outbuildings; implements; live stock. Nothing delapidated. Ideal place for country life. Sacrifice $25,000. $17,000 will handle. Address New, Box 3, California Cultivator.

Oregon & California Railroad Co. grant lands. Title to same revested in United States by act of congress dated June 9, 1916. Two million three hundred thousand acres to be opened for settlement and sale. Power site, timber and agricultural lands. Containing some of best lands left in United States. Large sectional maps showing lands and description. Price $1.00. GRANT LANDS LOCATING CO., P. O. Box 610, Portland, Oregon.

Buy Good Land Cheap—Seven sections, all in cultivation, being farmed now, two sets of improvements, all fenced for cattle; good grain or cattle ranch; 24 inches rainfall. Irrigating water for one section. No alkali or hardpan; near R.R. Location, Central California. Price $150,000. $50,000 cash, balance 5 years 6 per cent. C. G. Paul, Chamber of Commerce Bldg., Los Angeles Cal. (Loans).

160 Acres at $55 Per Acre Cash; in Yolo County, 2 miles from Hershey, on the S. P., Arbuckle; sandy loam; no improvements; 2 crops of corn or beans or peas should pay for the land; cash only considered; no exchanges; no agents.
CENTRAL CALIFORNIA ALMOND LAND COMPANY,
275 Post St.,
San Francisco, Cali.

A Bargain—120-acre farm in Shasta County; all fenced; 35 acres cleared. 200 peach and almond trees; 5-room house, barn, poultry house and wood shed; good well, water and healthy climate, 2 horses, 2 cows, 1 calf and 10 hogs go with the place. Price $2000, $1000 down, balance on time at 6 per cent. Address John Gander, Bella Vista, Cal.

For Sale—Suburban alfalfa ranch of 40 acres, located ½ mile of Tulare. Fenced. In Tulare school district. House, barn, cow shed and electric pumping plant and pipe, implements, horses and harness, chickens, 40 cows, separator, etc. S. E. Kline, Route A, Box 185, Tulare, Cal. Phone 527X4.

Young Man owning half interest in good paying dairy ranch, desires to retire. Remaining partner would like young married couple or young lady to take half interest. Good opportunity for right party. Address James Anderson, 1622 Broadway, Alameda, Cal.

160 Acres, 60 acres good plow land, balance fine pasture, all fenced and cross fenced, six good springs, in foothills, fine climate, plenty of rainfall; near main traveled road, scattered white oaks, $1400. No trades. W. W. Baldy, Raymond, Madera Co., Cal.

Tehama County Stock Ranch For Sale—600 acres; 200 acres sediment bottom land, 25 acres alfalfa. Running water year round, on Cottonwood Creek. Buildings, good fences; stock of hogs, cattle, horses. Lock box 338, Red Bluff, Cal.

Two-Acre Homesite on Grand Ave., Lake Elsinore. Garden soil, fine well, natural shade trees. $700, easy terms. H. J. Warr, Perris.

Money to Loan on Farms, city and suburban property. Inventions financed. C. G. Paul, 407 Chamber of Commerce Bldg., Los Angeles.

Placer Co., 20 acres fine fruit and poultry land. Cost $1500. Sell cheap on terms or exchange for small improved place or poultry. Box 203, St. Helena, Cal.

Free New Blue Booklet—State, government and Indian lands. Bargains overlooked. Joseph Clark, Sacramento.

Write for List of ranches and homesteads. Low Priced Lands Company, Carmel, Cal.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit". It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

Second Hand Pipe For Sale—All sizes standard water pipe and screw casing, half inch to ten inches. Also valve and fittings. Guaranteed good as new. Cheap for cash. Write for our prices. Weisbaum Pipe Works, 169 Eleventh Street, San Francisco.

Buy Fish at Wholesale—World's famous salmon in brine—100 lbs. net $6.50, herring in brine 25 lbs. net $1.50, 20 lbs. smoked salmon $2.50, 20 lbs. net salmon bellies in brine $2.50. T. A. Beard, 4322 Winslow Place, Seattle, Wash.

Study Telegraphy, Stenography, Bookkeeping, Law, English. Board, room and tuition may be earned. Catalogue free. Mackay Business College, 911 Main St., Los Angeles.

To Reduce the hign cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St. San Francisco.

For Sale—300,000 four-foot redwood grape stakes; first class. Rolla Bryant, Jr Rio Dell, Cal.

Flood Control—Plans and estimates. Consult Geo. Ian Maxwell. Phone Sunland 82, R. R. 11, Box 463, Los Angeles.

MACHINERY

FOR SALE, USED RANCH MACHINERY
Material guaranteed. Save you half. Why buy new, as it is second-hand after used few times, but not necessarily worn out.
WINDMILLS TANKS WINDMILLS
8-ft. Aermotors, other makes, $21.50; 10-ft. mills, $29.50; 12-ft. mills, $45 to $55; 16-ft., cost $250, for $125; 1000-gal. new galv. tanks, $29.50; 2000-gal. new galv. tanks, $39.50; 600-gal. used galv. tanks, $14; 4000-gal. fine redwood tank, $32.50; 8000-gal. fine shape, $60; 100,000-gal. fine 3-in. redwood, $400; wagon tank, $38.
ENGINES PUMPS PIPE
Most all sizes—in good shape.
CENTRIFUGAL PUMPS—2-in., $24; 3-in., $35; 4-in., $45; 5-in., double runner, $95; all size plunger pumps, $5 up; new pump jacks, $12.50; Bulldozer pump, $38; double-acting No. 2 Ames deep well pump, $95; No. 3 Ames pumps 30-in., $150, cost $660; fine Means double-acting deep well pump, $350, pumps 50 inches.
BRASS CYLINDERS—ALL SIZES—HALF PRICE
Plunger rods, pipe, pipe fittings.
RANCH MACHINERY SUNDRIES
Walking plows, riding plows, $15 to $22.50; fine 2-gang large moldboard plow, $45; 8-disc fine orchard cultivator, $27.50; 3 or 4-gang disc tractor plow, $55; Fresno, $10; spike harrows, $9.50; alfalfa renovator, $28; manure spreader; another fine BULL TRACTOR, $350; new Samson tractor, $550 on cars Thermal; steel cable, 5c; cement mixer, $35; sprayer, $19.50; mowers; 10-ft. rake, nearly new, $25; buck rake, $25; fine horsepower baler, $75; 250 feet 7-in. irrigating pipe, 16½c; bone grinder, feed cutter, 1000-ft. 4-in. riveted pipe, 9¾c.
STEAM BOILERS, ENGINES
8, 20 and 80-h. boilers, steam compressor, 12x12 belt-driven Union air compressor, $245; 3x12 Gould compressor, $27.50.
WANT to buy first class material. No junk wanted. Pioneers in our line. Responsible and reliable. Trade us your machinery and little cash for what you need. DEMMITT CO., UPSTAIRS, 120 N. MAIN, YARDS, 816 YALE, LOS ANGELES.

2½ H. P. Alpha Engine, No. 2 Fairbanks pump head, 6x20-in. brass cylinder, 40 ft. 3-in. galvanized pipe and ⅝-in. galv. steel rod cut ten-foot lengths, 10 ft. 3-in. suction hose with couplings. Belting, etc. Used 10 days. H. J. Warr, Perris.

For Sale—Samson 10-25 sieve grip tractor with extensions. Little used. Will demonstrate to buyer's satisfaction. $900. H. M. Page, Puente, Cal.

For Sale—General Electric Motor, 5 hp. 3-phase, 1800 speed, new condition. Also 2 and 3-inch centrifugal pumps. H. L. Kennedy, Strathmore, Cal.

WANTED

Wanted—Man in each California county to represent established California company. Should have rig or auto to get around. Good pay and several weeks' work to right parties. Address J. H. Yetter, Sales Department, 810 Santa Marina Building, 112 Market St., San Francisco, Cal.

Wanted Information — A general plan showing best income from farming with $10,000 cash capital. Fruit, stock, crops, dairying or anything. Will give $10 for the best practical answer. Give location where plan can be carried out. C. Painter, Box 5, Laguna Beach, Cal.

Wanted—Salesmen and Agents in every city and town on this coast to represent this company. A cracker-jack proposition for live wires. General Sales Agent, 414-424 9th St., San Francisco.

Partnership—Advertiser with fine poultry ranch, stock and market, wants partner with capital. Give full particulars. Box 203, St. Helena, Cal.

Wanted—Lowest price on 2000 to 3000 Citrus Trifoliata Seedbed Stock. Give size, age and condition. Address Box B, Cultivator office.

DOGS

For Sale—Ten English bloodhound puppies, $10.00 if taken when weaned. Both sire and dam registered in A.K.C., also pups 6 months old for $20. M. A. Watson, Lucerne Valley, Cal.

AUTOMOBILE ACCESSORIES

Automobile Parts and Accessories, both new and second-hand, can be obtained from us for any make of car. We save you money and guarantee satisfaction. Standard Automobile Wrecking & Supply Co., 476 Golden Gate Ave., San Francisco.

SEEDS AND PLANTS

Free 1917 Planting Guide and Pure Seed Book! 96 pages. Handsomely illustrated in many colors. Describes latest, best varieties vegetables, flowers, field crops, fruits, shrubbery, etc. A dictionary on gardening! Flower lover's delight! Field crop guide! An orchardist's manual! Berry grower's book! A postal gets it. Don't buy seeds until you read it. Galloway Bros. & Co., Pure Seed Specialists, Waterloo, Iowa.

• • SEEDS • •

Don't You Want pure home grown seeds? Of course you do. Ours are all tested and are good enough for anybody. Prices, information, samples, etc., upon application. Write, wire or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

• • MAKE OUR SEED YOUR SEED • •

• • ALFALFA SEED • •

As has been our custom in the past, we are offering alfalfa seed both retail and wholesale. This is tested stock and up to our usual high standards. Samples, prices, etc., on application. Wire, write or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

• ALFALFA SEED OUR SPECIALTY •

Alfalfa Seed — Common variety and smooth Peruvian, good quality, excellent color, high germination test, grown in Arizona under ideal conditions. Do not buy until you have compared my samples and prices with seed others offer. E. F. Sanguinetti, Yuma, Arizona.

Giant Winter Rhubarb Plants. Big profits. From ⅝ acre first season after planting I sold 675 boxes rhubarb, receiving $673.70. Grand prize San Diego Exposition. Big discount on plants for prompt orders. Booklet Free. W. A. Lee, Covina, Cal.

Home Garden Collection consisting of three red and three black raspberry and three early and three late blackberry plants. Price 50c. C. E. Jenkins, 2763 New Magnolia, Riverside, Cal.

Strawberry Plants, Brandywine, Klondyke and Winner. The Winner plants the finest for home markets. Plants best I ever offered. 12 years in business. E. H. Learned, Route 1, Burbank, Cal.

Berry Plants—Loganberry, phenomenal berry. Cuthbert raspberry, Lawton Mammoth and Himalaya blackberry. Now ready. Prices lowest. M. J. Moniz, Sebastopol, Cal.

Cory's Mammoth Thornless Blackberries. Orders are being booked now for February delivery. Prices and other information upon application. Ekstein Nursery Co., Sole Distributors, Modesto, Cal.

Florida Sour and California sweet seedling orange seed from cultivated Florida and California groves. Order early. Milo Hunt, Whittier, Cal.

Mr. Alfalfa Grower—Permit me to send you samples and prices of alfalfa seed; common and Peruvian. Best seed at lowest prices. O. C. Nordahl, Bard, Cal.

Free—Sample package Bishop's choice tomato seed, for telling me what you want to plant. Bishop's Nursery, Highland, Cal.

Ever-blooming Choice Roses 12 for 50 cents postpaid. All will bloom this summer. Kavan Nurseries, San Bernardino, Cal.

Alfalfa Seed—The very best, guaranteed 16c. Wm. Stuthman, 1239 West Pico St., Los Angeles, Cal.

For Sale—Ettersburg strawberry plants $2.25 per 1000; guaranteed to reach you in good shape. Parker Bros., Hemet, Cal.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

Wagner's Giant Crimson rhubarb roots, $2.00 per 100, 5c each, small lots. Currier Bulb Co., Seabright, Cal.

Strawberry Plants—Everbearing, Northern grown, strongly rooted. Price list free. F. I. Moffet, Ellensburg, Wash.

For Sale, Avocado Seed. J. H. Walker, 1547 Los Palmas Ave., Los Angeles.

AGRICULTURAL IMPLEMENTS

For Sale—One orchard cultivator, 1 disc harrow, 1 cross reach orchard truck, 1 walking plow, 1 drag harrow and several other implements. Also one second-hand wagon, slightly used. Cheap for cash or time. Arnott & Co., Wholesale Implements, 112 to 118 South Los Angeles St., Los Angeles.

For Sale—Panel top wagons, 3 open delivery wagons, 2 buggies. Cheap for cash or time. Arnott & Co., Wholesale Implements, 112 to 118 South Los Angeles St., Los Angeles.

FARMS WANTED

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

Wanted—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

PATENT ATTORNEYS

Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS".

FOR RENT

For Rent—Attractive ranch proposition, 800 a.; plenty water; 200 a. level farming land; near San Diego. Apply 1253 Arapahoe St., Los Angeles.

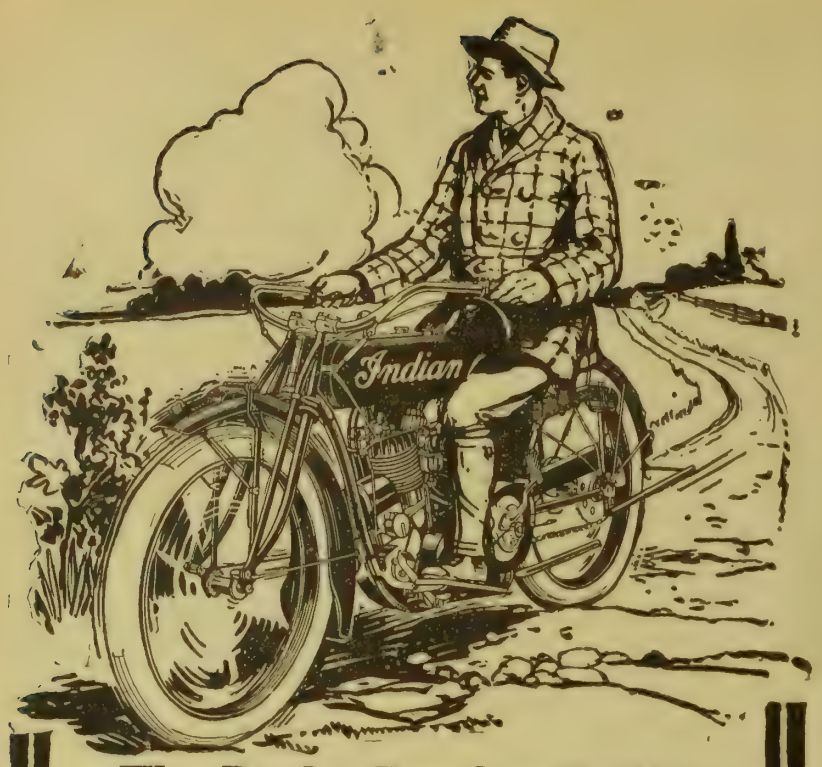
24TH CATALOG

The Aggeler & Musser Seed Company is sending out its 24-page annual catalog and price list of seeds and plants. It has 116 pages. The attractive front cover shows tomatoes almost luscious enough to eat, with casabas on the back cover. Between the two covers there are all kinds of articles needed in garden work, with a full list of plants and supplies.

The catalog also contains a fund of information as to work in the garden, especially information as to pest control written by B. R. Jones.

DUROC-JERSEY SALE

J. Frank Walters is announcing the closing out sale of his herd of pure bred immunized Duroc-Jersey hogs, which will be held near Brawley Monday, February 26. Mr. Walker announces that everything will be sold without reserve.



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would hold no terrors for the 1917

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With Powerplus Motor

For on the roughest, ruttiest roads the *patented* Cradle Spring Frame swings into action at any speed, smoothes out the bumps and absorbs all shocks and vibration. Thus the life of the machine is prolonged and the wear on the tires reduced.

The Powerplus is the strongest, fastest, most powerful motorcycle. It has won every endurance contest of any importance, establishing many world's road and track records. It is cleanest—all working parts are enclosed. It is quiet. Its cost of upkeep is lowest.

Other 1917 *Indians*—Light Twin Motocycle, Side Car, Electrically Equipped and ten other model Bicycles.
1917 Catalog sent anywhere

HENDEE MANUFACTURING CO.
832 State St., Springfield, Mass.
(*Largest Motorcycle Manufacturers in the World*)

Ornament Your Home Grounds with Roeding's Evergreen Trees Shrubs Palms Vines Roses

FREE LANDSCAPING SERVICE

Service is becoming a great factor in every business, and the Nursery business is no exception. Many people who have both small and large places to improve are at a loss in many cases as to the plan to follow in laying out their grounds, and also in the selection of the trees, plants and shrubs, which will, as their place grows older, add to its beauty. In order to assist interested parties, we will on application mail you our SKETCH PLAN CROSS-SECTION BLANK, upon receipt of which you can make a rough sketch and mail to us, and our Landscape Department will send you a rough outline and recommendation for planting. No charge is made for this service.

BOOK ON ROSES FREE
"How to Grow Roses," just published. Gives names of best varieties and valuable information. Write for a copy.

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Plant
WAGNER'S IMPROVED
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Yields $1000 per acre annually. Splendid results in six months. Special price for immediate planting (also Cactus, Berries, small Fruits, etc.) Write

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All Sent Free.

E. R. Skinner & Co. 1107 24th St. Sacramento, Cal.

Household Department

THERE IS NO UNBELIEF

There is no unbelief;
Whoever plants a seed beneath the sod
And waits to see it push away the clod—
He trusts in God.

There is no unbelief;
Whoever says, when clouds are in the sky,
"Be patient, heart; light breaketh by and by,"
Trusts the Most High.

There is no unbelief;
Whoever sees, 'neath winter's field of snow,
The silent harvest of the future grow—
God's power must know.

There is no unbelief;
Whoever lies down on his couch to sleep,
Content to lock each sense in slumber deep,
Knows God will keep.

There is no unbelief;
Whoever says "tomorrow" "the unknown,"
"The future," trusts that power alone
He dares disown.

There is no unbelief;
The heart that looks on when the eyelids close,
And dares to live when life has only woes,
God's comfort knows.

There is no unbelief;
For thus by day and night unconsciously
The heart lives by the faith the lips deny,
God knows why.

—Lizzie York Case.

THE KITCHEN GARDEN

Written for California Cultivator
By John N. Gardiner

WHILE the writer has a patch of ground about 42x90, used exclusively for the growing of vegetables, he does not aim to keep it all producing at one time. My plan is to set aside half of the area for spring and summer crops, the remainder for those of fall and winter. By this arrangement that part not actually growing vegetables is being prepared for later use.

In order to maintain fertility the use of barnyard manure is advocated by the best authorities, if it can be had without difficulty or great expense, as this contains several fertilizing elements in varying quantities, besides the straw so necessary to supply humus. This decaying matter keeps the soil light and porous, causing it to retain moisture, and rendering it more easily cultivated. If manure cannot be had, the next best is to grow a cover crop, i. e. a succulent growth of peas, vetch, clover, barley or something similar, which, when it has attained its full growth, can be turned under either by plowing or spading in. I have followed this latter method for several years, although using stable manure as well, adding at the time of sowing the vegetable seed some commercial fertilizer in addition, in order to hasten maturity of the crop. I sow only small portions of this prepared land at a time in order to avoid maturing too much of one kind of vegetable simultaneously.

After my spring crops are about all harvested, which is usually some time in July, I commence sowing buckwheat broadcast in the unoccupied places. This grows quickly during the hot weather, specially if frequently irrigated or sprinkled. In about six weeks it will bloom and the seeds will ripen and fall to the ground. The tops can then be spaded in and within a short time it will be seen coming up again. After this second crop has gone to seed, a third will come, providing the season is not too far advanced, but the stand will not be as heavy as before. This method can be followed at little expense, as the cost of buckwheat seed and commercial fertilizer is small compared with that of stable manure. Even if manure can be had, this arrangement will still be beneficial to the soil. Towards the end of the year barley or peas may be sown for a cover crop, as both will withstand the cold better than the buckwheat.

Many persons fail in vegetable culture by planting out of season, and when nothing develops, they become discouraged, blame it on the seed or the dealer, and give up. If one will but procure a catalogue from any reliable seedsman, the tables therein will show when the various seeds should be sown to get the best results.

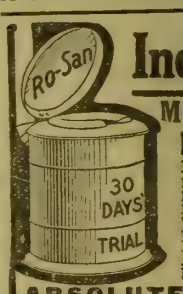
There are both warm and cold weather vegetables, and it is useless to endeavor to start any summer seeds in the open ground during the very cold months, which are usually December and January. This has been specially true the past few months, during which we have experienced more continuous cold weather than for many years. However, seeds for some summer vegetables can be sown in a hot-bed, if facilities for such are available, the young plants to be transplanted to the garden later, but this hardly pays on a small scale. It is better to save time and trouble by buying from a dealer young plants of tomatoes, peppers, egg plant and sweet potatoes, which may be had usually early in March and after setting these out in the garden just where they are to grow.

I make a practice of sowing seeds true to a line, which facilitates both cultivation and irrigation. In this way when irrigation is necessary, a furrow can be made on both sides of the plants, filled with water, and after it has soaked in, the earth drawn back again, thus conserving the moisture and preventing a crust forming on the surface. The water will thus reach the roots where it is most needed, will last longer and be worth more than any superficial sprinkling. When irrigating large plants like tomatoes, peppers and egg plant, it is better to form a basin around each and fill with water several times, after which the earth can be replaced.

Do not burn clippings, prunings, or other garden refuse; they are valuable, but either pile them up, wet and cover with earth, or dig a hole in some convenient spot and fill and cover as above, and after it has become rotted, it will prove a useful addition to your growing plants. It may also be screened and used as a mulch over sowings made during summer when seeds are apt to perish for lack of moisture. A little of this scattered on top of the ground after the seeds are planted will prevent a crust forming, which the young shoots would have difficulty in penetrating.

Make it a point to sow only such vegetables as you like, and not take up a limited space raising crops to be thrown away later.

When planting, do not forget the lowly onion. With present market prices of $10.00 to $12.00 per hundred wholesale, and two pounds for 25 cents retail, there is an incentive to grow them yourself. The onion makes roots near the top of the ground, so requires rich soil to develop to perfection. The best fertilizer is poultry manure. Care must be taken when using, as it heats up quickly when wet. If a small patch of ground can be covered with this manure, and immediately turned under, wet from time to time, and turned over again, the soil should be in prime condition for a good crop. A small quantity can also be added at intervals during the growing season with much benefit, on the theory that small amounts of fertilizer applied from time to time are better than a large quanti



Indoor Closet
More Comfortable, Healthful, Convenient

Eliminates the out-door privy, open vault and cesspool, which are breeding places for germs. Have a warm, sanitary, odorless toilet right in your house. No going out in cold weather. A boon to invalids. Endorsed by State Boards of Health.

ABSOLUTELY ODORLESS
Put It Anywhere In The House

The germs are killed by a chemical process in water in the container, which you empty once a month. **Absolutely no odor.** No more trouble to empty than ashes. Closet absolutely guaranteed. Write for full description and price.

ROWE SANITARY MFG CO. 229A ROWE BLDG., DETROIT, MICH.
Ask about the Ro-San Washstand—Hot and Cold Running Water Without Plumbing

SELF-OILING WINDMIL
With INCLOSED MOTOR
Keeping OUT DUST and RAIN — Keeping IN O

SPLASH OILING SYSTEM

Constantly Floo
Every Bearing
Oil, Makes It Pu
The Lightest Br
And Prevents

OIL SUPPLY REPLENISHED ONLY ONCE A YEAR

DOUBLE GEARS — Each Carrying Half the
Every feature desirable in a windmill in the
AUTO-OILED AERMOTOR
WRITE AERMOTOR CO. 2500 12TH ST., CHIC

SMITH-BOOTH-USHER CO
Southern California distributors for
AUTO-OILED AERMOTOR
Los Angeles

ty all at once. Onion seed may be sown anywhere in the garden, and when the plants are as large in diameter as a lead pencil, can be transplanted to a permanent bed with rows 12 to 15 inches apart and plants five inches apart in the row. If one desires to save time, the sets may be had from a dealer and planted in the same manner. In a few months you may either use them for green onions or wait until they reach full size and ripen, at which time the tops will wither and turn brown. They may then be pulled, cured and stored for future use. The onion is one of the most profitable vegetables to grow, even in times when prices are low, by reason of the method of culture, the plants being close together, and in consequence a large number are produced in a small space.

Another most prolific vegetable is the string bean, of which the Kentucky Wonder is without a rival. My method is to plant a dozen or so seeds in a hill, after first removing three or four inches of soil. After the plants reach a height of several inches the earth may be gradually filled in around them, the object being to have the roots deep where the soil is cooler and more moist. Later leave four of the strongest plants and pull up the others. I have grown vines of this variety 12 to 14 feet high, which produced pods nine inches long of the choicest flavor and texture. The vines will, of course, require poles or stakes of some kind upon which to run. Last season I purchased from the lumber yard some 2x2 rough redwood, cut to 14 or 15 feet long. These I stained for preservation after cutting one end to a point. When not in actual use they are stacked up awaiting the planting season, and I expect them to last many years. By planting two or three hills at a time, about a month or so apart, you will have beans galore all season. This deep method of planting can be applied also to summer squash, thinning out later to two or three of the strongest plants to the hill.

I have concluded that if my vegetables cost as much to grow as it would to buy them, that I am still ahead, as the quality is better, the freshness unequalled, while the exercise, pleasure and recreation derived from the work cannot be measured in dollars or cents.

So, I say to all having a piece of ground available, no matter how small, grow something, and thank your lucky stars that you are living in a land where some vegetable can be grown the year round.

PRIZE WINNERS

All the kitchen garden articles received in answer to announcement of this month's contest were exceptionally good and so nearly equally good that the deciding on prize winners was difficult.

The first, or $2.00 prize, has been awarded to John N. Gardiner; second, or $1.00 prize, to Mrs. John Norton. The other two articles published by "The Lady of the Garden" and Clara I. Remington will bring their writers each a year's extension of subscription to the Cultivator, which is equivalent to $1.00—or more. The offer was for only three months' extension, but the articles were so well written that we are glad to make it one year instead. Through lack of space all may not appear this week; if not, they will later.

MARCH CONTEST

The next contest will give everybody a chance to come in again. It will be a recipe contest. This time for the meat or meats you find that "go farthest", that means, cost least according to their food value. What meat is your family standby, that everybody likes and is reasonably cheap?

Cash Prizes

For best $2.00 in cash will be given; for second best $1.00. For all others published three months' extension of credit to California Cultivator.

With your recipe send name and address of one to whom you wish extension given.

Recipes will appear in Cultivator of March 31. They should be received in this office by or before Thursday morning, March 22.

"John, I haven't missed my cup of Ghirardelli's Ground Chocolate for forty years."

Ghirardelli's Ground Chocolate

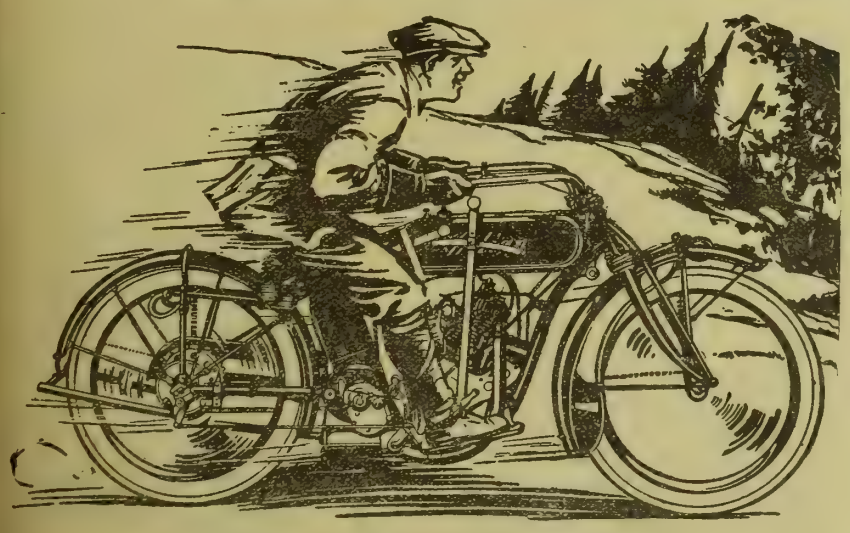
is used in more than a million homes in the West.

It comes **PROTECTED**—as all chocolate should—in ½-lb., 1-lb., and 3-lb. hermetically sealed cans.

Since 1852 D. GHIRARDELLI CO. San Francisco

This $290 Motorcycle Given Away

Many Have Already Secured Machines Under Our Easy Plan



Turn your spare time into a prize like this.

Send in your name today and turn your spare time into cash.

Wouldn't you like to own this $290 Indian Powerplus Motorcycle without its costing you a cent?

We are going to give away this machine and many other valuable prizes and cash pay in return for doing a little subscription work for us. This is easy work because our paper is so well and favorably known and you can do the work during spare time. Eleven others have already won motorcycles in this way with far less dollars in subscriptions secured from others than it would have cost in dollars to buy the same machine of a dealer. We will explain this when we hear from you. You do not know how easy it is and how much money you can make until you write and find out all about it. Send your name and address on the blank below and we will send complete description of the machine and full information about the campaign just starting and letters from others who are now owners of these machines. This will place you under no obligation to us whatever if, after reading about the plan you decide not to go ahead.

This is the easiest and best way to get a motorcycle. No one can get very many subscription in our short campaigns. It costs you nothing to enter and you do not even have to be a subscriber to California Cultivator.

This motorcycle is the best one you can get. It will give you more pleasure than anything of equal value that you could own. Eleven others have been given away that were quickly and easily secured and some one is going to get this motorcycle April 7th, 1917. It might as well be you as anyone. We are ready to turn over to you in CASH and prizes what we would pay somebody else for doing this work for us. You can do the work right where you live during your spare time.

VALUABLE PRIZE FOR LITTLE WORK

Arthur Allison of Whittier won the motorcycle given away December 31 with far less dollars in subscriptions secured than the motorcycle would cost of a dealer. He was glad he sent in his name. He won the motorcycle easily as many others have. He writes:

Whittier, Cal., January 30, 1917.

Cultivator Publishing Company.

Gentlemen: I entered the campaign which has just been completed by the Cultivator Company and was successful in winning the $290 Indian Motorcycle. The campaign was fair and square in every way, and I was much pleased with the way it was carried on. I would advise anyone that has a little spare time to enter the next campaign, which is soon to start. It is a valuable prize for a small amount of work. Yours truly,

ARTHUR W. ALLISON.

WAS JUST AS REPRESENTED

Manager Motorcycle Campaign. —

Dear Sir: I received your letter asking what I thought of the campaign that you had about a month ago. I will say that the motorcycle I won was just as represented and the campaign was managed in a way that suited every one, as they were all treated alike. The more I ride, the more I want to ride it. Again thanking you for the kind treatment I received from you people, I remain, your friend,

C. F. ERBERT.

HE WON OUT EASILY

Manager Motorcycle Campaign.

Dear Sir: I am writing to let you know I received the first prize motorcycle and sure am pleased with it. It sure is a dandy. It was worth working for, and I also say the way you managed the campagin was sure on the square, and I think others who may enter one of your campaigns will say the same, and I hope those who enter will win out as easily as I did.

C. S. KELLEY.

SAYS IT IS EASY TO WIN

Manager Motorcycle Campaign.

Dear Sir: I received the motorcycle, and it is sure a dandy. It is easy to handle. I have not found a place it won't pull. I would advise every boy to get busy on the next campaign, for it is easy to win and everything is straight.

E. B. PREEDY.

Don't wait—send in your name and address on this form.

Manager Motorcycle Campaign, California Cultivator,
115-117 North Broadway, Los Angeles,

Please send me free of cost and without obligation, full information about the $290 Indian Motorcycle you are giving away.

My Name .....

My Address .....

In care of .....

Street or R.F.D. ..... State .....

Why Did They Buy Pioneers

Wm. J. Schmidt, Sunnyvale, Cal., bought 17 to date; Arthur Cleal, Sunnyvale, bought 2; G. M. Ellison, Campbell, Cal., 20 miles from Sunnyvale, bought 40, and has nearly a hundred Pioneers in all. J. E. Wright, Lankershim, Cal., bought 64, and we would be glad to send you a list of 40 HATCHERIES. Ask any one of them WHY the Pioneer is the best. A hatchery man has to make money—he buys Pioneers because they pay their way. Free 50-page catalog.

Sold on Easy Payments

Pioneer Hatchery
320 So. Spring St.
LOS ANGELES, CAL.

The Pride of Petaluma Fresh Air Brooder Stove

Well, here we are again, and our No. 20 catalogue is now ready for you. It's a HUMDINGER, and if you are interested in poultry you should have it. It's full of splendid information about brooding in bunches from 300 chicks on up with the brooder stove system. If you are satisfied with your present brooding system, get our catalogue and learn how you can BEAT IT. If not satisfied, GET OUR CATALOGUE No. 20, it will put you RIGHT. We also have a splendid HOT WATER SYSTEM, but we can't tell it here, so

Get our CATALOGUE No. 20. IT'S FREE FOR ASKING.

Pride of Petaluma Fresh Air Brooder Stove Factory

Petaluma **J. E. KRESKY** **California**

Olive Dale Poultry Farm

LELAND F. FOBES, Proprietor — LOOMIS, PLACER COUNTY, CAL.

S. C. WHITE LEGHORN BABY CHICKS

FROM SELECTED HEAVY LAYING STOCK

Price $10 per 100

If you haven't the equipment or time to brood them, we shall be glad to raise your pullets up to three months of age at $8.00 per dozen. We guarantee good, No. 1 pullets.

Baby Chicks

TWENTY VARIETIES

Send today for our free 66-page Illustrated BABY CHICKS CATALOG, giving detailed prices of all chicks, ducklings, turkeys, goslings, hatching eggs, poultry supplies, etc. We also carry a large stock of laying Hens, Pullets, Cocks, Cockerels, Guineas, Pigeons, Rabbits; Brooders, Incubators, etc. Send for 48-page "Pioneer" Incubator and Brooder Catalog—we sell on Easy Payments. Write us your wants. Get our prices.

THE PIONEER HATCHERY — THE WORLD'S LARGEST BABY CHICK DEALERS
320 South Spring Street — Los Angeles, Cal.

Milk Fed Poultry

Baby Chicks fed on Milk Diet don't have bowel trouble.

Laying hens lay more eggs on Milk Diet.

We would like to tell you about Milkoline, which is a condensed buttermilk product from one of America's largest creameries. Write for particulars and prices.

GLOBE MILLS, Los Angeles, Cal.
Western Distributors

BARGAINS - BARGAINS

Mandy Lee Incubators

We are selling out our line of Mandy Lee Incubators. While they last we will offer 140-egg Mandy Lee Incubator for $15.00 f.o.b., Los Angeles. This is less than we paid for them. Absolutely guaranteed. Other sizes for sale. Send for catalog.

GLOBE MILLS Los Angeles, Cal.

"ROUGH ON RATS" ends RATS, MICE, Bugs. Don't Die in the House. Unbeatable Exterminator. *Ends* Prairie Dogs, Gophers, Ground Hogs, Chipmunks, Weasels, Squirrels, Crows, Hawks, etc. The Recognized Standard Exterminator at Drug & Country Stores. Economy Sizes 25c, 60c. Small 15c. Used the World Over. Used by U. S. Gov't. Rough on Rats Never Fails. *Refuse ALL Substitutes.*

A Great Feed Saver

Lee's Egg Maker

Assists assimilation. Prevents disease. Shortens the moult. Makes hens lay when eggs are high.

A 25-lb. pail enough for 500 lbs. of feed.

100-lb. drums
25-lb. pail
5½-lb. pkg.
2½-lb. pkg.

Globe Mills Los Angeles San Diego San Francisco Colton

Egg-o-hatch applied to eggs during incubation strengthens the chick and weakens the shell. It supplies free oxygen, absorbs carbon dioxide and makes brittle and porous the anima l matter of the shell. The biggest thing ever offered to poultrymen. 50 test hatches show average of 96 per cent for Egg-o-hatch eggs and 81 per cent for eggs not treated, **right in same machine.** Send 10 cents for sample, for 50 to 100 eggs. Full size package, for 600 eggs, 50 cents postpaid. Booklet free.
GEO. H. LEE CO., 251 Lee Bldg., Omaha, Neb.

A House of Four Hundred Hens

Written for California Cultivator By Jean A. Koethen

MOTORING out Fourth Street in Santa Ana the other day we came upon the ideal poultry house. Its builder, Mr. J. N. Osborn, was a carpenter before he turned poultryman, and if his 400 odd bred-to-lay Rhode Island Reds do not do good work it cannot be because they are not comfortably housed.

The house, which is built after a Petaluma model, is 48 feet long by 16 feet wide, eight feet high in front and six in the rear, and is built of carefully matched lumber. It is divided into four sections, each 16 x 48, and each intended to hold 100 hens. These sections are separated by ten-foot partitions, which leave a six-foot alley along the front.

The dropping boards are built two feet ten inches above the floor, which is entirely covered with deep litter, so that every foot is available as scratching space. The roosts are 1¼ x 1¾, and are hung from the roof by heavy wire. "You will never be troubled with mites", remarked one of our party. "I never have mites," declared Mr. Osborn, "I spray ahead of them."

One of the best features of this house is the cement floor which is three inches thick, over the bottom of the house, and seven inches thick on each side, forming a foundation for the wooden sills on which the building rests, and making a floor which is mite proof, moisture proof and rat proof. Rising as it does four inches above the ground all around, regardless of doors, it protects the interior absolutely. Looking at such a floor as this one wonders how poultrymen have managed all these years with dirt floors.

Essentially open-front, the house is yet not open front. That is, it is open enough for ventilation, yet closed sufficiently for purposes of protection. Being eight feet from sill to roof edge, there is an abundance of room for nests and feed hoppers with nearly four feet above them for the entrance of sun and air. The feed hoppers or troughs come first, being built near the ground, accessible from both sides and protected by slats. Above these, and ranged along the alley, are the nests which are built with hinged tops of such a slope that no hen can possibly find footing there. This in itself saves considerable cleaning, and the use of shavings and sawdust in the nests saves more, for mites find little comfort in wooden nest litter.

The feature which makes this house essentially "different" is the arrangement for keeping out rain and letting in air and sunshine along the front of the house. This consists of four canvas-covered frames, each 16 feet long by three feet six inches wide, and hung from the middle, so that they may be swung into either a horizontal or a vertical position. Hung vertically, they keep out rain and wind. Swung into a horizontal position they permit the sun to reach the farthest roost. At all times, whether open or closed, they admit the air.

This house, which has just been completed, Mr. Osborn says has cost him $300, and he has done nearly all the work himself. Under ordinary conditions, with the work hired, it would cost $400, or perhaps a trifle more. This is just about the dollar per hen which is usually allowed for a good, substantial hennery.

Poultry Questions and Answers

Trouble with Incubator

How should I manage my incubator to get a better hatch? My hens hatch all they have but nearly one-third of the eggs that I put in the incubator die at the time of hatching.—Subscriber.

I am not told where the writer of this letter lives, how long the incubator has been operated or whether the directions sent out by the incubator manufacturer have been followed with undeviating exactness. Failure of chicks to break the shell at hatching time is likely to be due to lack of moisture, but one dare not advise without full knowledge of the facts. If inquirer will send postal to Agricultural Experiment Station, Berkeley, asking for Circular 156, "How to Operate an Incubator", she will have fuller directions than could possibly be given here. Professor Dougherty says in this circular: "It is evident that ventilation and moisture conditions are closely related and cannot be considered as separate problems. They must be handled together. Geographical location, time of year and other factors will have to determine whether artificial means of adding moisture to the air entering the egg chamber is necessary or not. Always follow the instructions sent out by the incubator manufacturer until sufficient experience has been gained to enable one to act intelligently in making any change that may appear advisable. The increase in size of the air cell, the drying of the membrane exposed when the chick pips the shell, the collection of moisture on the inside of the glass of the incubator door and the ease with which the chicks break from the shell, together with experience, will serve as definite guides in properly regulating moisture conditions and ventilation in artificial hatching. If the machine is a new one, it is very likely that the agent from whom it was purchased can help the user to find why the chicks do not hatch as they should."—J. A. K.

Trap Nests

Please give directions for making trap nests.—Subscriber, Hughson.

The Cultivator has given in the past articles on the making of trap nests, with illustrations, but as there are so many good ones manufactured which are not patented and the making of one is so much more simple when it can be done with the completed nest for a model, many poultrymen have found it wise to buy one which is known to work satisfactorily. However, Mrs. Koethen's "Poultry for Profit" on pages 167 and 168, gives particulars with full illustrations of the Oregon trap nest, also illustrations of the Missouri, and the department of agriculture trap nests. This, by the way, is an excellent poultry book which should be in every poultryman's library. It may be had with one full year of the Cultivator for $1.75.

Have the roosting places sufficiently large for each hen to have comfort.

Scald the drinking vessels before they become slimy.

PEERLESS 66 INCUBATOR

$7.00 Delivered Anywhere

The Master Hatcher of all small machines

Write for Catalog

GLOBE MILLS, Los Angeles, Cal

Free Books on Poultry

Lee's Poultry Book.
Secrets of Success with Chickens.
Common Sense Chicken Talks.
Pointers to Amateurs.
How to Treat Poultry Diseases.

Globe Mills, Los Angeles, Cal.

Los Angeles Market

LOS ANGELES, Feb. 21, 1917.

BUTTER

Wholesale prices:
Rcts. wk. ending Feb. 20, 336,665 lbs.
California extra creamery 37
Prime first 35

Extr. Cr'y Exch. past week.						
Feb.	14	15	16	17	19	20
'17	37	37	37	37	37	37

CHEESE

Brokers' prices:
California fresh, lb.....23
Longhorn 27
Tillamook Triplets 23

EGGS

Exchange quotations:
Rcts. wk. ending Feb. 20, 2958 cases.
Fresh extras 29½
Case count 27
Pullet 26½

Fresh Ranch Exch. past wk.						
Feb.	14	15	16	17	19	20
'17	31	31	31	31	31	29½

POULTRY

We quote from growers:
Broilers 30
Fryers 27
Hens .....19@21
Roasters 23
Geese, Young 18
Ducklings, lb. .....18@20
Roosters, old 12
Turkeys .....26@28

LIVE STOCK

CATTLE—We quote cwt. f.o.b. L. A.
Beef steers, av. 1000 to 1100 lbs..9.00@9.50
Heifers, good 8.00
Cows, good .....7.00@7.50
Fair .....6.50@7.00
HOGS—
Heavy, av. 250 to 300 lbs.....9.25@9.50
Mixed, av. 175 to 225 lbs. .....9.25@9.75
Light, av. 125 to 150 lbs.....9.25
Rough, docked 20 lbs.; piggy sows, 40 lbs.; stags, 40%.
We quote per cwt. f.o.b. L. A.
Prime wethers .....8.00@9.50
Ewes .....8.50@10.00
Lambs 13.00
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:
Northern 5.00
Local 4.75
Lompoc 5.00
Oregon Burbanks 5.00
Idaho Russets 5.00
Sweet, cwt. .....4.00@4.25
Seed: Early Rose, cwt. 4.75
White Rose 4.75

ONIONS

Wholesale selling price:
White Globe, cwt. 12.00
Brown, cwt. 12.00
Onion Sets, Brown 16
Garlic, lb. 8

VEGETABLES

Wholesale prices:
Artichokes, doz. .....1.00@1.35
Beans, str. 25
Brussels Sprouts, lb. 15
Beets, doz. bunches 60
Cabbage, fy. sack.....3.00
Red, lb. 6
Carrots, doz. .....35@40
Chicory, doz. 40
Cauliflower, doz. 1.00
Celery, cr. .....5.50@6.00
Cucumbers, Hothouse, doz. .....1.50@3.00
Eggplant .....18@20
Horseradish, rt. lb. 12½
Lettuce, doz. 40
Leeks, doz. .....40@50
Mint 40
Onions, green, doz. .....17½@20
Oyster Plant, doz. 40
Peas, lb. .....15@16
Parsnips, lug 50
Peppers, Bell .....35@40
Radishes, doz. 25
Rhubarb—Crimson Winter 1.50
Romaine 50
Spinach, doz. 25
Squash—Hubbard, lb. 3
Turnips, doz. 45

FRUITS

Wholesale prices:
Apples—
Bellflower .....1.50@1.75
W. W. Pearmain .....1.25@1.60
Newtown Pippin, Yellow.....1.35@1.50
Bananas, lb. .....4¼@4½
Pears—Winter Nelis, lug 1.75
Pomegranates, ½ bx. 1.25

CITRUS

Navels .....2.25@2.75
Lemons .....1.50@2.50
Grapefruit .....2.50@2.75
Limes, basket 85
Tangerines, lug .....1.25@1.50

NUTS

Prices named by Cal. Walnut Growers' Assoc.	1914	1915	1916
No. 1	16.50	13.60	15.50
No. 2	12.00	10.60	12.50
Pkgs., 16 oz. Net	.....	.....	16.50
Budded	20.00	17.00	19.00
Jumbos	18.50	16.60	17.50

HONEY

Wholesale prices:
Extr. lb. White 8½@9½c; A. 8½@9c; W.W. 10@11c; Comb. lb. W. 12½c; Lt. A., 12½@14c; W. W. 14½c
Beeswax, lb. 32

BEANS

Wholesale Prices:
Lady Washington .....12.00@12.50
Limas 11.00
Pinks 8.50
Manchurian Reds 7.80
Baby Mex. 6.00
Small White .....12.00@12.75
Blackeyes 5.50
Tepary 7.50
Garvanzos 6.50
Lentils 18.00
Idaho Pinto 5.00

HAY

We quote ton f.o.b. L. A. to producers:
Barley .....15.00@19.00
Oat, tame .....16.00@19.00
Alfalfa, local .....17.00@20.00
Northern .....15.00@17.50
Stock .....11.00@14.00
Straw .....9.00@11.00

GRAIN

Wholesale selling price f.o.b. L. A.
Wheat—No. 1 .....3.25
Corn—No. 2 yellow, 2.55; white.....2.60
Oats—California feed 2.80
Standard 2.40
Texas Red 2.90
Cal. Seed Oats 2.60
Barley—No. 1 bright feed.....2.50
No. 1 dark feed 2.45
Seed 2.60
Milo 2.50
Egyptian Corn 2.40
Rye 3.25

FEED STUFF

Wholesale, cwt. f.o.b. L. A.
Alfalfa Meal 1.45
Bran, heavy 2.00
Shorts and Middlings 2.35
Alfalfa Molasses 1.50
Meat Scraps, accd. to quan.....3.20@3.30
Beet Pulp 1.50
Cracked Corn 2.60
Cracked Wheat 3.40
Cotton Seed Meal 2.40
Bone Meal 2.45
Feed Meal 2.75
Green Bone 2.25
Middlings 2.40
Oil Cake Meal 2.40
Fish Meal .....3.60@3.70
Rolled Barley 2.55
Rolled Oats 2.45
Hulled Oats 3.30
Feed Meal 2.65; Scratch Feed..2.60@2.70
Oil Cake Meal 2.40

San Francisco Markets

SAN FRANCISCO, Feb. 20, 1917.

BUTTER

Extr. Cr'y. Prod. Exch. past wk.
Dairy Exchange quotations. lb.:
Rcts. wk. ending Feb. 19, 496,900 lbs.
Fresh extras 36
Prime firsts 35
Firsts 34

Feb.	13	14	15	16	17	19
'17	36	35½	35½	35½	37	36

CHEESE

Rcts. wk. ending Feb. 19, 23,005 cases.
Dairy Exchange Quotations:
Cal. Flats ...20@21 Y. Am....20½@21½
Ore. Trip. .....22½@23 Y. Am. 24

EGGS

Fresh Extr. Prod. Exch. past wk.
Dairy Exchange quotations:
Fresh extras 32½
Select Pullets 29

Feb.	13	14	15	16	17	19
'17	33	32½	34	34½	33	32½

POULTRY

We quote from producers, lb.
Hens, large .....22@24
Fryers, lb. .....25@27
Broilers .....28@33
Roosters, old..15@16; young .....25@27
Squabs, doz. .....3.00@3.50
Ducks .....21@22
Geese .....17@19
Turkeys, dr. 26@28; live .....23@24
Belgian Hares, live .....14@15

LIVE STOCK

Prices gross weight:
Cattle:
Steers, lb., 7½@9¼, cows and heifers, 5¾@8; calves, 7@9½.
Sheep:
Wethers, 10@10½; shorn, 1½@2c less; ewes, 9@9¼; lamb, lb., 11½@12½.
Hogs:
Hard grain fed, wt. 100 to 150 lbs., 10; 150 to 300 lbs., 11¼@11½; 300 to 400 lbs., 10¾@11; undesirable, 6@7.

POTATOES

Wholesale selling prices at wharf:
Delta .....3.75@4.00
Oregon Burbanks .....3.85@4.10
Sweet, Cellar .....3.00@3.25

ONIONS

Wholesale selling price on wharf:
Yellow, cwt. .....12.00@15.00
Jap. Yellow 7.50
Garlic, lb. .....3@5

VEGETABLES

Wholesale selling price:
Artichokes, doz., large 60-80; small, 40-45
Celery, cr., large 3.50@4; small, 2.25@2.75
Cucumbers, bx., hothouse .....1.00@2.00
Lettuce, cr. .....75@1.25
Mushrooms, bx. .....1.50@2.00
Peas, lb. .....10@12
Rhubarb, box .....1.75@2.00
Squash—
Hub. lb. .....2½@3½

FRESH FRUIT

Wholesale selling price:
Apples, bx.—Bellefleur .....60@75
Newtown Pippins .....90@1.25
Bananas, bunch .....1.00@1.50
Pineapples, doz. .....2.25@2.50

CITRUS FRUIT

Wholesale selling price:
Lemons .....1.50@3.25
Lemonettes .....1.00@2.00
Limes, Mexican, cs. .....5.50@6.00
Grapefruit .....1.50@2.50
Navels .....1.25@2.65
Tangerines, half orange box.....1.50@2.00

PEACH PRICES

The California Peach Growers announces price list No. 6. Please note the following advance in prices, effective Saturday, November 18, 1916, at 6 p. m. All prices are f.o.b. factories, California common points, but no orders will be confirmed by us, at the following prices, unless f.o.b. factories where grades and varieties desired are available. All quotations are subject to our approval of variety and assortment, subject to our confirmation and subject to advance without notice: November, December and January shipment.

Price list No. 5 is hereby withdrawn, and ineffective after 6 p. m. Saturday, November 18, after which time prices herein quoted shall apply.

	Yellows.	Muirs.
Standard Peaches	.06¼	.06¼
Choice Peaches	.06½	.06½
Fancy Peaches	.07¼	.08⅛
Extra Fancy Peaches	.08	.08⅝
Slab Peaches	.....	.05½
Choice Peeled Peaches	.....	.09¾
Fancy Peeled Peaches	.....	.11

Above prices bulk basis.

For 50-lb. bxs., unfaced, add	½c
For 50 lb. bxs. faced, add	⅝c
For 25-lb. bxs., unfaced, add	⅝c
For 25-lb. bxs., faced, add	⅞c
For 10-lb. bxs., unfaced, add	1¼c
For 10-lb. bxs., faced, add	1½c

For prices on graded peaches, original, in bags, add ⅞c to the bulk basis prices above quoted.

	—Per Lb.—	
Ungraded, original bags	.07⅛	.07⅜
Choice Unpld. 1-lb. cart.	.08½	.08⅝
Choice Unpld. 5-lb. cart.	.08¼	.08⅜
Fancy Unpld. 1-lb. cart.	.09¼	.09⅞
Fancy Unpld. 5-lb. cart.	.09	.09¾
	Per Lb.	
Choice Peeled 2-lb. Cartons	.12	
Choice Peeled 5-lb. Carton	.11¾	
Fancy Peeled 2-lb. Cartons	.13¾	
Fancy Peeled 5-lb. Cartons	.13¼	

The above prices are guaranteed against our own decline to March 1, 1917, and apply only to sales and shipments made direct to the recognized jobbing trade. No goods will be confirmed at above prices to Coast or Eastern brokers, or to speculators, it being our object to eliminate speculation in dried peaches, we preferring to carry our stock in storage here on the coast until actually required by the jobbing trade.

DRIED FRUITS

Wholesale quotations:

PRUNES—Bulk basis, per lb.: 30s and 40s, 6½c; 50s, 6⅞c; 60s, 7¼c; 70s, 7¼c; 80s, 7½c.

Other fruit, 50-lb. boxes:

	Stand-ard	Extra Choice	Extra Choice	Extra Fncy.	Extra Fncy.
Apples	8 c	8½c	9 c	....	
Apricots	15¾c	15⅞c	16 c	16⅝c	
Peaches	6¾	7 c	7½c	8½c	9½c
Pears	8 c	8½c	9 c	10¾c	....

California Associated Raisin Company's prices on 1916 crop: Package Sun Maid Seeded, 36-16s, per case, $3; package Sun Maid Seeded, 48-16s, per case, $3.95; Bakers Sun Maid Seeded, 25-lb. boxes, per box, $1.75; fancy Seeded Muscats, 36-16s, per case, $3.05; fancy seeded Muscats, 45-12s, per case, $3.15; fancy bulk Seeded, 25-lb. boxes(per box, $1.75; choice Seeded Muscats, 36-16s, per case, $2.90; choice Seeded Muscats, 45-12s, per case, $2.95; choice bulk Seeded, 25-lb. boxes, per box, $1.75. (Wood cases if desired.)

Loose Raisins in 50-Lb. Boxes

One-crown loose Muscatels, floated, per box, $4; 2-crown loose Muscatels, per box, $3.25; 3-crown loose Muscatels, per box, $3.50; 4-crown loose Muscatels, per box, $3.75.

London Layers

Three-crown London Layers, 20-lb. boxes, per box, $1.50; 4-crown clusters, 20-boxes, per box, $1.75; 6-crown Imperial Clusters, 20-lb. boxes, per box, $2.60; 5-lb. boxes, 50c additional; 10-lb. boxes, 25c additional; fancy clusters, 1-lb. cartons, 20 to case, per case, $1.85; fancy clusters, 2-lb. cartons, 12 to case, per case, $2.20; fancy clusters, 5-lb. cardboard cartons, 4 to case, per case, $2.30. Bulk layers, in 50-lb. boxes, per box, $3.25; bulk layers, in 100-lb. boxes, per box, $6.25.

All f. o. b. common shipping points. Regular California dried fruit terms. Prices guaranteed to April 1, 1917. All raisins not shipped before January 1, 1917, to be paid for at that time. The company will carry the raisins free of expense to time of shipment, which must be before March 1, 1917, unless otherwise arranged.

No export rebate will be allowed.

Prices subject to change without notice.

NUTS

Jobbers' Prices:
Almonds.—Exchange opening prices: Nonpareil, 20½c; Ne Plus Ultra, 17c; IXL, 18c; Drake, 16c.
Peanuts .....5½@6½

BEANS

Jobbers' prices, cwt. recleaned:
Limas .....9.75@10.00
Bayous .....7.40@7.65
Garbanzos .....4.35@5.00
Small White .....11.00@11.25
Mexican Red .....7.75@8.00
Large White .....11.00@11.25
Pinks .....7.75@8.00
Horse Beans .....5.00@5.25
Black Eyes .....5.20@5.40
Red Kidneys .....11.75@12.00
Cranberry California .....8.25@8.50

HONEY

Jobbers' prices:
Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. .....11@12
Ex. Fy. lb.....9c; Lt. A.....6@8
Beeswax .....20@30

HOPS

Prices to growers at shipping points:
Sacramento, lb. .....8@9
Sonoma .....10@12
Mendocino .....9@10
Oregon and Wash., lb. .....6@10

HAY

Scott, Magner & Miller say under date of February 17:

Receipts past week 1617 tons, last week 1806 tons. Receipts consisted of all grades from fancy wheat and red oat down to the stock hay. Pasturage has been scarce throughout ranges owing to cold, dry weather, necessitating the feeding of baled hay in large quantities. Alfalfa has followed the general trend of the market and is firmly held at advanced prices. Straw is scarce and selling at top figures.

Wheat, Fy., lt. bales.....22.00@23.00
Wheat or Wh. & Oat, No. 1...20.00@21.50
Wheat, or Wh. & Oat, No. 2...18.00@20.00
Oat, Choice Tame .....21.00@22.00
Other Tame .....18.00@20.00
Wild .....17.00@20.00
Barley .....17.00@20.00
Alfalfa .....16.00@20.00
Stock .....16.00@17.00
Barley Straw No. 1.....90@1.10

GRAIN

Grain Exchange prices, cwt.
Wheat, California Club .....2.60@2.65
Wheat, No. Bluestem .....2.90@2.95
Corn, Eastern Yellow, sk.....2.20@2.22½
Corn, Egyptian White .....2.15@2.35
Oats, White Feed .....2.00@2.02½
Barley, feed .....2.20@2.25
Shipping .....2.32½@2.37½
Rye, cwt. .....2.65@2.75

FEEDSTUFFS

Wholesale prices per ton:
Bran .....30.00@31.00
Cornmeal feed .....48.50@49.50
Rolled Barley .....45.00@47.00
Cracked Corn .....49.50@50.50
Middlings .....35.00@37.00
Alfalfa Meal, carlots .....21.00@22.00
Shorts .....31.00@32.00

SEEDS

Prices in round lots, lb.:
Millet, recleaned .....3½@4
Alfalfa .....20@21
Rape .....2¼@2½
Flax .....6@6

Citrus Fruit Market

LOS ANGELES, Feb. 21, 1917.

Best grade regular sized fruit is decidedly higher and the demand is keen. Off sizes and low grade fruit still gong very low, some barely paying freight and packing charges.

The lemon .market. is good and the prices generally higher.

Shipments

Shipments of oranges from Southern California since November 1, 1916, 7880 cars, lemons 1641, total 9521; to same date last year, oranges 6833, lemons 1762, total 8595. From Central California to date this season, oranges 4017, lemons 152, total 4269; to same date last season, oranges 4177, lemons 132, total 4309. From Northern California to date this season, oranges 842 cars; last year 609.

FROM THE AUCTION

February 14
New York: 14 nav., 1 mixed, 2 lem. nav., $1.95@3.65; tang. halves, $1.75@1.85; lem., $2.40@3.40.
Pittsburg: 5 cars, nav., $1.95@3.10; lem., $2.90@3.50.
Philadelphia: 3 cars, higher, nav., $2.00@2.45; lem., $3.45.
Cincinnati: 4 cars, nav., $2.15@2.25; lem., $2.50@3.40.

February 15
New York: 16 nav., best grade fruit higher, nav., $2.00@3.65.
Boston: 10 cars, nav., $1.95@3.00; lem., $2.55@3.55.

February 16
New York: 16 nav., 3 lem., lower. Nav., $2.10@3.30; tang. halves, $1.70@1.90; lem., $3.25@3.50.
Cleveland: 4 cars, nav., $2.00@3.30; lem., $1.90@2.40.
Boston: 6 cars, nav., $1.80@3.10; lem., $3.25.
Philadelphia: 3 cars, nav., $2.10@2.65.

February 19
New York: 41 nav., 2 mixed, 5 lem., large size lower, lem. higher, nav., $1.40@3.50; bloods, $1.45@1.65; tang. halves, $1.70@1.95; lem., $3.20@4.00.
St. Louis: 10 cars, nav., $1.65@2.50; lem., $3.15@4.00.
Cleveland: 6 cars, nav., $2.05@2.80; lem., $2.10@2.75.
Boston: 18 cars, nav., $2.10@3.35; lem., $3.35@3.85.

February 20
Philadelphia: 3 cars, $2.40@2.85.
Boston: 10 cars, nav., $2.10@3.05; lem., $2.65@3.75; bloods, halves, $1.45@1.55.

ANOTHER GOOD GUERNSEY RECORD

A Guernsey cow has just completed a record which secures for her sixth place in the junior three-year-old class.

Langwater Desire 40709, owned at Langwater Farms, Massachusetts, is the cow that has done this by producing 14,219.8 pounds of milk and 708.69 pounds of fat. She is an ideal dairy cow of great size, splendid dairy type, and has a magnificent udder with large well placed teats. She combines in her pedigree some of the great show ring and producing animals of the breed.

WEATHER CONDITIONS

For the Week Ending February 17, 1917

	Rainfall Wk.	Rainfall Season	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	.19	16.77	28.83	58	38
Red Bluff	.16	11.30	16.13	74	42
Sacramento	.06	6.60	12.78	72	40
San Francisco	.38	10.54	15.02	72	44
San Jose	.18	6.72	10.77	74	40
Fresno	.38	5.61	6.01	68	38
San Luis Obispo	.44	15.43	12.65	68	36
Los Angeles	.56	10.48	10.02	70	44
San Diego	.78	7.44	6.48	66	46

Alfalfa Land

For Dairying

Also First Class Orchard Land 10 Acres and Up.

BRENTWOOD IRRIGATED FARMS

in Contra Costa County

(63 miles from San Francisco)

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Land Department.

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—when you use Mica Axle Grease. The grease is always evenly spread and it *lasts*. Mica Axle Grease would still be good grease even if it contained no powdered mica. But the mica makes it even better. Gives extra lubrication—forms a smoother surface—makes the grease last twice as long. Get a can from your dealer today.

No Gumming Or Scoring

Standard Oil Company
(California)

MICA AXLE GREASE

Worn Out Soils Made Productive

by using

Hauser's Organic Fertilizers

Science and practice both indicate that Nitrogen and Phosphoric Acid are necessary to produce the best results from the Citrus Orchards, and these two essentials are most prominent in organic fertilizer. Hauser's Organic Fertilizer is a concentrated soil builder and fruit producer. Put back into the soil at least a portion of the natural elements the orchard has taken out.

Home Products

Send for booklet "Good Reasons," tells you why "Natural Fertilizers" fertilize and return you many times the money spent for this unexcelled plant and tree food.

HAUSER PACKING COMPANY, Los Angeles

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The Cunningham Land Roller and Pulverizer

Makes a Perfect Seed Bed—Stops Evaporation—Preserves Moisture—The Best Clod Crusher ever made for Farmer, Orchardist, Vineyardist, Nurseryman and Seedsman—

Made in All Sizes
Write for Circular

Manufactured and Sold Exclusively by

SPALDING-ROBBINS DISC PLOW CO. 625 Market Street SAN FRANCISCO

Power Drag Saw does the Work of 10 Men

One man can move machine from cut to cut on log. Two men can carry it. Cuts through 3½ foot log in three minutes. Approximately 25 cords a day. 3¼ H. P. gasoline engine warranted. Steel wheel cart $8.00. Send for catalogue. MANUFACTURED BY

REIERSON MACHINERY CO.
1290 HOOD STREET, PORTLAND, OREGON

THROUGH "STORY LAND"

Over the

Sunset Route

Through the orange groves of Southern California—up San Timeteo Canyon—through San Gorgonio Pass—near the foot of Mt. San Jacinto—through the Coachella Valley—skirting the Salton Sea—Through Arizona and New Mexico—Texas with its Cotton Fields and Rice Plantations—The "Sugar Bowl" of Louisiana—The Bayou Teche, Quaint, Historic New Orleans.

AND THROUGH THE SOUTH—

'Dixieland" of Song and Story
Double Daily Service

"Sunset Limited"
No extra fare—
Through tourist sleeper to Washington, D. C.

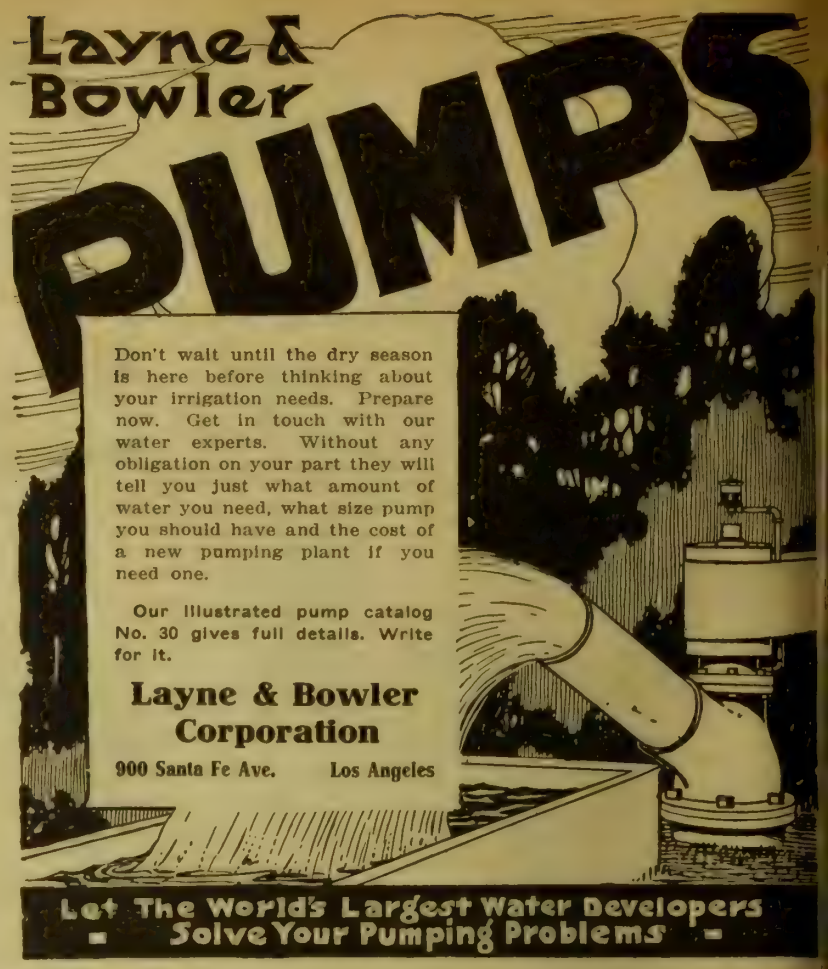
Sunset Express
SOUTHERN PACIFIC STEAMERS
Lv. New Orleans Wednesdays and Saturdays for New York. Fares same as all rail and include meals and berth on ship.

California Orange Day, March 10th, 1917

Southern Pacific

—See the Apache Trail of Arizona

Layne & Bowler PUMPS



Don't wait until the dry season is here before thinking about your irrigation needs. Prepare now. Get in touch with our water experts. Without any obligation on your part they will tell you just what amount of water you need, what size pump you should have and the cost of a new pumping plant if you need one.

Our illustrated pump catalog No. 30 gives full details. Write for it.

Layne & Bowler Corporation

900 Santa Fe Ave. Los Angeles

Let The World's Largest Water Developers Solve Your Pumping Problems

160 ACRE FARMS IN WESTERN CANADA FREE

Canada's Liberal Offer of Wheat Land to Settlers

is open to you—to every farmer or farmer's son who is anxious to establish for himself a happy home and prosperity. Canada's hearty invitation this year is more attractive than ever. Wheat is much higher but her fertile farm land just as cheap, and in the provinces of Manitoba, Saskatchewan and Alberta

160 Acre Homesteads Are Actually Free to Settlers and Other Land Sold at from $15 to $20 Per Acre

The great demand for Canadian Wheat will keep up the price. Where a farmer can get near $2 for wheat and raise 20 to 45 bushels to the acre he **is bound to make money**—that's what you can expect in Western Canada. Wonderful yields also of **Oats, Barley and Flax. Mixed Farming** in Western Canada is fully as profitable an industry as grain raising.

The excellent grasses, full of nutrition, are the only food required either for beef or dairy purposes. Good schools, churches, markets convenient, climate excellent. Military service is not compulsory in Canada but there is an unusual demand for farm labor to replace the many young men who have volunteered for the war. Write for literature and particulars as to reduced railway rates to Supt. of Immigration, Ottawa, Can., or to

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Canadian Government Exhibit, San Diego, Cal.

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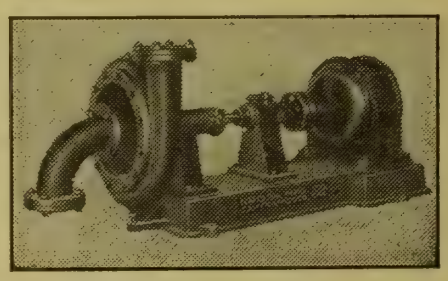
Krogh Pumps are Absolutely Water Balanced
No End-Thrust Possible No Set Collars Used

THE NO TROUBLE PUMP



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Fitted with Ring Oiling Bearings.

Renewable Babbitted Bushings.

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We also build deep well turbines, deep well plunger, horizontal and vertical pumps for mining, irrigation, drainage.

AWARDED PANAMA PACIFIC INTERNATIONAL EXPOSITION GOLD MEDAL AWARD RIBBON GOLD MEDAL MACHINERY HIGHEST AWARD

DITCHES!

Make the NEW and Clean the OLD with the MARTIN Ditcher, Dyker and Grader. Makes or cleans irrigation or drain ditches up to 4 feet deep—any width. Makes two to three foot dyke or levee; grades roads. Works in sand, rocks, gumbo or clay—wet or dry—on side hills or level ground.

Reversible, Adjustable, No Wheels, Cogs or levers. No breakable parts. All steel. 2, 4 and 6 horse sizes. Guaranteed to do more work than 50 men with shovels. Cost low, upkeep nothing. Over 10,000 satisfied customers everywhere. Write TODAY for catalog, full particulars and introductory offer on new 1917 models.

The Martin WAY

ONE OF A THOUSAND

"I made six miles of 3-foot ditch in five days with my MARTIN—about one-fifth of the cost by any other method. It is also fine for ditch-cleaning and levee work." H. C. STORMER, Colusa, California.

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CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

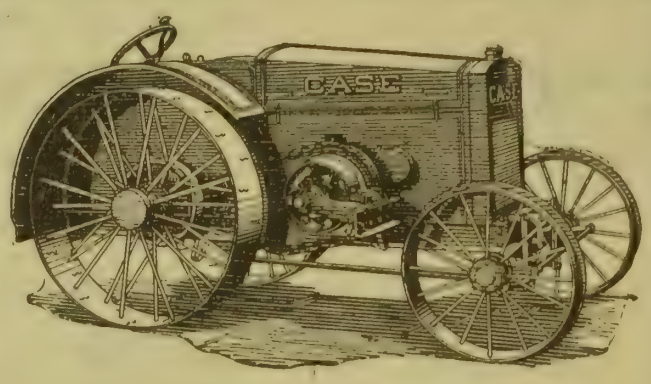
An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES March 3, 1917 SAN FRANCISCO

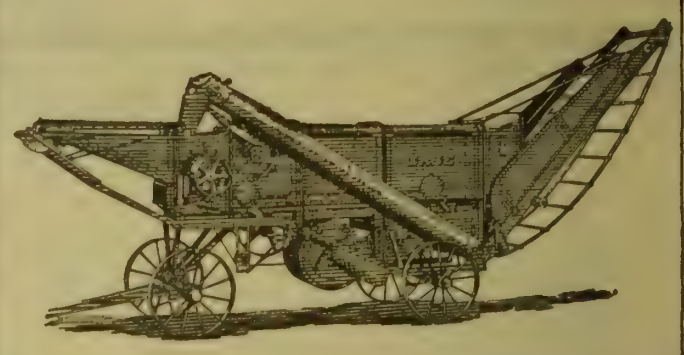
The Old Mill of Napa

CASE

9-18 Tractor



20x28 Thresher



Every Farmer Wants a Combination Like This

Above we picture a Case 9-18 all-'round farm tractor and the new Case 20x28-inch thresher. Here is a combination which can't be beat. It brings to every farmer a new independence and greater economy. We are the first in the field to satisfy the growing demand for such a *handy team* of machines as this.

Even if you are not in the market today, you should be thoroughly acquainted with these remarkable labor-savers. They are described and pictured, together with the complete Case line, in our new 75th anniversary catalog, just off the press, which will be sent to you free upon request.

CASE, the Standard Tractor

The Case 9-18 tractor is truly an all-'round mechanical farm horse because this tractor is so useful.

It will pull manure spreader, gang plow, harrow, grain drill, planter, digger, mowing machine, rake, hay loader, harvester, haul crops and other materials.

It will drive a small thresher, a silo filler, feed grinder, fodder cutter, corn sheller, wood saw or hay baler. It operates a milking machine, also dynamo for electric lighting, and many more jobs.

This Case 9-18 has a four-cylinder valve-in-head special tractor motor, and is built for continuous hard pull without overheating. All gears are enclosed and run in oil. Center of gravity low down; therefore no danger of upsetting. Short wheelbase makes for easy turning in close quarters. A boy can operate it.

Don't buy a tractor before you've learned all about the Case. It pays to investigate thoroughly. If you're from Missouri, we "can show you."

The Sign of Mechanical Excellence the World Over.

Do Your Own Threshing

Thousands of farmers have asked us to add a smaller thresher to our line, so that they might do their own threshing. They have come to us because Case has long been the leader in the threshing machine business. So we have designed and built the Case 20x28-inch. It is especially adapted for small tractors. While we recommend the Case 9-18 all-'round tractor with it, this 20x28-inch separator can easily be driven by other power of like capacity.

With the Case 20x28-inch thresher there is no need to await your turn and run a risk. You may thresh as much as you please, whenever you please. This means absolute independence. Also extra profits, if you have time to handle some of your neighbors' crops.

The Case 20x28-inch thresher maintains the same standard of excellence as the larger models, which is sufficient proof of its performance, economy, durability and results.

We want You to know all about this Case 20x28-inch thresher before you purchase a machine. Samples will be gladly shown at all of our 44 Branch Houses.

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(490)

Four other Case tractors besides the 9-18, as follows: 10-20, 12-25, 20-40 and 30-60. A size for every need—a size for every farm.

Eight sizes of Case steam engines: 30, 40, 50, 60, 65, 75, 80, and 110 h. p. None as good as these have ever been manufactured. They have proved superior.

Seven Case steel threshing machines in the following sizes: 20x28, 20x36, 26x46, 28x50, 32x54, 36x58 and 40x62 inches. These meet every demand. Case threshers always set the pace.

Case baling presses, in two sizes, 14x18 and 17x22 inches; also a 17x22-inch automatic baler. They do the most work in the least time.

Case silo fillers have big capacity and require least power. Their performance is unequalled, like all other Case products.

WRITE TODAY FOR THE CASE CATALOG—FREE!

California Cultivator

Vol. XLVIII No. 9 LOS ANGELES: March 3, 1917 One Dollar Yearly

The National Orange Show

A Little the Best Show Ever. About the Same Amount of Rain as in Other Years. Citrus Growers Meeting Inaugurated Movement for Practical Changes in Later Fairs

IT rained during the citrus fair week; it always does—at least nearly always—and the rain was needed and was worth millions to the state's citrus producing section. Nevertheless it was a disappointment to the management after making such complete arrangements and installing one of the finest citrus exhibits, both in features and in quality fruit, ever shown. However, the rain came down and took away the beauty of the street decorations and prevented many from attending and to an extent at least injured the exhibits which had been placed.

Two mammoth tents had been erected and they were filled to the limit. The features could not be entirely different from those of preceding years, yet there were many novelties and we think in the main a more finished touch. The practical grower was heard to remark that he wished less attention could be given to these features, often made up with fruit of indifferent quality, but like the railway collisions at the state fair, the side shows and other attractions of the ordinary street fair, the citrus fair must have something to bring gate receipts. The features are a strong drawing card and we doubt not will always be continued. There will be the railway train made of oranges or other fruits; there will be the swans, the bears and other animals; and these need not take from the quality and commercial exhibits.

The convention which was held on Friday called attention to the quality exhibits, to the need for revision of score card and to the advisability of encouraging more and better exhibits of plates, of boxes, and especially of commercial packs. There was a packing plant in operation, but this more to give to the Eastern visitor an idea of the methods of packing and to give opportunity to secure small and attractive packages for sending to Eastern friends.

At the convention the remark was made that the manager of every packing house in California should take the opportunity to be present, should make an exhibit of the best his house can produce, should examine the packs made by other houses, and should study every question connected with the problem of sending from California fruit that will increase the reputation of the state not only as a producer of the finest oranges in the world, but as the packer of the finest appearing product. The fact that California has already won a reputation for fine picking and fine packing does not preclude opportunity to develop further efficiency, especially in the line of more uniform pack. The point was often referred to that a fancy or choice grade of one packing house was not necessarily an indication of what the same grade would be from another packing house. Hence the appeal for making more of this opportunity another year. A committee was appointed, but regarding this committee more below.

As one entered, the first tent was given entirely to feature and quality exhibits of citrus fruits. There were some citrus fruit products exhibited, but there should be more. As to the attractiveness of the features and the winners of the awards, the list given below is the best comment.

The tent adjoining the one in which the quality exhibits were made was given over to concessions. There was almost every merchantable product from autos to lemon face cream. A few of these were of interest only to local people, but the implements and tractors and farm power exhibits held the attention of many a citrus grower and in a way which showed that the orchardist is talking as to how to produce more with less expenditure.

The citrus growers' convention under the auspices of the management of the show held its sessions in Moose Hall. Prof. D. L. Crawford of Pomona College presided. The welcome was given by Joseph Ingersoll, president of the orange show. Prof. Crawford responded for the fruit growers and Dr. Webber, director of the citrus experiment station, and Mr. Fleet of the Sespe Rancho talked on pruning and J. P. Inglehart of Glendora gave of his methods. These pruning articles called out warmest of discussions.

Dr. Elwood Mead, chairman of the commission on land colonization and rural credits, discussed both rural credits and land colonization, but gave most of his time to the latter question. He referred to the lure of ownership of home and enlarged upon the advisability of recognizing this desire to own a home and called attention to the comparatively small number of American people who now own their own homes. Tenancy is increasing every day. To aid in securing homes the federal government through its farm loan bureau will loan to farmers at five per cent interest plus one per cent amortization a sum equal to half the agricultural value of the land.

In addition it is now hoped that the state of California will join in this campaign, at least to the extent of acquiring an experimental tract of land to be subdivided and placed at the disposal of young farmers of from 21 to 35 years of age. In this state there are hundreds of thousands of acres untilled. These lands must be improved, and it should be done in a way that will give opportunity to the young man with willingness to work, with farming experience and with at least a little capital. The state should, if necessary, build homes for them.

As showing the need for this encouragement by the state and nation Dr. Mead called attention to the fact that a canvass of the attendants at the college of agriculture of the University of California showed that more than 60 per cent would be at the completion of the course entirely without capital, and but very few of the 40 per cent would have sufficient capital to engage in agricultural practice to any material extent.

At the close of the convention Dr. J. Eliot Coit, who was one of the judges of the quality classes, called attention to the need of revision in score cards and to the establishing of what is a perfect navel orange or what is a perfect lemon. To the end that such questions might be given solution and to aid in giving suggestions to the management of the coming citrus fairs it was resolved that a committee should be appointed. Chairman Crawford appointed Dr. J. Eliot Coit, Messrs. Little of Riverside, Sharp of Santa Barbara, and C. D. Hubbard of Carpinteria, this committee to act and have power of making suggestions direct to the management of the National Orange Show.

Awards made by Judges J. Eliot Coit and D. L. Crawford are:

Best 24 boxes Washington navels: First prize, Etiwanda Citrus Fruit Association; second prize, Lindsay Chamber of Commerce; third prize, Mutual Orange Dis-

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Some Questions Answered

National Farm Loan Board Replies to Points Often Raised. Federal Loans Soon Obtainable

SECRETARY Flannagan of the farm loan board has mailed us the following answers to questions which have arisen as to the workings of the farm loan. We may add that during the present month funds will be available for the capital stock of the 12 district banks has all been subscribed.

What constitues an "actual farmer"?

An actual farmer is one who conducts the farm and directs its entire operation, cultivating the same with his own hands, or by means of hired labor. An owner, to borrow under the farm loan act, must be responsible in every way, financially and otherwise, for the cultivation of his land.

What is the meaning of "equipment"?

Equipment consists of the implements needed in the conduct of a farm to facilitate its operation. It might consist of teams as well as machinery, tools and like articles.

What is the meaning of "improvements"?

Anything in the form of beneficial structure, or any useful, permanent physical change tending to increase productive value, such as clearing, tiling, draining, fencing, building etc.

Has a farm loan association the right to appoint an attorney to draw up abstracts and pay him out of its official funds, or should the members of the association club together as individuals and have this done?

Each borrower is required to furnish his own abstract and the applicant must stand the expense of preparing this abstract. An association has no right to employ any of its corporate funds to pay for the preparation of abstracts for its members. This must be an individual charge, and if members of an association club together to have this work jointly done they must do it as individuals and not as an association. Each borrower is free to make his own choice in the selection of an attorney or abstractor.

What will be the rate of interest?

Not exceeding six per cent. The exact rate cannot yet be told; one per cent more than the interest rate farm loan bonds will bear.

May members of a partnership borrow?

Yes, if one or both are farmers and engaged in the cultivation of the land mortgaged. Partners must join severally in executing the mortgage and one should give the other authority to represent him in the farm loan association, as only one can have membership.

Will the federal land banks make any charge for examination of abstracts of title?

The examination of abstracts, when furnished, will be made by the bank's general attorney at its office, and for this examination no charge will be made. In districts where abstracts are not obtainable except by examination of the records, the borrower will have to bear the cost of such examinations.

When a husband and wife execute a joint mortage should one give the other power of attorney to be the representative in the farm loan association?

Both husband and wife should sign the mortgage, but the one in whose name the title stands should be the member of the association.

What is the basis for appraising lands?

The appraisement of a farm should represent the best judgment of the members of the loan committee as to the value of the land in question, the principal factor being the productivity of the land when used for agricultural purposes, but taking also into consideration the salability of the land and prevailing land prices in that community.

What will be the size of the bond of the secretary-treasurer?

This will depend upon the size of the association. The bond need not be large enough to cover the aggregate amount of money borrowed by the members of the association because this money will be transmitted in such a way as never to be in the exclusive control of the secretary-treasurer. It should be large enough

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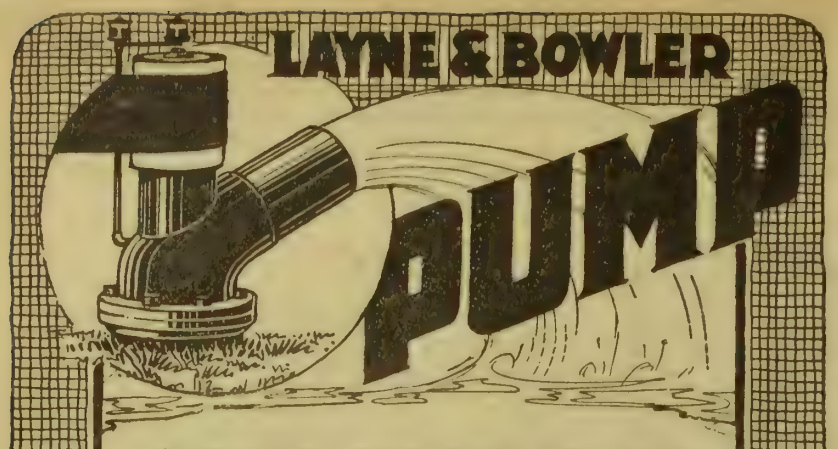

The severe duty of western irrigation service requires a pump designed to operate at low cost without danger of a breakdown or trouble. Its construction must be extremely simple and of such a character as to meet widely varying conditions.

Layne & Bowler Pumps

meet these requirements perfectly. Over 5000 in actual operation testify to this. Let the world's largest water developers solve your pumping problems. Our interesting catalog No. 30, on irrigation and pumps, is yours for the asking. Write for it.

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900 Santa Fe Ave. Los Angeles

WORLD'S LARGEST WATER DEVELOPERS

Burbank's "Gigantic" Plum
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Will bring big money, either for the local or long distance market

ALMONDS, CHERRIES, TUSCAN CLING PEACH
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the old and safe standbys

Fine Assortment Pears and Plums

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Elm, Maple, Plane, Mt. Ash, Mulberry, Poplar, Tulip Tree, Walnuts, etc. 6-8 ft. size, low prices.

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Makes Less Noise Than the Hum of an Electric Motor
Cylinder Very Heavy and Will Handle Sand
Hundreds in Use in Porterville Orange District
Efficiency Much Higher Than Geared Pumps Because
Friction Has Been Eliminated

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1750 each Texas and Drakes, 4-6 ft.

PRUNES

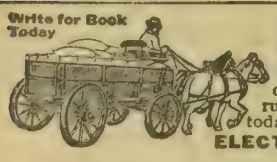
Burbank's Standard, Sugar, French and Imperial, on all roots.

All other leading fruits in good supply.

SHADE TREES

The finest blocks in the state.

CROW'S NURSERIES, Gilroy, Cal.



FARM WAGONS

High or low wheels—steel or wood—wide or narrow tires. Steel or wood wheels to fit any running gear. Wagon parts of all kinds. Write today for free catalog illustrated in colors.

ELECTRIC WHEEL CO., 111 Elm Street, Quincy, Ill.

Grading Walnuts

SOME time ago a Los Angeles County subscriber of the Cultivator asked the question as to the use of the term "budded walnuts," which are quoted by the California Walnut Growers' Association. The question was referred to Mr. Neff, who explained that the term applied only to Placentia Perfection and Eureka nuts because these two nuts were uniform in shape, size, texture and high quality of meats. Many other nuts which may be larger or even superior to these two are excluded from use of the term "budded" in marketing through the association. The subscriber came back with a communication from which we take these paragraphs.

"The California Walnut Association by its classification has abrogated to itself the use of the word "budded walnut." Members and officers of this association have contended in defense of this to the writer and others, that "budded walnut" was a trade mark and that they classified as budded walnuts only the Placentia and Eureka, thus improperly and unfairly outlawing and denying that any other walnuts are budded walnuts, using an unfair label or trade mark, at the expense and injury of all other budded walnuts.

"The California Walnut Association, by its classifying under the name of "budded walnuts" only nuts of the so-called Placentia or Eureka, is thereby publishing to the world in a trade way that there are no other budded walnuts, and that the walnut grower who seeks to sell his budded walnuts of other varieties on the market as budded walnuts is practicing an imposition on the public, when, in truth and in fact, they, in many instances have a budded nut, as has the writer in particular, and should be entitled to sell the same for what it is.

"If the California Walnut Association desired to do the right, just, and fair thing by the walnut growers of the state of California, instead of discriminating in favor of the so-called Placentia and Eureka, it would change its classification so as to market the Placentia budded walnut under the name Placentia for all it is worth, the Eureka for all it is worth, and other budded walnuts under the name under which they are entitled to be sold, or plainly as budded nuts. This certainly could work no injustice to anyone, and parties who have budded nuts that are the equal to, or nearly so, or better, than the Placentia or Eureka, could market their nuts through this association in fairness and receive all their product is worth.

"It is true that the California Walnut Association markets for those who are dissatisfied and refuse to accept the classification which they have adopted, the nuts of individual growers, by sample, which of course is entirely fair and just to the individual grower. However in connection with that they are doing the injustice of attempting to deprive all walnuts, except the Placentia and Eureka, that are in truth and in fact budded walnuts, the right to be marketed as such.

"The writer sold his walnuts, which are budded walnuts of an exceptionally fine quality, 75 per cent of which are as smooth as the Placentia or Eureka, larger and better filled, and with as uniformly white a kernel as any nut grown, and the balance of the nuts are exceptionally large and smooth considering their size, which would equal in most instances two of the so-called Placentias, these nuts selling this year in open market on sample, for 17½ cents, run of the orchard at the orchard, and out of the 11,000 pounds there were 32 pounds of culls.

"It is true that the California Walnut Growers' Association offered to market these nuts by sample as budded nuts. It is also true that if not for the conviction of the injustice that would have been practiced upon him had he marketed these walnuts without a protest through one of the branch houses, that the subscriber would have received only 15½ cents, if he correctly remembers the price for soft shells. Certainly this demonstrates the fact that the diligent and persistent demand for justice brings its reward."

The most inferior nut, even to the great overgrown one, extremely rough and which is all shell, often with absolutely no meat whatever inside, may be strictly a budded or grafted nut. This might be the result of lack of judgment on the part of the orchardist in budding something which he thought to be of high quality, or for some other reason, but as noted it would be a most inferior article and still from the horticultural standpoint "budded". For an association to establish a grade for marketing purposes and admit to that grade inferior products because strictly horticulturally they might qualitfy would be suicide. Admit for a moment that the association has erred in taking a word which might be construed as horticulturally not exclusively belonging to that product, still after having established a grade in the market are they to throw away the results of years of advertising and of effort either because the grower of a superior or of an inferior article may wish to take advantage of that brand, mark or classification? But use of such term in no wise injures others.

Some years since the citrus growers selected as a trade mark "Sunkist". To us and many others it seemed objectionable and had the distressing sound of the superlative degree of sunk. However it was retained and in spite (we believe) of any objectionable feature thousands, almost millions, were put into advertising it and making it a household word and now it must be retained. It is a great asset.

From the standpoint of nuts of higher quality but not with all the marks of the two nuts which have been admitted to the classification, it would not be wise to make ununiform the product in that classification. To put an extra fancy fruit or a number of packages of it into the choice or lower grade may at first be considered a favor to the consumer and help to build up the choice grade. On the contrary, the purchaser finds this exceptionally high grade stuff and he expects future consignments to maintain the same standard. The most important feature in using a grade for nuts or fruits of any kind is this matter of uniformity. For the Walnut Growers' Association to open its classification for budded nuts to all shapes sizes and qualities of nuts, simply because horticulturally they are budded nuts, would mean the early termination of the usefulness of the association. Business principles must prevail in cooperative associations as well as in a private business enterprise.

Nitrate Inducing Setting of Fruits

IN a report issued by the Oregon experiment station as to the effect of fertilizer and as to the effect of spraying nitrate of soda on the tops of fruit trees in the spring time, the opinion seems to be that the beneficial effect is more caused by the dissolving of the nitrate on the tree tops and carrying it to the roots. On this point the report says:

Experiments, however, lead the authors to conclude that the real reason why better results were secured from spraying nitrate of soda than applying it in the dry form was due to the fact that the nitrogen sprayed on the trees was dissolved and reached the roots, whereas the nitrates spread on the ground were added in May when the ground was dry, hence did not dissolve and reach the roots. In order to secure benefit from the nitrates they should be applied during the early part of March when the ground is sufficiently moist to dissolve them and also before the trees come into bloom. Nitrogen applied at this time has been found to cause a larger percentage of set of fruit in April, an important change in the character of the foliage, and a stimulation of the wood growth.

"The experiments indicate that the stimulating effect of nitrate of soda is more lasting in its effects than formerly believed and that its benefits will extend over into the second season and perhaps longer. The best method of applying nitrate of soda to orchards is to spread the dry crystals broadcast on the ground under the trees and harrow soon after applying. Six pounds of nitrate of soda, equal to about one pound of actual nitrogen, applied to a mature bearing tree is believed to be ample to restore seriously weakened trees to a normal condition. This amount should be reduced one-half the second year, the station's experiments showing that a full pound of nitrogen applied the second year produced too much wood growth and too much fruit that was undercolored and oversized. The cost of furnishing the required nitrogen at the rate recommended was $15 an acre.

"The above amounts of fertilizer are recommended for use only on trees which are in a somewhat run down condition as indicated by thin foliage, weak wood growth, small fruit, and the presence of certain physiological troubles, such as "fruit pit," little leaf, die-back, etc.

"Further experiments are to be conducted to confirm these conclusions as a whole.

"The authors point out that nitrate of soda does not exert much influence on the soil, and therefore in order to improve the physical condition of the soil in many orchards it is necessary to add organic matter. During the last two years those orchards which have used clover and alfalfa in the presence of sufficient moisture have shown a strong improvement. The use of these leguminous crops should be dispensed with for a while and systematic clean culture practiced when signs of overstimulation appear."

PRACTICAL FIG CULTURE

The agricultural experiment station of the University of Arizona has issued "Practical Fig Culture in Arizona," Bulletin No. 77. It is written by W. H. Lawrence. It is a 44-page bulletin and gives most complete instruction as to character of fig producing sections, temperatures, precipitation, scope of fig growing, groups of figs, classification, types, characteristics, soils, propagation, planting, pruning, cultivation, etc. We think any California fig grower who requests it may secure it from the Arizona station which is located at Tucson.

JOHN DEERE IMPLEMENTS

BETTER FARM IMPLEMENTS AND HOW TO USE THEM

BOOK FREE 156 page reference book—tells all about a complete line of farm implements and how to adjust and use many of them. A practical encyclopedia of farm implements. Worth dollars.

Describes and illustrates Plows for Tractors; Walking and Riding Plows; Disc Plows; Cultivators; Spring Tooth and Spike Tooth Harrows; Disc Harrows; Alfalfa and Beet Tools; Farm and Mountain Wagons; Manure Spreaders; Inside Cup and Portable Grain Elevators; Corn Shellers; Hay Loaders; Stackers; Rakes; Mowers and Side Delivery Rakes; Hay Presses; Kaffir Headers; Grain Drills; Seeders; Grain and Corn Binders.

This book will be sent free to everyone stating what implements he is interested in and asking for Package No. X-111.

JOHN DEERE, MOLINE, ILL.

The John Deere-Dain System Rake

Here is what you do with the Dain System Rake:

Follow the mower closely, rake while leaves are still active and place hay upon clean stubble.

Make straight windrows, and no dumping of rake is required. There is no bunching of hay in turning corners.

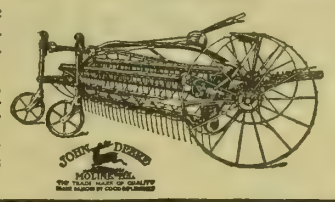
Put the hay in medium size windrows, with the bulk of the leaves inside and the majority of stems outside.

The windrows will be loose in the center for the free circulation of air. The hay retains its color and nutrition.

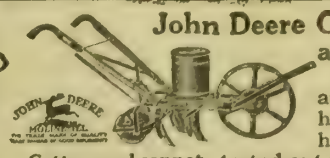
The John Deere-Dain System is the rake employed with the Dain System of Air-Curing Hay.

Reel raised or lowered, rake thrown in or out of gear and angle of teeth changed by means of convenient levers.

Ample capacity. The inclined frame grows higher where the windrow becomes larger—an exclusive Dain feature.



John Deere Combined Cotton and Corn Planters



John Deere Cotton and Corn Planters are highly successful. They have been thoroughly tested out through years of satisfactory field use. A cotton picker wheel extends through the bottom of the hopper. This wheel revolves in one direction and the cotton spider in the other—separating the seed without damaging it. Change in quantity is made by turning a thumb nut on the hopper.

Hoppers are beaded. Seed plates fit perfectly. All the seed in the hopper is planted. Peanut plates or a special hopper can be furnished for planting shelled or unshelled peanuts.

Cotton seed cannot choke up in the hopper—a cotton picker wheel prevents it.

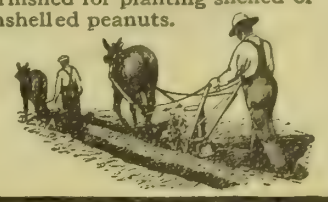
John Deere *OBLIQUE SELECTION, HORIZONTAL CELL DELIVERY SEED PLATE* for corn—an accurate drop.

Positive gear drive with dirt-proof gear case.

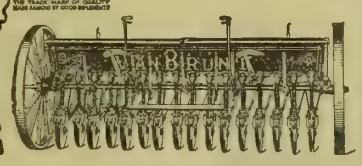
Special shaped shovel with reversible points opens furrow and pulverizes the soil without throwing it up on the face of the shovel. Soil falls behind and covers the seed.

Adjustable press wheel can be furnished. No lever ueed on this press wheel.

Depth of planting can be regulated with the foot while planter is in motion.



Van Brunt Grain Drills



Van Brunt Drills are particularly noted for their adjustable gate force feed. Each feed cup plants exactly the same amount. The seed is compelled to leave the seed box in even, continuous streams without bunching or choking up. All the ground is seeded.

The Van Brunt Single Disc is the first successful single disc grain drill with closed delivery. The seed is protected by metal seed tubes, disc openers and the disc boots until it reaches the bottom of the furrow.

Van Brunt Drills plant any small seed.

Amount sown per acre easily regulated.

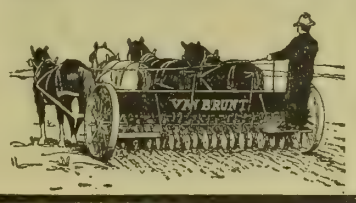
Direct, double, gear drive from the continuous axle.

High-grade discs with bearings guaranteed to last lifetime of drill. Scrapers keep discs clean.

Pressure springs individually adjustable to make uniform depth furrows.

Either single or double discs.

Grass seeder attachment which will drill or sow broadcast can be furnished.



John Deere Syracuse Plows

Syracuse Plows have an enviable field record among farmers in chilled or combination plow territory

Here is a feature that is appreciated by the man who buys a Syracuse Plow. Extras ordered will be duplicates of the original parts. Bolt holes will be in the right place. Every part will fit. In fact all necessary parts that go into a Syracuse Plow could be ordered as repairs and when received built into a complete plow. Extra parts are exact duplicates—no trouble results.

Remember, Syracuse quality is uniform.

John Deere-Syracuse Sloping Landside Chilled Plows are unsurpassed for general purpose work in light soils. They leave a clean, open furrow bottom.

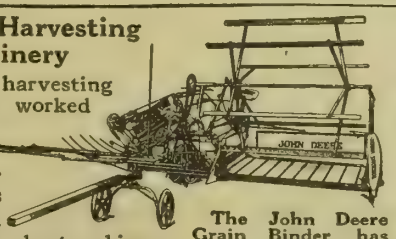
Share and shin piece combined—a fresh, clean cutting edge obtained with each new share.

Index or set-over style of beam—easily shifted to give the plow more or less land.

Equipped with Syracuse Chilled Moldboards—noted for satisfactory scouring qualities, strength and uniformity. Right and left hand styles.

John Deere-Syracuse Sloping Landside Chilled Plow

John Deere Harvesting Machinery



John Deere harvesting machines have worked under every possible condition—severe droughts that resulted in much light grain, short and irregular straw—extremely wet seasons, heavy grain, down and tangled.

However, the John Deere, "The Better Binder", has throughout maintained an unbroken record of success in cutting, binding and tying grain.

The John Deere Grain Binder has wide and high bull wheel—great power.

Main frame riveted—unusually strong.

Three packers instead of two, make better shaped bundles and save grain.

Accurate tying mechanism.

Quick turn tongue truck saves time, relieves horses and makes square corners and full swaths possible.

Your Home Town Dealer

There is a big advantage in buying implements of your home-town dealer.

He gladly "backs up" the implements he sells, and he is on the ground to see that they make good. He makes his home in your locality—the place his goods are sold.

He handles a line of high-grade implements—and you can see before you buy. In the busy season, when work is pressing, he can furnish repairs promptly for the goods he sells.

If, by chance, he hasn't in stock just exactly the style of implement you want, he can give you quick service in getting it to you.

John Deere factory warehouses with immense storage rooms have been established in various sections of the country. Every John Deere dealer is conveniently located to one of these houses.

This, really, gives you two supplies of implements—the stock carried by your home-town dealer and that of the factory warehouse.

JOHN DEERE, MOLINE, ILLINOIS

KIRKMAN'S RELIABLE TREES

The outlook for citrus is good. Orange, Lemon and Grapefruit trees planted in thermal localities will be profitable beyond any doubt. At our Citrus Nursery at Avocado, in Merced County, we have an excellent supply of all varieties of citrus trees. This stock has gone through the winter without any injury from frost. We can supply No. 1 Citrus stock on short notice, and will guarantee that the stock is entirely satisfactory. Our stock consists of a fine lot of

Eureka, Villa Franca and Lisbon Lemons

Marsh's Seedless Grape Fruit, Washington Navel and Valencia Oranges

Correspondence regarding your needs in Citrus trees respectfully solicited.

Three-Year-Old Eureka Lemon

High Grade Olive Trees In Nursery Row Two-Year-Old

"There is still time to plant deciduous trees. Telegraph your order and prepare your ground for immediate planting. We still have a good supply of

Apricots, Plums, Almonds, Peaches, Cherries, Prunes, Apples, Pears, Walnuts, Etc. Etc.

No variety of fruit holds better promise than the Olive in California. By far the greater portion of Olives and Olive products used in the United States is still imported from Europe, and the majority of the people of the United States have yet no knowledge of the food value of ripe pickled Olives. It is only a question of time until the great value of this fruit is known, and the demand will be doubled many times. Plant an Olive orchard now and insure a reliable income for your children and your children's children. We have a very fine supply of

OLIVE TREES

in Mission, Manzanillo and Sevillano varieties

Will quote very reasonable prices on extra high class trees.

Kirkman Nurseries

2501 Tulare St. - - - Fresno, Cal.

NATIONAL ORANGE SHOW

Continued from Page 243

ributors; honorable mention, Alta Cresta roves, Riverside.
Best display of oranges—48 boxes of nore: First prize, Mutual Orange Distributors.
Best display of lemons—48 boxes or nore: First prize, C. D. Hubbard Fruit ompany, Carpinteria.
Best eight boxes Washington navels: irst prize, Victoria Avenue Citrus Asso-iation, Riverside.
Best eight boxes Sweets: First prize, tiwanda Citrus Fruit Association.
Best four boxes Tangerines: First prize, achappa Hill Groves, Riverside.
Best four boxes Malta Bloods: First rize, Sierra Vista Packing Association.
Best four boxes St. Michaels: First rize, Fontana Land Company.
Best four boxes Sweets: First prize, ontana Land Company.
Best four boxes Valencias: First prize, rlington Heights Fruit Company, River-ide.
Best four boxes Seedlings: First prize, indsay Chamber of Commerce.
Best four boxes Ruby Bloods: First rize, Sierra Vista Packing Association.
Best four boxes Thompson Improved avels: First prize, Lindsay Chamber of ommerce.
Best four boxes Washington Navels: irst prize, Pachappa Hill Groves.
Best 24 boxes of lemons: First prize, tiwanda Citrus Fruit Association.
Best four boxes of lemons: First prize, tiwanda Citrus Fruit Assocation.
Best four boxes seedless grapefruit: irst prize, Orange County.
Best four boxes seedling grapefruit: irst prize, Lindsay Chamber of Com-erce.
Best commercial pack on one box lot f Washington Navel oranges (full box ith cover on:) First prize, Lindsay hamber of Commerce.
Best commercial pack on one box lot f lemons (full box with cover on:) First rize, Riverside Orange Co., Ltd.
Best tray of lemons: First prize, Hub-ard Fruit Company.
Best tray of St. Michaels: First prize, tiwanda Citrus Fruit Association.
Best tray of seedless grapefruit: First rize, Lindsay Chamber of Commerce.
Best tray of Thompson or Improved avels: First prize, Lindsay Chamber of ommerce.
Best tray of Valencias: First prize, lutual Orange Distributors.
Best tray of Sweets: First prize, Mutual range Distributors.
Best tray of Seedlings: First prize, Bar-m-Randall, Highland.
Best tray of Tangerines: First prize, W. . Clancey.
Best tray of 12 Washington Navel ranges: First prize, Riverside Orange o., Ltd.
Best tray of 12 lemons: First prize, C. . Hubbard Fruit Company.
Best tray of limes: First prize, Highlanl hamber of Commerce.

Frost Protection

Address By Prof. R. S. Vaile Before Citrus Convention at San Bernardino

ATTENTION has been called again this winter (1916-1917) in a striking manner to the question of frost damage in citrus orchards and its pre-ention. The purpose of the present aper is to record certain observations earing on this subject, together with he writer's interpretation of same.

The Pomona frost protection asso-iation has had its riders out reading hermometers on 26 different nights rom November 13, 1916 to January 4, 1917. On 24 of these nights at east some part of the district has been ired. The Ontario association has had bservers out on 20 nights. The Li-oneira Company has fired over 20 imes. During such a siege large uantities of oil must of course have een consumed. Exact figures as to he amount are not at hand, but evi-ently the expense has been consid-rable. The lemon men as usual have een called on for the hardest of the ork, but certain orange groves have ome to the writer's attention which ave been fired as many as 15 times or a total of about 35 hours burning.

When the total number of frosty ights and the extremely low mean emperatures are considered the mount of actual damage to oranges n Southern California proper is com-paratively slight. Certain spots are adly hit but it is doubtful if ship-ments of first grade fruit will be re-uced over ten per cent from south of Tehachapi.

In view of these conditions growers are in certain cases very undecided as to the value of their attempts. It is hoped that the remarks which follow will be of interest to such growers. The writer desires to have it distinct-ly understood that this discussion re-fers to oranges. The situation with lemons differs in certain particulars.

Present Equipment

The writer has recently sent out a questionaire relative to the present equipment, its cost, maintenance and operation. An analysis of answers

Continued on Page 262

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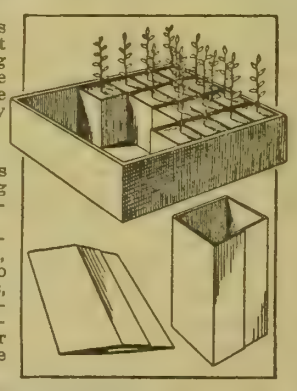

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March Vegetable Planting Calendar

Northern California

Written for California Cultivator By A. R. Gould

THE long looked for rains arrived last month and cheered us all, leaving an excellent impression on our early sown vegetable crops and putting the garden in better shape generally for further plantings.

Peas

We are still able to sow a good main crop variety or two, and Hosford's Market Garden, Senator or Stratagem may be used. Keep a close watch out for aphis or green fly on the early vines, and if any are observed spray with "Aphine" or "Black leaf 40" according to directions on the can. Cultivate between the rows as much as possible.

Onions

The onion bed should be also cultivated as soon as the seedlings in the rows are to be seen.

Carrots

Successional sowings of French Forcing, Danvers Half Long and New Intermediate. Cultivate thoroughly between the early carrots.

Cabbage, Broccoli and Kale

As soon as these plants are developed enough in the seed bed, which will probably be toward the latter end of the month, plant out, placing cabbage about 16 inches apart in the rows, which should be 24 inches apart. The same applies to broccoli but kale may be given a little more room in the rows. Plant firmly and use a setting stick, pointed, which may easily be made and will prove a useful garden tool. If planting is not followed by a few showers water the plants after having set out to give them a start.

Turnips

Those that were sown early should now be making much progress and will require much thinning out. Leave them nine inches apart in the rows. Make successional sowings of Early Snowball, White Milan and Orange Jelly. Keep the hoe or cultivator moving between the rows of the growing crop and look out for the slug and turnip fly. The former is best destroyed by slug shot or hand picking and the latter by the application of soot.

Beets and Swiss Chard

Make a sowing of Early Eclipse, Crosby's Egyptian and Detroit Dark Red. The latter is an exceptionally fine table beet. These should be grown in fairly rich soil and should receive a fair amount of moisture. Sow the seed in rows 18 inches apart.

Swiss Chard, or Sea Kale beet, is generally grown and the tops used for spinach, which it somewhat resembles after being properly cooked. The same cultural directions as for beets may be applied.

Lettuce

Continue to sow the varieties as advised last month and thin out the early crops; also transplant seedlings in prepared and fairly moist soil, placing the plants about ten inches apart in the rows.

Radish

Make successional sowings of the varieties advised last month.

Tomatoes

Secure a fairly deep box, say about six feet long by three feet wide, and place it in a warm location. Make up a seed bed in this, using a compost of garden loam, leaf soil and sand, and sow the varieties of tomatoes as advised last month in rows or broadcast. Keep the top of the box covered with glass, slightly shaded, and admit a little air only during the day until the seedlings appear and become established. The same idea may be used for other subjects such as celery and leeks, if th latter have not yet been sown, and it would also be useful to make a good sized frame for such a purpose. It is invaluable in the spring time.

Celery

Sow the varieties, White Plume, Golden Self Blanching, or Columbia in a box or frame as advised above.

Artichokes (Globe)

If these have not already been planted out or existing roots subdivided, do this without delay. Plant two to three feet apart in the rows, which should be at least four feet apart.

Potatoes

Secure seed (tubers) of such varieties as Early Rose, British Queen and Oregon Burbank. Although it is rather early to plant these, yet they may be placed in flat boxes placed near a window to sprout. They should in a few weeks be well sprouted and will then be ready to plant out when all danger of frost is over. Have your ground selected and well prepared and do not plant on any ground that was used for this crop last season.

Parsley

Seedlings of this may be transplanted towards the latter end of this month. Plant 12 inches apart.

Southern California

Written for California Cultivator By D. F. Reichard

THIS is the month to put all your spare time on the garden. The reward will be abundance! Let plantings be unconfined. The rains this winter have been most favorable in their amounts and occurrings. Those who have been liberal with the use of their cultivator and plow have their ground in fine shape now for the reception of seed and plants. If by some chance some part of the garden has not been worked, where grass and weeds are getting a good start, go after it at once and turn them under; they make the best kind of fertilizer. All weeds disposed of now makes hundreds less for next year, for they have not made their seed yet.

The high cost of all produce is a great inducement for all persons with a piece of ground, though it be only 10x10, to plant something. It is surprising to know how much can be successfully grown on a small area. Unless one has a quarter of an acre or more for a garden patch he had better not take up his room for potatoes they can be bought cheaper. The plot is put to better advantage growing more perishable stuff—that gives the fullest value when cooked or used the same day it is gathered.

Plant small quantities of the hardier vegetables for a continuous supply. As the ground warms up plant corn. Heath's Early is becoming very popular; cucumbers, Klondike is best for

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slicing; melons in variety; squashes. This is the last month to plant peas with much success, as they do not do well during the warmer months. Plant onions in variety for next fall and winter use. Set out all kinds of vegetable plants, protecting them when necessary. If there are to be any fruit trees, berry plants or shrubs to be set out, do so at once; it is advisable to get them in the ground before growth starts.

Spray with Bordeaux mixture or lime-sulphur solution for fungus diseases, such as curled leaf. Add Paris green or arsenate of lead for destroying gnawing insects. Spraying should be done before the buds burst and again shortly after the blooms fall.

March in the Flower Garden

Northern California

Written for California Cultivator
By A. R. Gould

IT is getting late now for planting trees and shrubs, and such work should certainly be completed this month. There are amongst our native trees and shrubs some very useful subjects and we might include those which are especially suited to the varied sections of the northern and central parts of the state. Garrya elliptica, Prunus ilicifolia, Berberis Californicum, Ceanothus (wild lilac), and Hosackia (wild broom) are only a few of a long list, however they will do well even in dry locations and are splendid shrubs. Among the trees we might mention Pinus sabiniana, P. ponderosa (yellow pine), P. insignis (Monterey pine), Sequoia sempervirens (Redwood tree), all beautiful conifers easily grown.

Roses

Complete the planting of all new roses and dig around the other existing plants. See that all climbers are tied in and deadwood cut out. This month a careful watch must be made for mildew and aphis, or green fly, which generally appear. It will be advisable to be prepared for the former by spraying the bushes with lime and sulphur solution. This acts as a preventive. Dusting with dry sulphur is also often adopted. For aphis use Aphine or "Black leaf 40" insecticides. A most useful sprayer to use is one known as "The Standard", used in conjunction with a bucket and is so far the best syringe style sprayer I have ever used.

Perennial Border

Complete the planting of this and see that it has been renovated thoroughly.

Annuals

A start may be made this month sowing the following in a well prepared border. It is, speaking generally, advisable to sow them where they are to flower, sowing the seed very thinly and covering lightly with sandy soil. As soon as they start to push through keep a lookout for slugs at night, as these pests love darkness better than day—their deeds are evil.

The following list will supply choice annuals for almost any situation: Antirrhinum, or snap-dragon, in variety tall and semi-dwarf types; alyssum, sweet, for carpeting beds or edging; also Lobelia, blue and white, and ageratum, Mauve Beauty, all useful for edging. Clarkia, Godetia, Californian poppy, Shirley poppy, Nemesia in variety; Linaria hybrids, scabiosa; petunia; mignonette; Nemophila, Lu-

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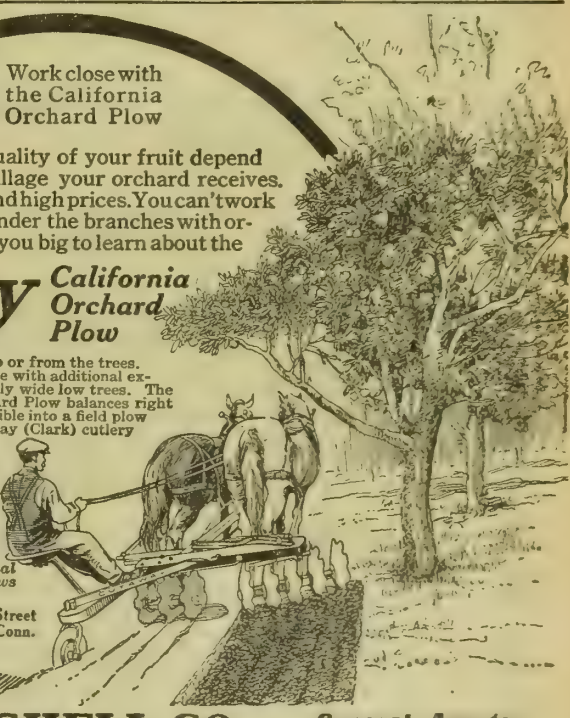

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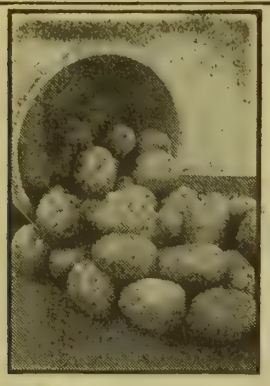

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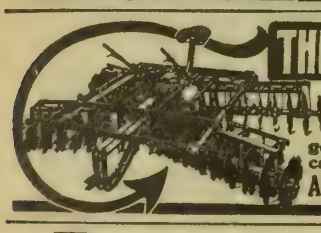

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Plants of these may be purchased now and planted out. Get the best prize strains. You should plant them in fairly rich soil in a sunny situation where possible.

Plants for a Dry Spot

Many have such a spot to fill up and are often unable to supply water throughout the hot season. You will find that Gazania splendens, an orange daisy-like flower, Mesenbryanthemum roseum or the hardy calendula, or Pot Marigold, will prove to be what you have been looking for. Get them planted now.

Southern California

Written for California Cultivator

PLANT everything this month, that is, pretty nearly everything, including annuals of all kinds. March is a good month for planting, raking, fertilizing and overhauling the garden generally. It is also a good month for rejuvenating the lawn or planting anew. The lawn, by the way, is about the best ornamental which can be planted.

Sow alyssum, antirrhinum, calendula, calliopsis, cosmos, Shirley and native varieties of poppies, gaillardia, larkspur, mignonette and sweet peas in the open ground. Sow in seed boxes for later transplanting balsam, begonia, gloxinia, lobelia, pyrethrum, scabiosa, verbena, petunia, salvia, aster, celosia, centaurea, cobaea, hunnemania, marigold, salpiglossis, zinnia, in fact, one may go almost the range of seed planting with a reasonable assurance of success provided the tender seedlings are given regular and consistent care until well established, and after. March is one of our best months for the planting of tree seeds.

Among the bulbs, cannas, caladium, gladiolus, tuberose, dahlia, begonia and even iris may be planted though this latter should have been done some weeks ago as some of the very earliest are already blooming. Though perhaps a trifle late plant bulbs of Lilium auratum, L. speciosum, agapanthus and amaryllis.

Some wonderful improvements have been made in dahlias in the newer types. These newer sorts are expensive, but some of the cheaper varieties also afford some wonderful effects. Try for a change some of the dahlias this year.

Daffodils are in their glory. Be sure they are given plenty of water and a few handsful of commercial fertilizer help to bring them up to their best. The big Emperor and Empress, as well as some of the smaller ones, are wonders, and the gardener who has overlooked them this year should plan for some bulbs next fall.

Roses which have been resting during the season of cold weather will soon have a glory of bloom. Cut out the excess wood so that good thrifty shoots may give big, husky blossom stalks. Apply fertilizer, spade up and work about the roses.

Lemon verbena, poinsettias and like shrubs should be pruned very heavily since it is the new wood which supplies blossoms for the coming fall.

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145	Pinus Edulis	.35 to	2.00
125	Pinus Flexilis	.25 to	.50
800	Pinus Halepensis	.05 to	2.50
85	Pinus Jeffreyi	.40 to	1.50
250	Pinus Ponderosa	.35 to	1.50
10	Pinus Koraiensis	.50 to	1.00
60	Pinus Massoniana	.60 to	1.50
10	Pinus Monophylla	1.25 to	1.75
45	Pinus Mughó	.20 to	1.50
50	Pinus Parryana	.25 to	.50
200	Pinus Pianaster	.10 to	.90
40	Pinus Pinea	.35 to	1.50
1250	Pinus Radiata	.05 to	1.25
20	Pinus Rigida	.50 to	1.00
35	Pinus Sabiniana	.50 to	1.50
310	Pinus Strobus	.20 to	2.50
180	Pinus Sylvestris	.20 to	2.00
50	Pinus Torreyana	.40 to	1.25

For Landscape, Roadside or Forestry planting. Other Conifers, Redwoods, Spruces., etc., 15c to $5.00

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Queries

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Feeding Ducks

We have 39 ducks, Indian Runners, six old ones, the others hatched in April and May, 1916. They have the run of a large alfalfa ranch and are fed some wheat, also bran and small quantity of milk. A few have laid since last fall but no more than six eggs in any one day. Now we would like to know what to do to make them lay. They are not very profitable at present.—Subscriber, Porterville.

Laying ducks need more animal food than the "small quantity of milk" you mention and their ration should be largely ground grain. B. Twining, one of the largest duck raisers in the country, feeds his breeders by this formula: Bran, one part; middlings, one part; low grade flour, one part; whole corn, one part; wheat, two parts; cornmeal, two parts; cut clover, four parts; beef scrap, from 12 to 18 per cent of the whole. Grit, sand and shell are added to the mash and the whole moistened till it is crumbly, not sloppy. This formula could be modified, I think, to fit the needs of California duck raisers by omitting the low grade flour and substituting alfalfa for the cut clover and cracked corn for whole. A simpler ration, and one which is recommended especially for Runners, consists of 50 per cent bran, 25 per cent corn meal, 15 per cent beef scrap, ten per cent sand. This is fed dry, but with plenty of clean water within reach, lest the birds choke. Once every day the birds have a meal of chopped greens. Some breeders feed nothing but greens and ground grains; others add cracked corn or wheat to the mash; others again feed the mash in the morning, greens at noon, and a handful of mixed grain at night. The main things to remember are that ducks must have considerable animal food if they are to lay, and that a large part of the ration must be ground grain, either wet or dry.—J. A. K.

Potash

What is potash chiefly made of and where is the best place to sell it?—Subscriber, Winchester.

Potassium carbonate is obtained from wood ashes, from seaweeds, from various mines and other sources, and may be sold today to almost any farmer in the United States because of the dearth of this valuable fertilizing ingredient. If one has a large quantity it is probable that any wholesale druggist or drug manufacturer would afford a market.

Ashes

Are wood ashes a good fertilizer for Irish potatoes?—Subscriber.

Ashes are especially rich in potash and contain a small quantity of phosphoric acid. They should be carefully saved and are especially beneficial to soil where potatoes are to be planted.

Market Onions

Please advise best variety of onions for market and kind of soil required, also best time of year to sow the seed. —Subscriber, Anaheim.

On the assumption that a mature onion is to be grown we would advise that the Australian Brown is the standard onion and we doubt not it would do well in your section.

Seedlessness of the Navel

Are there supposed to be exceptions to the seedless nature of Washington Navel oranges? The writer recently found several well-developed seeds in a navel orange.—Subscriber, Porterville.

Yes, the seedless navel quite often or at least occasionally, has fully developed seeds. Seeds found in navels entered for prize competition are considered sufficient cause for a cut on the score card. Some growers have been interested to see what these seeds would produce, but nothing startling has ever come from experiments along this line.

Burning off the "Slash." The "slash" (bark, undergrowth, tops, etc.) burns off, but the logs simply char slightly. Only Redwood can be logged this way.

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Fire, that bugbear of the farmer, has small terrors for the man who builds with California Redwood.

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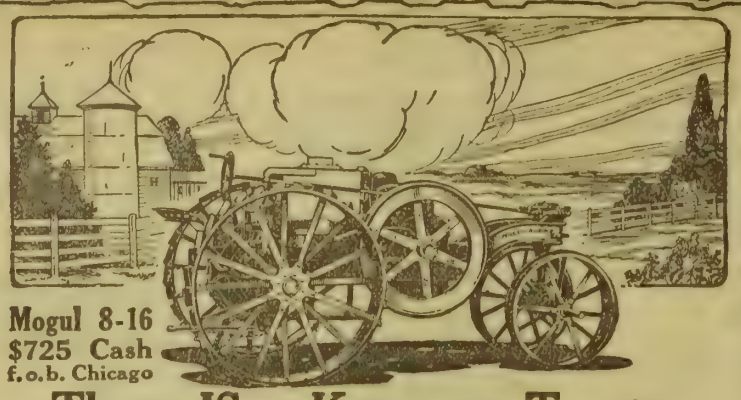

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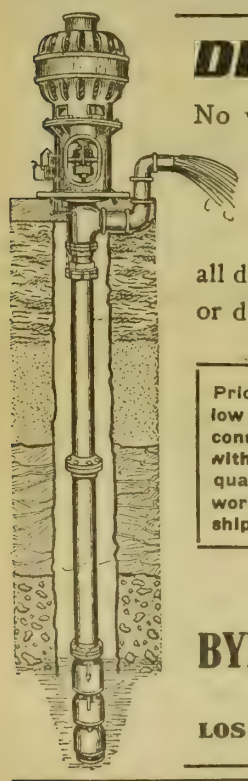

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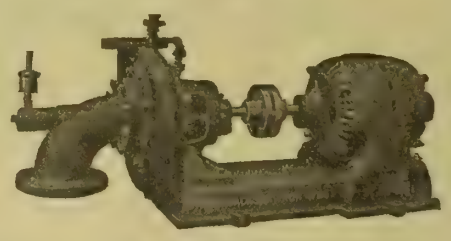

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For Every Purpose NEW Threads and Couplings Hot Asphaltum Dipped
2nd Hand and NEW
Screw Casing Fittings and Valves Guaranteed for Pressure

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Trespassing Stock

Please inform me regarding the law pertaining to trespassing livestock, whether a man is required to fence his property before he can claim damages. If this is required California is a generation or so behind other states in this respect and it would seem to be high time for our solons at Sacramento to devote their time to legislating on matters of a strictly civil nature.—Subscriber.

As has been answered many times in the Cultivator, the law of this state which was enacted when the live stock industry was its principal one states that unless the property is surrounded by a "substantial fence" injury by trespassing livestock cannot be set up as a basis for a damage claim. The estray law, however, permits empounding of any stock at large.

Amortization Tables

We have letter from Secretary W. A. Flannagan, of the federal farm loan board, regarding amortization tables which were inquired about by a subscriber in a former issue. Mr. Flannagan writes: "In response to your request I am enclosing you herewith copy of Circular No. 60 issued by the United States department of agriculture, which will give you detailed information how to determine the annual payments on loans at different rates of interest and for different periods of time, ranging from one to 40 years. Please see particularly page two of the circular."

Specifications for Silo

Please give specifications with items as to lumber necessary for resaw silo. —Subscriber.

See page 51 of the Cultivator for July 18, 1912.

Contagious Abortion

Is the serum treatment effective in combating contagious abortion? How long will the treatment protect the animal, if at all?—Subscriber, Los Angeles.

We know of no serum treatment for this trouble. About the only treatment is the use of preventive measures such as liberal use of disinfectants. More specific information may be had in an article in another column in this issue.

California's Convict-Built Roads

By Charles P. Stern, State Highway Commissioner

TWO years ago I undertook a state wide campaign of education paving the way for the use of convict labor for highway work. In these days of hysterical penology and sob-sister criminology, when professional ex-convicts are capitalizing and exploiting their shame from pulpit, press and platform, a sane man approaches the subject with reluctance, but I saw a great state need and a means to meet that need partially.

On the one hand was our mountain road problem in California. To the east and northeast of us lies a string of counties in and beyond the Sierra. They are loyal Californians, but for months they are shut off from the rest of the state by snow blocked mountain passes, month after month when there is no mail connection, no fresh meat in camp, no possibility of outside medical attention. And this is the region that should be made the pleasure ground of the nation and a tremendous financial asset to California. The mountain road needs of California have always been far in excess of her resources and for years to come this must be so. The last legislature was asked for over $2,000,000 for needed roads and had not a dollar to give.

On the other hand, behind the walls of Folsom and San Quentin, are 4000 men, outcasts from society, hopeless, a burden to the state. If you should study them as I have you would be struck as I was by their appalling youth. This penal problem is a problem of young men, men who have the greater part of their lives still to live as increasing assets or liabilities to the state. The average age of the prisoner is under 30; taken in multiples of five, 25 years would include the greatest number. Of eight men awaiting the gallows a few months ago, the oldest was 33, the next was 27, one was under 18, and their average age was under 23.

It seemed to me that if this liability of the state could be made a resource, to the benefit of both parties in interest, the convict and the state, a great good could be accomplished. I drafted a bill, simple but comprehensive. We met every character of objection fairly and without subterfuge. To the plea that we were going to take a job from a free man to give it to a convict, we answered that we proposed to do work whose character and situation were such that otherwise it could not be done at all. Our bill became a law. It provides for dual control; the board of prison directors directing the discipline and control of the men, the highway department supplying everything and directing the work. Close harmony and cooperation between these departments of the state have made possible the results achieved.

In September, 1915, we opened our first camp, going slowly on a "safety first" basis. We started with 30 men and have gradually added another hundred. They are carefully selected by the board of prison directors, both for trustworthiness and physical fitness. We house them in sanitary camps, clothe and feed them as we would free men, grant them as much personal freedom as they will not abuse. They work practically on an honor basis, being handled by three men without arms in each camp of 60, one guard acting as captain of the camp and the other two as subforemen on the work.

No man, be he free man or convict, works without incentive. To these men we give better living and working conditions, practical freedom, and the crowning incentive of one day's reduction in sentence for every two days of loyal and efficient work. The scheme is working beyond my fondest hopes. We are taking men soft from prison life, many of them never used to manual labor. We are supplying them with everything at the expense of the work and working them under bitter weather conditions. Our costs to date are 20 per cent under the lowest estimate and 50 per cent under what we have paid contractors for similar work in the same region.

TRACTOR ASSOCIATION ORGANIZED

On Saturday, February 17, representatives of all the big tractor manufacturing companies on the Pacific Coast and California representatives of most of the Eastern tractor manufacturers met at the Palace Hotel in San Francisco and organized the California Tractor & Implement Association.

Mr. H. A. Smith of the Joshua Hendy Iron Works was elected president of this organization; W. H. Gardner of the Yuba Construction Company, vice president, and G. M. Walker of the Holt Manufacturing Company, secretary and treasurer.

The chief purpose of the association is to organize and conduct a tractor

WHAT EVERY FARMER WANTS

Cheap and Efficient Transportation His Great Need—How It Can Best Be Assured

THE present situation of the railroads present two alternatives, efficient federal regulation or federal ownership.

The experience of other countries proves conclusively that government ownership of railroads is more costly and less efficient than the system of private ownership in this country. The railroads of the United States have the lowest freight rates, the smallest capitalization per mile, the highest operating efficiency and pay the highest wages of any railroads in the world.

High Rates on Government Roads

The charge for hauling a ton of freight one mile on the government owned roads of various countries and on the privately owned roads of the United States is shown in the following table:

	Average Freight rate per ton mile
Germany (Gov't Railways)	1.24 cent
France "	1.30 cent
Australia	
New South Wales "	1.59 cent
South Australia "	1.75 cent
Switzerland "	2.63 cent
Canada (Private ownership)	.76 cent
United States "	.73 cent

No railroad system under government ownership can show a record for cheapness and service approaching that of American Railroads under private ownership. What the railroad situation needs is the adoption of a system of national regulation that will encourage initiative and investment and enable the carriers to meet the growing requirements of American business.

Keep Railroads Out of Politics and Politics Out of the Railroads

It is to the interest of the railroads and the interest of the whole country that the railroads keep out of politics and that politics be kept out of their management.

Government ownership under our political system would make the control of the railroads a partisan issue at every election. It would bring political and economic disaster.

No man in the country stands to lose more by the adoption of a political system of railroad management than the farmer. None will profit more from efficient national regulation that will do away with the present conflicts and waste of local control and enable the railroads to make the extensions and improvements necessary to keep pace with the business progress of the nation.

We invite discussion of this question and shall be glad to answer questions and to supply information on request.

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demonstration or tractor demonstrations in California similar to demonstrations of this sort that have been conducted in Southern California and throughout the Middle West. Membership in the association is open to tractor manufacturers, manufacturers of plows, harrows, scrapers, and other implements to be used with tractors, and representatives or jobbers of the above named classes of concerns.

The next meeting of this association is to be held the last Saturday in March, at which time definite steps will undoubtedly be taken towards the making of arrangements for the biggest tractor demonstration ever held west of the Rockies.

Bee Moths

Written for California Cultivator
By G. W. Bercaw

PROBABLY the most common visible enemy of the bee is what is termed the bee moth. It is not to be dreaded; is easily detected and gotten rid of. The bee moth is a twin sister to the common moths often found among clothing, etc. A good strong colony of bees is rarely ever bothered with them. Usually weak colonies, queenless colonies, etc., are their prey. They spin their cocoons among the combs, and the young feed on brood, wax, etc., found in the combs. Their destructive work proceeds very rapidly once they get a start. Stored combs oftentimes offer a good breeding place for them, but I am led to think that the natural heat produced by a colony of bees offers a better place for them than cold empty comb. Keep all colonies strong and aid the bees by destroying any traces of the moths found anywhere, and you will easily head them off. The best plan is to entirely destroy all combs in which moths have been working, either by burning or by extracting the wax from them, which of course will destroy the moths, and any eggs that might be contained in them. "Safety first" is a good rule. Some observers claim that our foul brood diseases are spread by the bee moth. This may or may not be the case, but take no unnecessary chances on it. In my inspection work I have never been able to trace its spread to this source.

TAKING HONEY FROM THE HIVE

Surplus honey should be taken from the supers before cold weather to avoid chilling the bees, but on warm days, even late in the fall, if the bees are still working, honey may be taken where for any reason it has not been removed earlier.

To remove surplus honey, says L. Haseman of the Missouri College of Agriculture, select a warm day and work rapidly as possible so as to avoid exposing the honey to robber bees. Also be careful to avoid spilling or smearing honey about the hive or ground as it always encourages robbing, the most undesirable trait of bees. Above all remember to remove only surplus honey and leave the brood chamber strictly alone.

The type of farming followed by a community often gives it wide advertising. Certain communities are known because they produce certain products. Persons wishing to purchase those products, will go to these communities to get them. A farmer within a community who is not following the same type of farming as his neighbors is losing an opportunity to profit by the community advertising.

TALKS ON Nitrogenous Fertilization

Number 10

DO you know that rice is the principal food of more than half the world's people? Over two million bushels was California's contribution to the 1915 crop. The yield, 66.7 bushels per acre, was twice that in Louisiana, where half the crop was grown.

The Department of Agriculture has published figures showing how rice culture has developed in California.

Year	Acreage	Bus. per Acre	Total prod. (bus.)	Avg. farm price	Total value
1910	100	33	3,300	$0.65	$ 2,000
1915	34,000	66.7	2,268,000	0.90	2,041,000

A ton of rice and its equivalent straw (4,000 pounds) removes 54 pounds of nitrogen from the soil, which, in California, tends naturally to nitrogen deficiency. Improved cultural methods, and possibly a scattering use of fertilizers, have helped overcome adverse conditions, but further increases depend largely upon the application in sufficient quantities of the most effective nitrogenous material.

SULPHATE OF AMMONIA

is definitely stated by investigators in India, Japan, Hawaii, Louisiana, etc., to be a superior form of nitrogen for irrigated rice. Dr. Kelley (Berkeley Experiment Station) found an application of 300 pounds per acre to give the largest net profit on soils similar in alkaline reaction to those of California.

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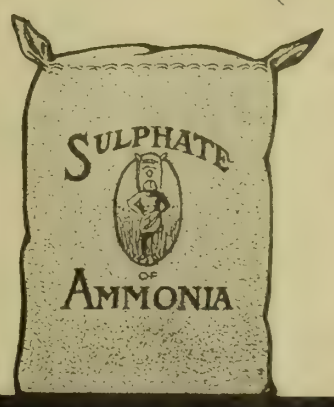

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The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Advertising rates furnished on application.

The San Francisco office is Room 810 Santa Marina Building, 112 Market Street, M. C. Holman, Manager.

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Saturday, March 3, 1917

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

One of the most picturesque ruins—not in Europe either—is shown on the cover page this week. It is the old mill, long since out of use and covered with vines, near St. Helena in Napa County.

FUMIGATING SACKS

Ontario is after a careless practice. Picking gangs have gone from orchard to orchard and carried—at least so it is thought—mealy bugs from orchard to orchard. Now the orchardists say that these sacks must be thoroughly fumigated before a new orchard is entered. Excellent suggestion.

ORANGE DAY

Every Californian should join in the campaign for Orange Day, March 10. The Orange Day committee will have prepared 100,000 souvenir post cards for Californians to mail East. Where one wishes these cards for mailing purposes he should write California Orange Day Committee, 517 Title Insurance Building, Los Angeles.

INSECTARY IN THE SOUTH

Horticultural Commissioner Hecke informs us that he has decided to locate a branch insectary at Alhambra in Los Angeles County. Commissioner Hecke and Harry Smith in charge of the state insectary at Sacramento have both been in California and have decided on the Alhambra location. Mr. Hecke writes that every effort will be made to extend the benefits of this branch of the commission's activities as rapidly as possible.

LEMONS UP

The renewed U-boat campaign has stopped practically all importations of Mediterranean lemons, and the highest February lemon prices have prevailed. From present indications these prices will continue. Unfortunately the spring cutting will be rather light because of the extreme cold.

PRE-PARED

Our article last week, "No Name", referring to the effort of the peach growers' association to secure a name for peaches from which the greater part of the peel has been removed has caused some little comment. One subscriber at Willows, T. T. Purkitt, appreciates the situation and suggests that California Peelless Peaches will answer the purpose and is a euphonious name which should be unobjectionable to the department. Another, A. D. Sinclair of San Luis Obispo, suggests Pre-pared.

We are not certain but

CALIFORNIA
PRE-PARED
PEACHES

would make a catchy catch phrase. This is the day of preparedness, and of course the association could get by with the claim that these are simply prepared.

PASS THE BILL

Californians wish development of the state's resources. It comes all too slowly. Dr. Mead and his commission have studied the question from all angles, not only in California, but nearly all other countries of the world have been called upon to give information as to best methods of land colonization.

To make a trial of some of the determinations of this commission there has been presented in the state legislature a bill which provides for the purchase of a body of land, say 10,000 acres, which may be subdivided and sold under conditions similar to those which have obtained in Australia and other countries which have found succes from this plan.

Without discussing the merits of the recommmendations of the commission we may say that we hope our state legislature will be big enough and broad enough to pass this bill and make the effort to answer the question, which is uppermost in many minds, as to how our state's development may be advanced most rapidly. Unfortunately some real estate promoters are objecting to this bill. This is one proof that there is possible advantage in the trial.

$18 A BARREL

George T. Powell of Ghent, New York, has spent most of his life in horticultural work, conducting farmers' institutes in New York and especially in producing apples. Not content simply with producing apples, he has produced good apples. As Dr. Coit suggested at the recent citrus growers' convention at San Bernardino there are two phases of fruit production, the one having to do with soil and its culture, with spraying, pruning and the many other cultural practices; the other phase having to do with picking, grading, packing and marketing. Mr. Powell learned that his business did not end with the first phase, with the production of ripened, high colored, uniformly sized, highest quality fruit.

The past year has been a year of high prices, but even then the prices Mr. Powell received for some of his fruit, some Cox Orange Pippins, sent to London are remarkable. The return to him was above $18 per barrel, and a cablegram was sent to him from London stating that this price paid was the highest ever. The apples sold at a shilling each. This particular fruit was shipped in boxes, and the size ran about 160 to the box. Even small off-sizes, averaging less than two inches in diameter, brought to the producer $2.50 per box. We believe the strongest point in connection with this remarkable marketing of fruits was made by Mr. Powell when he said that every apple in the box must conform to the standard.

READY FOR BUSINESS

It is probable that before the Cultivator reaches its readers the federal farm loan board will have appointed directors of the 12 federal land banks, that within a few days these banks will be ready to issue shares to applying farm loan associations and that during the next month or at least in the immediate future the local loan associations will be doing business with these banks. The board sends warning to farmers who wish to organize these associations to use care in the local organizations. Promotion of the federal farm loan associations has been encouraged by some in order to secure a salary as executive officer.

The farm loan act provides for the payment of a small salary to the secretary-treasurer of each farm loan association, and it also permits the payment of fees to members of the appraisal committee of each farm loan association, subject to the approval of the federal farm loan board. Each borrower under the farm loan act is required to provide an abstract of title, and the board has advised that farmers constituting an association join together, as individuals, in getting one attorney or abstractor to prepare these abstracts cooperatively so as to reduce the expense to a minimum. Complaints are now being made that certain individuals are organizing farm loan associations to get themselves elected secretary-treasurer at excessive salaries; that borrowers are being unnecessarily taxed for the payment of the appraisal committee and that in some instances attorneys and abstractors are using the system with a view of creating business for themselves.

PLANTING POTATOES

Every time the telephone rings in the Cultivator office these days it is almost an even gamble that there is to be an inquiry as to planting potatoes or which is the best variety of beans. Potatoes seem to have the call, however, for the greatest popularity. These inquiries come mostly from the town lot farmer, and the seedsmen are surely reaping a harvest. We doubt not most of them will be two bit customers; at the same time every backyard is to have a potato patch. How many of these potatoes will bring forth other potatoes is a question, but we do not think the producer of potatoes need consider it very seriously. But a word of warning may be in order, and that is for the farmer not to put all his potatoes in the same basket. Presumably the coming season will be a better one and the potato crop will be much greater than that of last year. However, we believe potatoes will still prove good property.

There are thousands of acres which should be planted to beans and to other staples. We would not say plant every foot of land in California, but we would say make every foot of land which is planted produce to the limit. To do this perfect culture, use of fertilizers, regulating water application, all are essential.

Speaking of beans, by the way, may we call attention to the fact that Limas a short time ago were selling at five cents, then six, later at seven, 7½, 8½, and now some are even passing the 10½ mark.

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Agricultural News Notes of the Pacific Coast

Northern California

Colusa County's acreage in rice in 1917 is expected to be 32,000.

Napa County's Live Stock Association holds regular monthly meetings. W. L. Mitchell of Napa has been elected president for the coming year.

Experiments to test value of rice as hog feed are being tried out at the University Farm at Davis under the direction of Prof. J. I. Thompson.

Members of the Glenn County farm bureau have decided to market all butcher stock and grain sorghums through a market man to be employed by the bureau.

The record holder of the Gridley Cow Testing Association is Piebe Laura Inka De Kol, the property of J. H. Guill. Her month's butterfat production was 86.4 pounds.

Spirited opposition has developed among fruit growers of Eldorado County to the action of the county board of supervisors in abolishing the office of county horticultural commissioner.

Some of the counties which lost their exhibits in the fire which destroyed state fair buildings last year are reported to have declined exhibiting unless they are reimbursed for their losses.

Rice growers and millers are much dissatisfied with the marketing situation. W. B. Allison, former president of the Pacific Rice Growers' Association, says that only half the crop has been marketed.

George Clark, tester for the Gridley Cow Testing Association, reports that a Holstein, Piebe Laura, owned by J. H. Guill, Jr., of Chico, produced last month 86.4 pounds of butter fat. This makes her a record holder for the association.

The newly organized Central California Poultry Producers Association has signed contract with the San Francisco Wholesale Dairy and Produce Exchange for the entire output this season, with a guaranteed minimum price of 23½ cents per dozen for firsts.

Central California

The California Peach Growers' Association has patented a chemical process for removing the skins from peaches.

Sufficient acreage has been signed up for tomato growing next year in the Lodi district to assure the location of a cannery at that point.

The concrete bridge over Kings River, marking the completion of the state highway system from San Francisco into Visalia, is now open for use.

County Bee Inspector Hunarr of Monterey reports that the honey crop of that county amounts to $125,000, an increase of 25 per cent over last year.

A portion of the sugar beet acreage of the Chowchilla district is reported to have been damaged by cold weather in January. Some of it will have to be replanted.

The Danish Creamery Association has elected its directors for the coming year. They are: F. W. Hansen, A. Thiele, J. Poytress, N. H. Fugelsang and H. Graff.

Mariposa Island in the San Joaquin River is reported to have been sold for $80,000, the purchaser planning to put the entire island in alfalfa to provide feed for his herds of sheep.

Beet growers of Visalia are working hard to secure passage of a bill introduced into the legislature to appropriate $8000 for collection and distribution of parasites of the beet leaf hopper.

Supervisors of San Joaquin County are considering the necessity of meat inspection, as many hogs afflicted with hog cholera are reported to have been slaughtered and used for human consumption.

The first community auction sale of farmers and cattlemen of the Wasco farm bureau recently held at Wasco was attended by more than 500 people. The total receipts for the sale amounted to $4758.61.

Southern California

An experiment in rice growing is to be tried out on 240 acres near Brawley this season.

Lettuce growers of Brawley have been receiving two dollars per crate f.o.b. Brawley.

The Carpinteria Walnut Growers' Association reports sale of over $50,000 worth of nuts.

The San Antonio Fruit Growers' Association is again discussing the building of a cannery at Chino.

P. W. Damon of San Dimas has taken charge of the new citrus packing house at Fallbrook, San Diego County.

There is talk in San Diego of maintaining the beautiful exposition grounds as "the playground of the world."

The Southern Pacific Company announces that it is having built 2700 new refrigerator cars for handling fruit shipments.

Oranges from trees 60 years old will be shown at the National Orange Show next week. The trees are now growing in San Bernardino.

Fishermen have complained to the fish and game commission that the kelp cutting waste is ruining their fishing. A bill has been introduced in the legislature placing control of the kelp industry in the hands of the commission.

Bean growers of Ventura have endorsed the new form of contract of the California Lima Bean Browers Association without a dissenting vote. Under the new contract the grower will pay two cents per pound for all uncleaned beans and seed beans he fails to deliver.

Arlington poultrymen have signed a contract with a motor truckman to carry their eggs to Los Angeles and bring back empty cases for 20 cents a case. This will mean a saving over the former method of transportation of nine cents a case. The contract is to run for one year.

The Coast

A Salt River Valley, Arizona, farmer claims 60 bushels of corn to the acre.

An 11-year-old girl of Glendale, Arizona, took highest honors in the pig contest held by the University of Arizona.

The recent annual farmers' and housekeepers' week of the Arizona agricultural college at Tucson had a total registration of 250 as compared with 168 last year.

At the annual meeting of the Idaho-Oregon Fruit Growers' Association at Payette a general manager was elected in the person of A. J. Scherer to take charge of the business of the association the coming year.

A bounty law is proposed by the Arizona senate. The framers of the bill would pay $25 for each lobo wolf, mountain lion, puma or panther; one dollar for coyotes and five cents each for jack rabbits and gophers.

The Kennewick-Richland Marketing Union of Washington reports berry and potato growers signing up rapidly and that prospects are for the association handling a much larger proportion of the crop than last year.

The Colorado State Potato Growers' Association, which was organized one year ago, has carried out some very successful work, and at its recent annual meeting at Fort Collins made more extensive plans for the coming year.

At the recent Arizona state fair one of the most attractive features was the exhibit made by young people of the agricultural clubs. Erma Awrey, of the Fowler Canning Club, took prizes on best exhibit of canned fruits and vegetables, jellies and jams.

A plowing match was held at the experiment farm at Mesa, Arizona, Saturday, February 3, in which there were ten contestants. The first prize of $15 was awarded to Toy Oxford; second prize, ten dollars, to Bob Free, third prize of five dollars to W. W. Mitchell.

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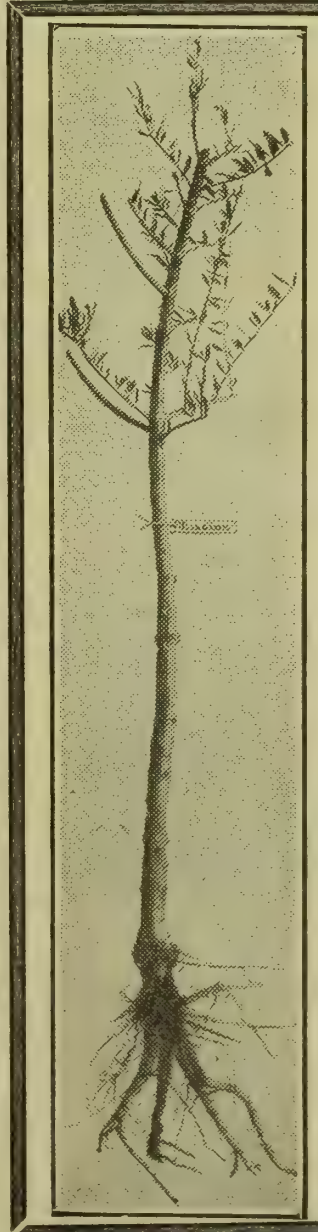

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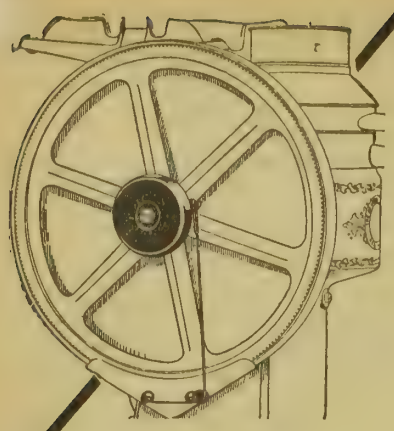

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Prevention of Abortion in Cattle

IN order to make immediately available throughout the state recent discoveries regarding infectious abortion and allied diseases of cattle, the college of agriculture of the University of California, in cooperation with the California State Veterinary Medical Association, recently held a practitioners' short course in veterinary medicine at the university farm, Davis. Seventy-five veterinarians attended the course. One of the chief features of the course was the demonstration by Dr. W. I. Williams, research professor of diseases of breeding cattle at Cornell University.

The success of his system of treating barrenness resulting from abortion disease has attracted the attention of veterinarians and stock owners throughout the county. The system requires special training and some of the California veterinarians are planning to go to Ithaca, New York, for further study and practice under Dr. Williams. In addition to the special operations taught by Dr. Williams he recommends a system of preventive hygiene which should be carried out by every owner of valuable cattle, and which he explained at a lecture before cattle breeders at Sacramento on December 26.

He stated that abortion is a disease so widely disseminated that few dairy or pure bred herds are free from the infection. The infection may even be present in cattle without the occurrence of abortions. When the virulence of the germs is high losses occur in the herd from abortion, sterility, retained afterbirth, or diseased ovaries, and they also cause diseases of newborn calves, such as calf scours, pneumonia, joint disease and similar complications. In infected herds not only the aborting cows but non-aborting cows, bulls and calves may harbor the infection, and calves and young heifers should be protected from infection. Heifers carrying the first calf are more liable to abort than older cows. The two periods when the germs of abortion infection are most liable to gain entrance to the offspring are at the time the heifer calf is born and at the time she is first served by the bull. The entrance of the germs at these times is especially liable to cause damage. In order to obviate as far as possible the infection, Professor Williams recommends the following procedure to all cattle owners having animals valuable enough to warrant the extra expense:

Before and after service irrigate the sheath of the bull with one-fourth per cent Lugel's solution. It is advisable to administer a vaginal douche of this solution an hour or two before service to cows which do not conceive at the first service. Dr. Williams has discovered that the use of this solution does not interfere in any way with conception. If the cow still fails to breed, enlist the services of a qualified veterinarian who by manipulating the ovaries and catheterizing the uterus may be able to get the cow into breeding condition.

When the cow has reached her 270th day of pregnancy or earlier, if calving seems probable, give her a thorough bath with warm water and soap, lathering the skin repeatedly until thoroughly clean. Rinse off the soap and water with a one per cent solution of compound solution of cresol. Place the cow in a clean, disinfected stall. After the bathing wash the tail, vulva, thighs and udder daily with warm compound cresol solution, one and a half to two per cent, and douche the vagina daily with one-fourth per cent Lugol's solution.

When the calf is born rub it dry and disinfect the stump of the navel cord. Do not tie it. Do not touch the navel stump with the hands. Fill a goblet or glass to the brim with 1-1000 corrosive sublimate solution, and having the calf held on its feet, push the goblet against the navel region so as to submerge the navel stump completely and keep it submerged for 15 minutes. (Corrosive sublimate tablets con be purchased of a size that one to one pint equals 1-1000.) Then dust the navel stump over heavily with a powder composed of equal parts of powdered alum and boric acid. Place the calf in a clean, dry, comfortable stall and keep it alone until two or three months old. Do not permit the calf to suck.

According to Dr. Williams, it is best in most cases to feed calves on boiled milk. Some very young calves do not thrive on boiled milk and when it does not appear practicable to boil the milk the following special precautions should be taken to protect the milk for the calf from infection:

Before drawing milk from the cow to feed the calf wash her vulva, tail, thighs and udder and douche the vagina according to the plan recommended prior to birth. The milker must first disinfect his hands and use a sterile pail. The first milk from each teat should be discarded. Repeat the washing of the vulva, tail, thighs and udder immediately before each milking. Repeat the vaginal douches daily until all discharges from the vulva have ceased. At eight or ten days of age nearly all calves may be safely placed on boiled milk. The milk which is boiled may be drawn from any economic source. In order to prevent scorching a large double boiler or water bath should be used to heat the milk.

When all discharges after calving have ceased, vaginal douching of cows may be stopped, though it would be well to continue the external washing of vulva, tail and udder daily in the interest of clean milk as well as of the general health of the herd. When abortion or retained afterbirth occurs each case should be handled individually by a skilled veterinarian and by the special treatment restored to health as promptly as possible. Much needless loss might be saved by owners of valuable pure bred cattle if the services of veterinarians skilled in the special work perfected by Dr. Williams were available. By monthly or quarterly veterinary examination of all the animals in a herd, cases of sterility will be discovered before it is too late to cure them and incurable or dangerous cases can be eliminated before they have done irreparable damage to the bull or other cows.

This does not mean, however, that all animals infected with abortion should be disposed of. As a matter of fact in herds in which abortions are occurring a cow that has aborted once or twice may be just as valuable for breeding as one that has not. Cows seldom abort more than two or three times. Cows that are not made sterile by abortion will in all probability resume normal reproduction. On the other hand, if they are removed to make way for fresh animals there is a possibility that the newcomers already are or soon will be infected and are more liable to abort than the old

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ones. The elimination of infected animals is, therefore, not to be recommended as a means of controlling the disease unless their value is not great enough to warrant the expense of treatment.

By keeping pregnant animals the disease will be brought to a standstill more quickly than if new susceptible material is continually added in their place. Some cows apparently become immune without aborting. It is the history of the disease in the great majority of herds that after reaching its height it gradually subsides of its own accord until only a few slips occur each year or it may disappear entirely. In herds where abortions have not occurred for several years, or at least only rarely, the owner should take particular pains to prevent its introduction. Every case of abortion should be regarded as infectious until proved otherwise.

For outbreaks of pneumonia and scours in calves Mr. Williams recommends the frequent use of enemas of physiological salt solution and the daily injection of liberal amounts of calf scour serum in addition to the special precautions to be taken at time of calving mentioned above.

WORMS IN SHEEP

Copper sulphate used as a drench has been found a satisfactory treatment for stomach worms and tapeworms in sheep, which sometimes cause considerable loss to sheep raisers. Digestive disturbances, malnutrition and general weakness are symptoms of these parasites. The sheep should not be fed for from eight to 20 hours before treatment is given. For a yearling sheep treatment consists in giving in the form of a drench, two ounces of a solution, made by dissolving an ounce of copper sulphate in two quarts of water. For a two-year-old sheep, three fluid ounces will be required.

ANOTHER CALIFORNIA RECORD

Mr. Taylor, manager of Mrs. Baldwin's Santa Anita Rancho, phones of another performance of the remarkable heifer, Valley Mead De Kol Walker, which now makes her another world beater 240 days from calving and as a senior two-year-old she produced in seven days 404.2 pounds of milk and 21.33 pounds of butter.

It's due to California climate—and breeding and feeding, and in fact several other things. But, it's done in California.

THE HARRIS SALE OF MODEL HEREFORDS

The annual sale of Model Herefords of Harris & Sons will be held in Sullivan County, Missouri, next week. Last year's sale was the supreme effort when some 60 odd head of bulls and females averaged $1247 per head.

We need hundreds of good registered bulls on our western ranges, probably need them more urgently than in any other section of the country, not necessarily the $10,000 kind but the big boned. vigorous, typey males that produce the desirable range beef. Good ones cannot be had any more for a song. The beef herd needs the high class sires just as much as does the dairy herd.

At the 1917 sale Harris & Sons will offer about 150 head of choice stock. The noted Repeater blood will predominate, but Gay Lad, Prince Perfection and Benjamin Wilton strains are frequently represented. In a long list of wonderful young bulls Gay Lad 40th 503718 stands at the top. This youngster was a sensation on the 1916 show circuit and is indeed noteworthy. He was the undefeated junior champion at all the principal shows. He is out of Miss Repeater 13th and was sired by Gay Lad 6th.

The breeder in the market either for show animals or herd headers will certainly have a rare opportunity to secure the best at this sale.

Are Your Cows a BURDEN?

Many cows are a constant drag on their owners when they could just as well be good producers—if properly handled.

Don't forget that your cows can get physically "off color" just as you sometimes do. Watch the milk yield; if it is going down without apparent reason, something is wrong with the cow. Overfeeding is likely to make the condition worse; she needs a medicine that will clear up and strengthen her organs of production.

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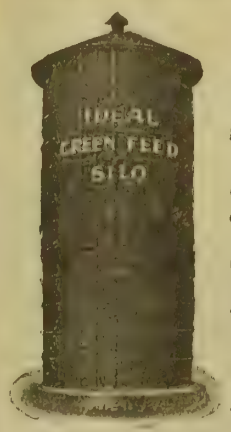

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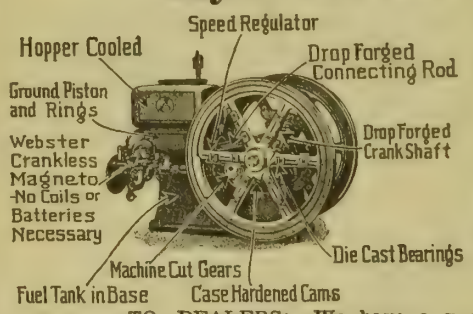

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State Dairy Cow Competition

The University Announces Results from Which We Quote as to Cows Which Produced Over 40 Pounds of Butter Fat During the Month of January

IN the following report the name of the owner is given first, then a list of the cows with the performance. The abreviations Gr., Ay., G., H., J. stand for grade, Ayrshire, Guernsy, Holstein and Jersey.

The first figures after the name of the cow indicate age. For instance, "Melba Gr. H. 7-7" means that Melba is a grade Holstein aged 7 years and 7 months. The next figure (27) indicates number of days in milk at beginning, the next number (1457.0) production of milk in pounds for the month, and the last two numbers percentage of fat (4.28) and pounds of fat (62.360) for the month.

Abbott, K. W.: Riverside Beauty II, H., 7—7, 24, 2035.9, 3.74, 76.143; Melba, Gr. H., 9, 27, 1457.0, 4.28, 62.360; Per, Gr. H., 7, 7, 1605.8, 3.70, 59.415; Rilla, Gr. H., 8, 79, 1661.6, 3.39, 56.328; Rosie, Gr. H., 7, 81, 1181.1, 4.46, 52.677; Ella, Gr. H., 7, 74, 1277.2, 4.09, 52.237; Emiline, Gr. H., 4—6, 54, 1444.6, 3.61, 52.150; Maria, Gr. H., 4—8, 51, 1388.8, 3.47, 48.191.

Bohnett Bros.: Murne, Gr., 5, 18, 1388.5, 5.35, 74.146; Spot, Gr., 6, 56, 1228.7, 5.81, 71.387; Reddie, Gr. S.-H., 7, 7, 1374.1, 4.14, 56.888; Fayne, Gr., 6, 36, 1458.4, 3.41, 49.731; Dorris, Gr., 7, 121, 1125.7, 4.31, 48.518; Daisy, Gr. J., 4, 68, 980.5, 4.66, 45.691; Alba, Gr. J., 4, 14, 1169.2, 3.71, 43.260.

Bomberger, J. M.: Rose, Gr. J., 8, 17, 1295.3, 5.8, 75.127; Edith, Gr. J., 5, 88, 1132.8, 4.49, 50.863; Petralida, J., 15—2, 47, 883.9, 5.68, 50.206; Hope of Green Gold, J., 2—10, 47, 729.9, 6.49, 47.371; Pet of Green Gold, J., 2—11, 80, 589.9, 7.04, 41.529.

Cornwell, H. E.: Abbie De K. of East Bank, H., 5—3, 45, 2304.5, 3.89, 89.645.

Elliott-Brant Rancho: Butternut Queen, G., 8—1, 33, 1494.8, 5.07, 75.786; Imp. Hayes Sw. Marj., G., 3—10, 29, 1090.3, 4.63, 50.481.

Gross, H. G.: Marion of Butter Valley, J., 4—10, 43, 1027.0, 5.28, 54.226; Underlata Gussie Lee, J., 3—11, 21, 993.0, 4.79, 47.565; Old's Golden Eminent, J., 3—11, 97, 688.0, 6.35, 43.688.

Henderson, J. W.: Kitchener's Clem. of B. V., G., 2—1, 52, 1168.5, 4.03, 47.391; Rancho's Morn. Rose, G., 4—8, 58, 1026.4, 4.46, 45.777.

Hewins, Homer: Silver Gloss Poplar II, H., 7, 5, 1504.0, 3.84, 57.754; Pauline of Bloom, H., 6—7, 59, 1313.1, 3.93, 51.605.

Higdon, W. J.: Paula Segis, H., 6—2, 36, 2578.8, 3.44, 88.711.

Hollow-Hill Farm: Imp. Brittleware, Mistletoe, G., 4—9, 36, 1512.5, 4.79, 72.449; No. 482, Gr. G., 4—9, 11, 1282.0,

LIVE STOCK SALES

Kings County Third Semi-Annual Poland-China Breeders' Assn. Sale., Hanford, March 7, 1917.

Bernstein Ranch Poland China Hog Sale, Hanford, March 7, 1917.

California Breeders Sales & Pedigree Co., Holstein cows, heifers and herd bulls, Lakeside, San Diego County, Thursday, March 15.

Stephenson Holstein Herd, Lake Mills, Wisconsin, May 1, 2, 1917.

D. O. Lively Stock Farm Sale, Hereford Cattle, Mayfield, May 3.

Lake Mills Holstein Breeders' Consignment Sale Co., Lake Mills, Wisconsin, May 8, 9, 1917.

California Breeders Sales and Pedigree Co.—20 registered Holstein bulls, Chico, May 24, 1917.

California Breeders Sales and Pedigree Co.—180 registered Holsteins, University Farm, Davis, first week in June. Date to be announced later.

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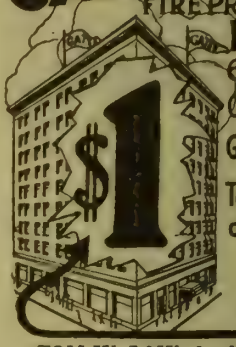

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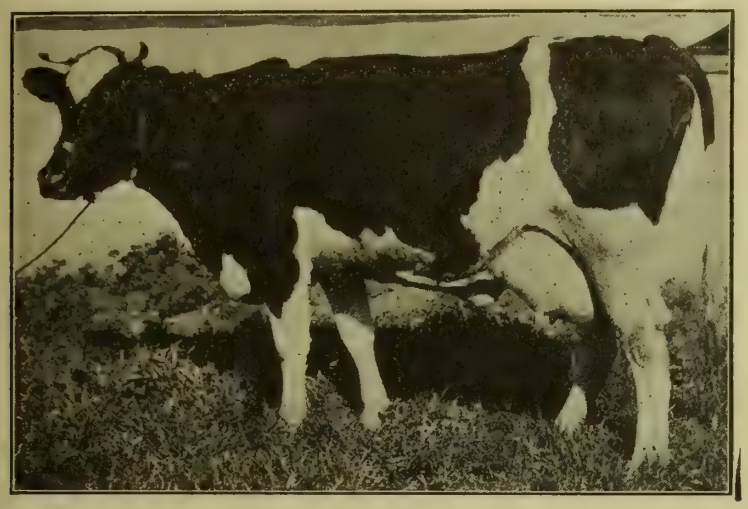
McFarland, E. B.: Willmowmoor Vesta IV, Ay., 4—7, 126, 1527.1, 4.14, 63.222.

Mealey, S. A.: Beauty, Gr. H., 5, 105, 1525.2, 3.3, 50.332.

Miller, Guy H.: Goldie of Venadera, J., 7—1, 31, 1450.0, 4.79, 69.455; Pearl of Venadera, J., 10—6, 125, 900.8, 6.79, 57.561; Lorna of Venadera, J., 2—8, 30, 1185.5, 4.62, 54.770; Wanda of Venadera, J., 10—3, 133, 757.5, 6.49, 49.162; Aldene of Venadera, J., 5—2, 33, 706.4,



Clothilde Walker Allenvail
This cow as a junior three-year-old made 26.60 pounds butter from 467.28 pounds milk.

McALISTER'S HOLSTEINS MAKING SOME FINE RECORDS

The McAlister herd of Holsteins has broken two existing state records for seven day butter fat production.

Just before the holidays Queen Pontiac Butter Boy made 22.64 pounds butter in seven days, and 86.07 pounds butter in 30 days, a state record for junior two-year-olds. Now comes another junior two-year-old, Segis Spring Farm Pontiac De Kol, who made 22.78 pounds butter in seven days. This heifer has the highest two-year-old record of all the daughters of Spring Farm Pontiac 6th. She started off at a world record gait giving at the rate of 31 pounds for the first three milkings, but she went off her feed during the test and fell back to 23 pounds. Undoubtedly this heifer will make a great record the next time she freshens.

The McAlisters have two other two-year old daughters of King Walker Segis, which just made better than 21 pounds butter in seven days, and averaged over 84 pounds butter for 30 days. One of these heifers gave 81 pounds milk in one day. Orndyke Duchess Korndyke is the McAlister entry in the state dairy cow competition. She recently made 26.35 pounds butter, 675 pounds milk in seven days, and 109.23 pounds butter from 2621.3 pounds milk in 30 days, giving as high as 101.6 pounds milk in one day. Her December milk record was the highest of any cow in the state contest. Maud Rachel Segis is another yearly test cow who is going along at a 25 pound butter, 95 pound milk gait. Allen Vail Daisy Walker at four years old made 28.31 pounds butter in seven days during February. Allenvail Pauline Walker became the new California champion junior three-year-old by making 26.42 pounds butter in seven days and 102.1 pounds in 30 days. Then her half sister, Allenvail Clothilde Walker, came right back and bettered the new record for seven days by making 26.60 pounds butter in seven days and 467.28 pounds milk.

Production of 5 grades, 56.605 pounds butter fat. Winner of McAlister & Sons' prize for January: Napa State Hospital: grade H., No. 67, 81.605 pounds butter fat.

Total entries to date, 160 cows. Average production for January, 1917 (98 cows), 1303 pounds milk, 5437 pounds fat (range, 104.47-23.9 lbs.).

Since the publication of Circular 153 of the college of agriculture last fall, five new prizes have been added to the list, making the total number of prizes to be awarded in the competition 93 and the approximate value of the cash and special prizes nearly $8000, viz.: For the highest average production of butter fat during ten consecutive months by four cows in a Stanislaus County herd; four prizes of $40, $30, $20 and $10, respectively, the first prize being open to pure-breds and grade cows, the others to grade and common cows only, offered by Modesto Creamery, Modesto, California. For the highest average production of butter fat by a herd in the Ferndale Cow-Testing Association that was not tested prior to January 1, 1917: A pure-bred Jersey bull calf out of a Register of Merit cow, offered by J. W. Coppini, Ferndale, California. All cows and heifers in milk six months or over must be included in arriving at the herd average.

.21, 43.867.

Morris, A. W., & Sons Corp.: Aggie Acme of Riv. II, H., 6—1, 56, 2685.5. .89, 104.466; Aralia De Kol III, H. —2, 54, 2537.5, 3.36, 85.260; Hartog Cream De Kol, H., 7—5, 58, 2661.6. .01, 80.114; Aralia De K. Pont. Mead. H., 2—7, 46, 1694.3, 3.74, 63.367; Aralia Mead Pont. De Kol., H., 2—7, 61, 1684.8, .14, 52.903; Cobossie Korndyke Burke, H., 2—3, 36, 1411.2, 3.42, 48.263.

Napa State Hospital: No. 67, Gr. H., 4, 42, 1975.9, 4.13, 81.605; No. 15, Gr. H., 6, 64, 2065.7, 3.19, 65.896; No. 9, Gr. H., 5, 60, 1879.2, 3.24, 60.886; No. 28, Gr. H., 5, 71, 1349.2, 4.09, 4.773; No. 68, Gr. H., 4, 41, 2102.4, .48, 52.140; No. 30, Gr. H., 4, 110, 636.9, 3.09, 50.580.

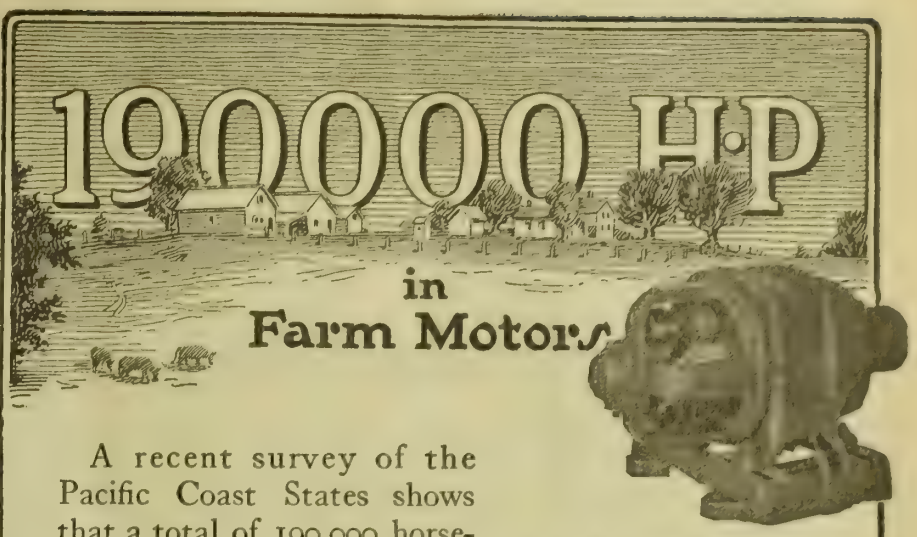
Pacific States Corp.: Forest View Wayne Korn., H., 5, 5, 2680.2, 3.17, 4.962.

Palo Alto Stock Farm: May Wawa De K. Burke, H., 6—11, 3, 2518.9, 2.98, 75.063; Imp. Miss Jane of L., G., 5—8, 5, 1297.5, 5.45, 70.714; Mousie De K. Lady II, H., 5—8, 41, 331.3, 2.95, 68.773; Athalva II, H., —2, 55, 2233.1, 2.78, 62.080; Imp. Eng. Lady Orange, G., 5—6, 15, 1090.7, 4.86, 3.008; Mystic's Jane of A. V., G., 7, , 1180.5, 4.21, 49.699.

University Farm: Korndyke Señorita, H., 6—2, 22, 2325.2, 3.74, 80.962; Interested Jap's Santa, J., 4—2, 6, 397.1, 5.66, 79.076; Cherry, Gr. Sh., 8, 6, 1633.1, 4.09, 66.795; Agnes Colantha, L., 5—3, 69, 1397.7, 3.50, 48.920; Willowmoor Cherry, Ayr., 7—6, 89, 1031.8, .74, 48.907; Fern Ridge Pearl, G., 7—3, , 1197.3, 4.02, 48.123.

Vina Ranch, Leland Stanford Jr., Univ.: Blanar, H., 6—2, 5, 2299.8, .45, 102.341; Boweda, H., 6, 48, 2200.3, .31, 94.833; Arequipa, H., 6—7, 5, 125.9, 3.71, 78.871; Dovemoon, H., —10, 48, 1841.8, 4.10, 75.514.

Winner of Pacific Rural Press prize for January: K. W. Abbott: av.



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Improvement in Breeding Percherons

IN an address before the Kansas State Draft Horse Breeders' Association early in February of this year by Louis Aveline, French army horse inspector, he said:

"First, I must tell you about the horses I have seen in this country. Fourteen years ago I visited the United States, and for the last 28 months I have been back on inspection for my government. I found a great improvement in the breeding animals, and I was surprised at the quality of the horses. In Chicago, where I was at the International Show two months ago, I saw a class of aged Percheron horses quite extraordinary, the like of which I had not seen anywhere, not even in France."

Touching upon breeding in his own country Mr. Aveline said:

"In France, breeding is not conducted as it is in America. It is taken up by districts. In the south they raise the thoroughbred and Arabian breeds, in the east and north, the draft horses, in the northwest the coachers, in Le Perche, the Percheron horses. Each district has its specialty. In Le Perche you will not find, as in America, breeders keeping both stallions and mares. The man who sells to the exporters, and whom we shall call the stallioner, has not even the mares. The mares are on the little farmer's land. At breeding time, stallions, belonging precisely to the people who make a specialty to sell for export, are taken from one farm to another for the breeding which begins about February 1 and is kept on until June 25. A farmer with a 100 or 200-acre farm could do all his work with three or four mares. But he always has five or six, so that they do not work too much. The proportion of mares in foal, with this daily but not excessive work, is about 75 per cent. The colts then are born between February and June. The mare keeps on working up to the day of foaling. For about a week after the birth of the colt, the mare is kept with him in the stable. Then she goes back to work, being out about two hours in the morning and two hours in the afternoon. As soon as the colt is a few weeks old, and there comes a less rainy day, (I stated before that we have heavy rainfalls), they place the mare when she has no work to do, in the pasture with her colt, and as soon as the weather is a little better, they are left outside day and night. The colt is taken in only during the working hours of the mare. There is no time, no age to begin to feed the colt. When the mare is working, she has oats when she comes back from her work. The colt begins to eat by himself, and after he has reached a certain age the farmer takes advantage of the absence of the mother to give extra food to the colt, mostly oats. Since that time the colt is never without oats.

"Some farmers, and particularly the stallioners who prepare the horses for export, buy those foals, males only. Each big stallioner knows practically all the mares in the county. He knows by which stallion she has been served, he knows the line on the dam's and on the sire's side, and he buys those foals from the farmer. The price is pretty high. We pay sometimes as much as $400 for them, but they are taken to the stallioner's farm only when they are six months old, at weaning time. The stallioner has a large farm, mostly grass, the area of which varies from 400 to 500 acres. After the colts are weaned, they are placed in those pastures, by lots of about ten according to the size of the pasture. They are fed on oats, twice a day. The oats are given under a shed, but the colts are never locked up. They go about as they like. From that time, they stay outside day and night until after they are 30 months old, when they are sold for exportation.

"Before delivering his colt to the stallioner, the farmer must have it branded under the supervision of the Societe Hippique Percheronne. This brand is SP on the neck. At the time of branding the description of the colt is taken, and its pedigree made. All this is done under the care of the Societe Percheronne. * * * The maximum of registrations has reached about 7000 head counting both sexes per year. Each Percheron horse is then so branded before the age of six months, as a guarantee of its purity of blood. I insist on the fact that a very great importance should be given to this brand. It is a guarantee, it is a trade mark. The Societe Percheronne has imposed this brand in order to avoid all frauds."

Cactus for Feed

REGARDING the feeding of spineless cactus A. G. Lyle of Santa Clara County writes:

"I have the report of the college of agriculture of the University of California from July 1, 1915, to June 30, 1916. I have carefully gone over page 53, "Spineless Cactus for Milch Cows", and would like to ask how it would be possible to feed cows the way they are fed by the experiment station and make a living from them. Certainly if one had unlimited capital and was simply in the business for a pastime it might be an interesting experiment, but let us hear results of experiments where greatest profit is secured at least cost. I had the pleasure of visiting Davis some years ago and I certainly saw some fine stock, but I understood they all died that winter from overfeeding of alfalfa. I am not running down alfalfa. It is good feed but it has killed more cows than the professors of experiment stations ever saw. I am willing to make a test of feeding cactus and alfalfa, bran and barley as one ration against the ration they feed, and I will get 25 per cent more butter fat at less cost than they can produce."

We think the statement of Mr. Lyle regarding the fatal effects of alfalfa is somewhat overdrawn. Regarding cactus and its value, it is a succulent and has a certain value in the ration of any cow. Its analysis has been given in former Cultivators, and from it the intelligent feeder can judge as to how extensively he can feed. Where alfalfa is the basis of the ration we think the bran recommended in the above ration could be largely eliminated. At present prices of bran and barley their addition to the feed should be studied very closely. Regarding the experiment with spineless cactus made by the college of agriculture and referred to by Mr. Lyle, we quote herewith:

"Spineless Cactus for Milch Cows—A trial with spineless cactus for milch cows was conducted by Woll during

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Soil and Water Analyses

Consultation on Agricultural Problems
Mark Walker, B.S., 211 W. First St., Los Angeles

the spring of 1916. Four grade Holstein cows were placed on the trial and fed cactus ad libitum, in place of Indian corn silage, which was fed prior to the cactus, the rations of the cows being otherwise unchanged, and consisting of alfalfa hay and mixed grain. Cactus was fed during four-week periods, but the amounts of this feed that the cows could be induced to eat were so small that the nutrients supplied formed only an insignificant part of the rations of the cows, viz., 8.3 pounds, 15.5 pounds, 7.3 pounds, and 5.9 pounds of cactus on the average per day for the four cows during the four weeks of the trial.

"The slabs fed had the following composition, according to the chemical analysis made by Jaffa: Water, 92.77 per cent; protein, .52 per cent; fat, .12 per cent; N-free extract, 4.43 per cent; fiber, .92 per cent; ash, 1.24 per cent.

The slabs were fed sliced and mixed with the grain feed, which consisted of barley, beet pulp, bran and cocoanut meal, one part each by weight. The amounts of cactus eaten by the cows during the last week of the trial did not materially differ from those eaten during the first week. The only way in which the amount could have been increased would have been to starve the cows into eating the feed, which would have deleteriously affected the milk flow both immediately and during the balance of the lactation period, a result which it was not considered advisable to bring about.

"A trial was also conducted with cactus vs. corn silage for fattening lambs. It was found in this trial that the corn silage produced 17 per cent more gain with ten per cent less feed than the cactus ration. It required about ten days to get the lambs to eat the cactus readily."

WINTER BUTTER MAKING

A little knowledge concerning butter making is something I've meant to offer from a long experience. I must beg to differ with the learned professor when he says, "Gather your churning, then put in buttermilk." That might work if you had enough to churn every few days. When the cream jar is well scalded and ready for the fresh cream is the best time to put in, say, one cup of buttermilk. In this way the slight sourness will enable it to ripen without turning bitter. No one could make butter out of it then. Another hint is to scald the churn. When it cools you can put in the cream and it won't chill. Yet another is to use a level teaspoon of baking soda to two gallons of cream when you start to churn. It breaks the globules and makes the work easier.

Scours in calves is easily cured by giving one or two raw eggs in the milk. It's never known to fail.—An Admirer of the Cultivator.

Wilts Masterpiece 210102, heading W. H. Waugh's herd of pure bred Berkshires, is a big, smooth animal weighing 650 pounds at 20 months and is still growing vigorously. He is splendidly put up and is strong in back, bone, feet and hams. He has a great heart girth and is unusually even from end to end. He is sired by the many times grand champion, Artful Masterpiece, and is out of Belle Wilts 35th, a California state fair first prize winner. He is a grandson of the noted Masterpiece 7700 and Lord Premier 50001 is both his grand and great grand sire.

H. P. Eakle Jr. reports sale of ten sows and a boar to J. Reath, of a bred sow to Roy Fowler and a boar to F. Beebe. Mr. Eakle has recently purchased a boar, Oregon Defender, bred by McKee Bros. of Versailles, Kentucky. He was sired by the original Defender, who was grand champion twice at the Chicago International.

Maurice Rucker has recently sold a bred gilt to F. M. Johnson.

Select Holsteins

DISPERSAL SALE

When H. I. Shaw, owner of Lakeside Dairy, Lakeside, San Diego County, California, selected his foundation stock several years ago, he was fortunate in choosing blood lines that have today become most famous in the Holstein-Friesian breed because of the tremendous milk and butter records made by members of the families represented. Now that Mr. Shaw has decided to sell his entire herd other men will have an opportunity to secure these good animals at public sale at their own price. We will sell his entire herd, consisting of

22 Head Registered Holstein-Friesian Cows and Heifers
2 Registered Holstein-Friesian Bulls
27 High Grade Holstein Cows and Heifers

Included in the lot are SEVEN DAUGHTERS OF A 32.45-POUND BULL. His sire is Pietertje Hengerveld Segis, 66 A.R.O. daughters, and he a son of King Segis, 87 A.R.O. daughters, and whose granddaughters include Segis Fayne Johanna, 50.68 pounds butter in 7 days, and the only cow in the world to produce 50 pounds butter in 7 days under official test; Fancher Farm Maxie, 46.84 pounds butter in 7 days, the world's champion senior 4-year-old; and Mabel Segis Korndyke, 40.32 pounds butter in 7 days, the world's champion junior 4 year old. The dam of this sire is a 32.45-pound daughter of Hengerveld De Kol, 116 A.R.O. daughters. All of these seven are from yearlings to 3-year-olds, and a nice bunch.

FIVE DAUGHTERS OF CAPTAIN JULIP ZAMPA, 9 A.R.O. daughters, and out of well bred dams.

TWO DAUGHTERS OF ARCADY WAYNE HENGERVELD, 24 A.R.O. daughters with records up to 28.08 pounds butter in 7 days.

A DAUGHTER OF JULIANA KING OF RIVERSIDE, 15 A.R.O. daughters, two above 1000 pounds butter in one year under mature age, and six others with yearly records from 711.57 to 808.82 pounds butter. He is also double grandsire of Aaggie Acme of Riverside 2nd, 25.36 pounds butter in 7 days, the present California champion. This cow is out of a 26.56-pound dam.

TWO HERD SIRES WILL BE SOLD. One a son of King Prilly Segis, son of King Segis and the famous foundation cow Prilly, and out of a dam who is by a good son of Sadie Vale Concordia's Paul De Kol.

The other is a young sire, well marked and a good individual, strongly bred in the blood of Colantha Johanna Lad on the sire's side, and out of a dam whose sire is a son of De Kol 2nd's Butter Boy 3d and Belle Korndyke, one of the greatest transmitting cows of the breed.

These cattle would look well in any herd, and there is no better blood to be had anywhere.

After the registered cattle are sold we will sell Mr. Shaw's herd of 27 high grade Holstein cows and heifers. They are an unusually choice lot and any dairyman looking for the profitable kind should be on hand sale day.

The sale will be held on the Thum Ranch, one-half mile east of Lakeside, and twenty miles east of San Diego, California, on Thursday, March 15, at 10 o'clock a. m. Lunch will be served at noon.

For catalog or other information address the sale managers.

California Breeders' Sales and Pedigree Co.

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GROWING POTASH

The embarrassing potash question has a possible solution in the kelp beds. To a certain extent potash has been produced from this source for many years. Only within the past two or three years has there been heavy production. It is now found that fields which were cut over only a few months ago to a depth of six feet under the surface of the water are again ready for cutting. Those in charge of one of the cutting barges working off the San Diego coast reported that beds cut over eight months ago are now being cut over for the second time, giving even larger tonnage than the first cutting. They are of the opinion that cutting the kelp is a benefit by "topping" the plants, relieving them of much storm tearing, which, of course, is mostly sustained near the surface, and compares it with trimming of certain shade trees which develop such great tops that they seldom live long, being blown over.

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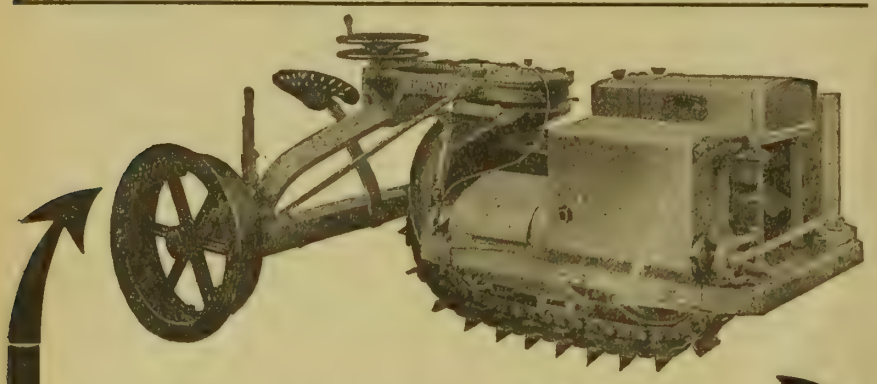

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The Bean TrackPULL Six-horse Tractor combines giant strength with light weight and long traction. Just think of a tractor so small that it goes under the boughs of trees only 4 feet off the ground! Gets into corners where a team could never go, and works right up close to the trees and between anything that grows in rows only 7 feet apart—

That's what the Bean TrackPULL does. It will do your plowing, your cultivating and your discing, and then run stationary machinery when it is not working in the field.

IT ACTUALLY DOES THE WORK OF 6 HORSES ON WHAT IT WOULD COST YOU TO FEED ONE TEAM, AND YOU CAN WORK IT 24 HOURS A DAY IF YOU WANT TO.

The Bean TrackPULL is better than horses. It will do your heavy work in season and save you money by doing the man labor and by working harder and better in less time than horses take. It has full power on the turns as well as on the straight-away.

Pulling Three 10-Inch Bottoms

The Bean TrackPULL is ideal for soft soil and cultivating. It weighs only 2800 lbs. and pulls itself over the ground. This is a big advantage over a tractor with rear drive. It does not get stuck in soft places. You simply turn right or left, like a team and keep going. The Bean lays its own track on which it pulls. The wide track offers the least resistance, which means that the Bean is most economical to operate. The Bean TrackPULL costs only $975.00 and is the only tracklaying tractor selling for under $1800.

Best Construction Lasts Longest

The Bean TrackPULL Six-Horse Tractor is built in one size only—6 H. P. at drawbar and 10 H. P. at belt.

The motor is a Le Roi 4-cylinder vertical type—4-cycle. Equipped with:—Donaldson air clarifier, Bosch ignition Perfex-radiator-Water cooled with centrifugal pump and fan, combination pump and splash lubricating system.

Famous Hyatt roller bearings used in track wheel and sprocket also in track rollers. There are six New Departure ball bearings in the transmission, running in grease and all dust proof. Gears are steel. No differential or other complicated mechanism.

The Ideal Tractor for Orchard and Open Field Work

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We are behind on orders and are working night and day. We are building a large addition to our plant to increase our capacity and will be able to make prompt shipment in April. You know the Bean Sprayer! The Bean TrackPULL Tractor is as good as the Bean Sprayer.

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Please send me prices and the big folder with the complete story of the Bean TrackPULL. If I decide to purchase I will need my tractor about

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I work ..... acres

I grow .....
(Name fruits or vegetables you produce)

Name .....

Street or R. F. D. .....

City .....

County .....

State .....

Bean Spray Pump Co.
212 W. Julian St.
San Jose, Cal.

FROST PROTECTION

Continued from Page 247

shows that the equipment used so far has cost approximately $145 per acre to install ready for use. Table I shows the several items of this expense.

TABLE I

Per acre cost of present equipment:	
Pots	$ 80.00
Storage space	18.00
Small equipment	7.00
Oil to start operations	$ 40.00
Total	$145.00

With the present high cost of material this expense would be considerably increased. Certain of the very complete installations cost, even before war prices, as much as $200 per acre.

The same source of information indicates an annual maintenance cost of $26 per acre without reference to any of the operating expenses in time of firing. Table II shows the items in this expense.

TABLE II

Annual maintenance costs per acre:	
Interest $145 at 6 per cent	$ 8.70
Depreciation	11.55
Handling and care	5.75
Total	$26.00

Compared with some other forms of insurance this seems a high annual premium. If the value of the trees on an acre of orchard be considered as $1000, it will be seen that a rate of 2.6 per cent is required. With a yield of 260 packed boxes per acre the insurance cost would be ten cents per box; if the yield is increased to 520 packed boxes the cost would be only five cents per box. These figures represent the fixed charges only.

The actual operating charges vary within a large range with the season. In case of moderate cold 20 pots per acre may be lighted, which would burn in the neighborhood of 15 gallons of oil per acre per hour. If the severity of the cold is increased the hourly consumption may be increased to 75 gallons per acre. The average cost of oil is near four cents per gallon. The labor cost at time of firing varies between 40 cents and $1.00 per acre per hour. This gives a total operating cost of between $1.00 and $4.00 per acre hour. The extreme firing would not be necessary in actual practice except in the very severe freezes such as 1913. Table III gives the seasonal operating cost per acre with varying number of hours burning.

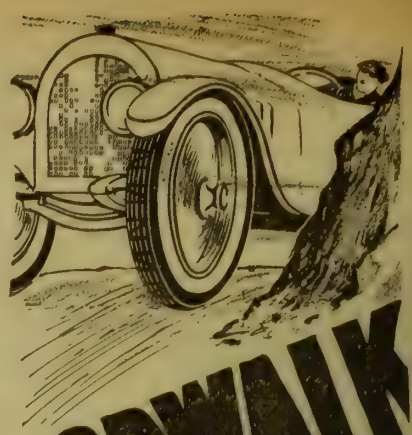
TABLE III

Per acre operating costs: Hrs.	5	10	15	20
Light firing at $1	$ 5.00	$10.00	$15.00	$20.00
Moderate firing at.. 2	10.00	20.00	30.00	40.00
Extreme firing at.. 4	20.00	40.00	60.00	80.00

The following typical cases came under the writer's observation this season:

1. Light firing, 6 hrs.		$6.00
Moderate firing, 2½ hrs.		5.00
Total		$11.00
Actual expense		$10.24
2. Light firing, 12 hrs.		$12.00
Moderate firing, 5 hrs.		10.00
Total		$22.00
Actual expense		$20.90
3. Light firing, 8 hrs.		$ 8.00
Actual expense		7.32
4. Light firing, 12 hrs.		$12.00
Moderate firing, 7 hrs.		14.00
Heavy firing, 2 hrs.		8.00
Total		$34.00
Actual expense		$33.68

The fixed charges of $26.00 per acre must be added to these costs to give the total expense.

(To be continued next week.)

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4,000 ft. 1½ inch — 2,000 ft. 2½ inch.
10,000 ft. 2 inch. — 5,000 ft. 3 inch.

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3,000 feet of 30-lb. Relay Rail.
1,600 gallon Galvanized Tank in good condition.

All above pipe and casing is second-hand, but in first-class condition. Good threads and couplings on each joint, and is carefully inspected before being shipped.

We also carry a large stock of new pipe from ⅛ to 2 inches.

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1— 2½ Ames Pump Head.
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solves the labor problem and makes the best use of high priced seed. Means $5 to $50 extra profit per acre. Every seed piece in its place and only one. Saves 1 to 2 bushels seed per acre. Uniform depth; even spacing. We make a full line of potato machinery. Send for booklet today.

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Swat the Cold Storage Man

Written for California Cultivator
By Jean A. Koethen

THERE is no better way of getting ahead of the cold storage man than by preserving one's own eggs. This would be too expensive for commercial egg ranches, but for the householder who has hens and wants a supply of eggs for fall and winter and for the small egg ranch which sells eggs at retail throughout the year it is invaluable. Here in our own little suburb I know a man who keeps 200 hens and who last spring put his entire surplus of eggs down in water glass. The result was that early in January when fresh eggs were selling at 50 cents per dozen, this man was selling water glass eggs for 35.

What one has done another can. Water glass eggs cannot be sold as fresh eggs, but they can be sold for cooking and often for the table, and wouldn't it be more profitable to put them away and sell for 35 cents in winter than to sell for 20 cents in the spring? This practice of preserving eggs at home is growing rapidly, and in some parts of the country, it is said, to the discomfiture of the middleman.

Water glass, or as it is technically known, sodium silicate, is a thick, mucilaginous liquid, which effectually closes the pores of the eggs which are placed in it, excluding the air, and preserving the contents for six months or longer. The length of time eggs can be kept depends partly on the condition of the eggs when they are placed in the water glass, and partly on the place in which they are kept. They keep longest in a cool, dark cellar, and the fresher and cleaner they are when preserved the better is the chance of their remaining fresh many months.

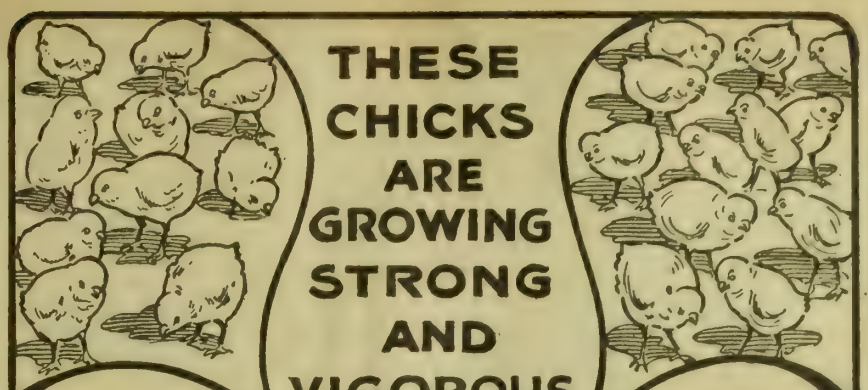
Water glass may be had from any druggist for $1.25 a gallon, and in large quantities could probably be had somewhat cheaper. It is diluted with nine parts water, that is, one gallon of water glass to ten gallons of water. The water should be boiled and allowed to cool before it is mixed with the water glass, and the mixture should be thoroughly stirred so that the water glass is evenly distributed through the ten gallons of the mixture. This mixture is kept in a large stone jar and the eggs immersed in it as soon as they are brought in each day. Keep the jar covered, and see that the liquid always covers the eggs.

Eggs that are to be preserved must be clean, fresh and infertile. Do not wash dirty eggs. Use them on the home table while they are still fresh. Washing removes the fine mucilaginous coating on the shell and lets air into the pores. When this has once happened decay is bound to follow.

Hens and pullets do best when they are kept in separate flocks and fed in different ways. Pullets demand more fattening food than hens. They do not store surplus fat as the hens do. The ration fed to hens should contain less starch than for pullets.

Pullets that are well grown by fall will lay more eggs during their first year of laying than they will as hens the following year. Therefore, pullets require more food than old hens.

The Tulare Cooperative Poultry Association transacted a total business for January of $6,389.47.



COULSON'S CHICK FOOD

You can always be sure that you are feeding the best that is possible when you feed COULSON'S CHICK FOOD, COULSON'S GROWING CHICK FOOD AND COULSON'S EGG FOOD.

These feeds add bone and muscle to the body and give great EGG PRODUCING QUALITIES. They have been on the market for years and our customers continue to order from year to year in ever increasing amounts.

DON'T FAIL TO WRITE FOR OUR BOOKLET "CHICKENS".

COULSON POULTRY & STOCK FOOD CO.
PETALUMA, CALIFORNIA.

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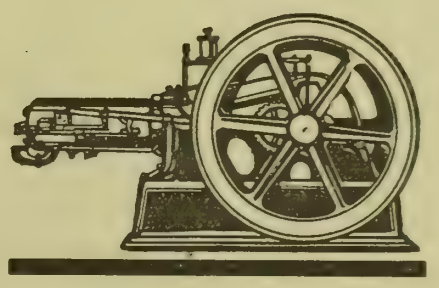

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FROM SELECTED HEAVY LAYING STOCK
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If you haven't the equipment or time to brood them, we shall be glad to raise your pullets up to three months of age at $8.00 per dozen. We guarantee good, No. 1 pullets.

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Good Chicks should be fed right by the Coulson Method
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So long as they last we make this offer: With every order for 500 White Leghorn chicks we offer FREE 25 Molby chicks and with every order for 1000 chicks we offer 50 Molby chicks free.
SCHOFIELD and OLSEN AT VAN NUYS will sell choice pullets 10 weeks old, all broken to roost at 55c each. This is for a short time only. Address all communications to
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Baby Chicks fed on Milk Diet don't have bowel trouble.
Laying hens lay more eggs on Milk Diet.
We would like to tell you about Milkoline, which is a condensed buttermilk product from one of America's largest creameries. Write for particulars and prices.
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Small, simple, sure. At all dealers. If your dealer does not handle it, send 20 cents in stamps and mention your dealer's name and get sample by mail postage paid. Write for prices in larger quantities delivered free by parcel post.
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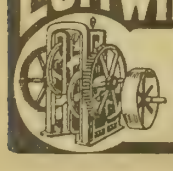

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Each egg is held in suspension in an individual container (see illustration on left). Containers pack 1, 2, 3, 6, or 15 dozen in strong corrugated shipping cases (see 3-dozen size illustrated below). Carriers come complete with address and end labels, nothing extra to buy. Good for 10 to 30 round trips by Parcel Post or Express.

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FREE. Send for our new book "Marketing Eggs by Mail" and price lists of table and hatching egg carriers. Write at once, don't delay.

Wallace EGG CARRIER CO.
451 THIRD STREET, — BOX 52
SAN FRANCISCO CALIFORNIA

Kale for Green Feed

Written for California Cultivator By Jean A. Koethen

GROWING green feed for 2000 hens and over 3000 chicks on half an acre of ground is an accomplishment wonderful enough under any circumstances, but not so wonderful as it might be when the green feed is kale and the irrigating water is administered intelligently and unstintedly.

I had been looking for some weeks for some one who had made a success with kale for poultry on a large scale, and so I was particularly glad to find on the poultry ranch of C. H. Hosford in Riverside just such a man. The kale raising was done in San Diego County, nearer the coast and in a somewhat more favorable location as regards moisture than our inland valleys, but the difference is simply one of a few inches more or less of irrigating water, for kale is a heavy drinker.

The man who knows all about kale is a Mr. Hunter who has recently come from San Diego County to take charge of the hatching and rearing of Mr. Hosford's chicks. I found him preparing his cultivator for the planting of the hundreds of kale plants which were growing in boxes in the sunny windows of the brooder house. "We planted half an acre to kale," said Mr. Hunter, "with chard between the rows for the young stock, and this fed our 2000 layers and 3600 chicks for a year. The kale was planted early in rows three feet apart and with 18 inches between the plants. Later on, after the weather had becom quite warm, we planted chard between the rows of kale—there is no use planting chard in cold weather, for it won't grow."

This kale was irrigated every six weeks, the water being run from a one-inch hydrant from 12 to 24 hours for each four rows. With such thorough irrigation the plants were soon brought to a height of six feet.

Kale is usually fed by simply pulling off the lower leaves and throwing them whole to the birds. It is a good plan to put part of them in a crock of water, for the leaves are unpalatable when wilted. It sometimes happens that birds which have been accustomed to alfalfa, lettuce or other more succulent greens, do not take readily to kale, but they soon learn to like it when other greens are denied, and it is one of the most wholesome of all green feeds. In Professor Jaffa's table the composition of thousand-headed kale is given as follows: water, 85.15 per cent; ash, 1.76 per cent; crude protein, 2.63 per cent; starch, sugar, etc., 8.49 per cent; crude fiber, 1.46 per cent; crude fat, .51 per cent. I have no figures for curly kale, which was raised by Mr. Hunter with such success, and which is generally raised in Southern California where kale is grown at all, but there is probably no great difference. The per cent of crude protein (2.63) is considerably less than that of alfalfa (4.94), but the per cent of crude fiber and of fat is also less, while that of ash, so desirable in maintaining the health of poultry, is a trifle more.

Kale, while it is a heavy drinker, cannot, so it is said, stand wet feet. Perhaps that is the secret of my raising it without irrigation on our gravelly soil. The soil on which it is grown must be well drained. The roots either seek moisture at great depths or extend out along the surface, according to the nature and depth of the soil.

Manure is almost as important as water, for kale is a gross feeder as well as a heavy drinker. For this reason it is particularly well adapted for poultry ranches, where there are always great quantities of manure to be disposed of. The soiled straw from the scratching pens should be dug into the ground before the plants are set, or better still, plowed in at the start. Then the fresh droppings from the houses may be spread on top of the ground as often as needed. A rank, almost tropical growth and dark green color of the leaves show that the plant has sufficient food. Plants carefully watered and fertilized have been known to reach a height of 14 feet. For feeding, the lower leaves are picked, just a few from each plant, leaving the upper and less fully developed to grow. Feeding may begin when the plant is two feet high or even less, but the picking must be carefully done, only the lower leaves being removed.

Legislation of Interest to Poultrymen

By C. A. Wilkins, Secretary California State Poultry Breeders Association.

FIVE bills have been introduced in the legislature of 1917 that are of interest to the poultry breeders of California. One in the assembly by Assemblyman Baldwin amends Section 599 of the penal code relating to the prevention of cruelty to birds or animals and providing for the seizure and disposition of property used or employed in connection therewith. This bill would apply to poultrymen and dealers in the transportation and storage of poultry.

Senate Bill No. 813 by Senator Slater of Sonoma is an act to provide for the holding of an annual state poultry show and appropriating money therefor. This bill was introduced at the request of the California State Poultry Breeders Association and is similar to bills which have been passed and enacted by the legislatures of Oregon, Missouri and other states. The state poultry show is designed to stimulate interest in breeding better poultry, and the results will be accomplished by holding the show in different localities each year, or until all such as have applied for the show have held it under the auspices of their local poultry association.

Senate Bill No. 462 by Senator Slater will regulate the manner of preparation or manufacture of egg products which are used in the preparation of

Wonderful Egg Producer
Any poultry raiser can easily double his profits by doubling the egg production of his hens. A scientific tonic has been discovered that revitalizes the flock and make hens work all the time. The tonic is called "More Eggs." Give your hens a few cents' worth of "More Eggs" and you will be amazed and delighted with results. A dollar's worth of "More Eggs" will double this year's production of eggs, so if you wish to try this great profit maker, write E. J. Reefer, poultry expert, 4262 Reefer Bldg., Kansas City, Mo., who will send you a season's supply of "More Eggs" Tonic for $1.00 (prepaid). So confident is Mr. Reefer of the results that a million dollar bank guarantees if you are not absolutely satisfied your dollar will be returned on request and the "More Eggs" costs you nothing. Send a dollar today or ask Mr. Reefer for his Free poultry book that tells the experience of a man who has made a fortune out of poultry.—Adv.

foods intended for human consumption. It provides that every person, firm, company or corporation engaged in the preparation or manufacture of canned eggs, dried eggs, frozen eggs, unshelled eggs, egg yolks, egg powder, egg albumen or any other egg product or egg by-product who, in the preparation or manufacture of such product, use what is commonly known and classified as "black," "white," "mixed," "sour rots," "green whites," "eggs with stuck yolks," "musty," "moldy eggs," "eggs containing blood rings," or any egg having a bad odor is guilty of a misdemeanor. The bill makes it the duty of the state board of health to enforce the provisions of this act. Conviction for violating any provisions of the act will be punished by imprisonment in the county jail for not more than six months or by a fine of not more than five hundred dollars or by both such fine and imprisonment.

Senate Bill No. 463 by Senator Slater will regulate the use of canned eggs, unshelled eggs, dried eggs, egg yolks, egg powder, frozen eggs or egg albumen in the manufacture of food products. It provides that any person, firm, company or corporation who prepares or serves, sells or offers for sale any food or drink, ingredients of which are in part composed of either canned eggs, dried eggs, frozen eggs, etc., before so doing must print on bills of fare or menu cards in black faced letters not less than one-eighth inch in height the words, "canned eggs used here" or "dried eggs used here," as the case may be. A sign must also be displayed in any public salesroom where such products are used, not less than six inches in height and three feet in length, bearing the words, "canned eggs used here," etc., and in letters not less than three inches in height and one-fourth inch in width upon a white ground. Penalty for violation is not more than six months imprisonment, or a fine of not more than two hundred and fifty dollars or both such fine and imprisonment. The state board of health will enforce this act.

Senate Bill No. 464, Senator Slater, will regulate the sale of eggs which have been in transit more than 31 days. This act would require stamping upon one end in black-faced letter not less than one-eighth inch in height, the word "storage."

Any person receiving eggs that have been produced at any place requiring 31 days or more to transport to the selling point, prior to the sale or offering for sale, must immediately report to the state board of health the number of eggs received, the date when received and the place where such eggs were produced and the name of person to whom sold. Six months imprisonment, a fine of two hundred dollars or both, may be imposed, upon conviction, for violation of any provision of the act.

Perfectly sound dry grain is the best for laying hens. Light-weight or shrivelled grains, or grains with an excess of husks, often lack the valuable element needed for egg production.

ARLINGTON POULTRYMEN, BUSINESSMEN

"POULTRYMEN of Arlington and Riverside," says the Arlington Times, "will obtain about $1000 more at least for their eggs this year than last because they will be transported to Los Angeles by motor truck instead of via express on a local passenger train or electric car. This is the statement of Arlington poultrymen.

"A contract was entered into Monday night between the truck committee of the Arlington Poultry Association and James Bird. The latter is to transport the eggs to Los Angeles and bring the empty cases back for 20 cents a case. This will mean a saving of nine cents on each case of eggs. The contract is to run a year.

"Mr. Bird will make collections of eggs and distribute the empty cases in the afternoon of each day. He leaves for Los Angeles at five o'clock each morning. During the next three months he will haul between 250 and 300 cases of eggs a week.

"The plan, as outlined in the contract, provides for the division of the Arlington Poultry ranches into three districts, and the route followed will enable Mr. Bird to take the eggs from each ranch twice a week. He will truck the product to Los Angeles every day, however, and under the contract agrees to haul the eggs to Los Angeles and return the cases to Arlington for 20 cents per case."

EGG LAYING RECORD

S. V. Newell of Bonsall writes: "In your issue of the 27th I find the following item. 'Two hundred and ninety hens in the sixth egg laying contest at Mountain Grove, Missouri, produced 2872 eggs in December, which is almost ten eggs each.' We can beat that all to pieces. We have 143 pullets. hatched on April 21 and May 1, 1916, that laid 2060 eggs in December; which is 14.4 per pullet. They are from Tom Hurley's White Leghorn stock, strictly a Bonsall district product."

Wheat, oats and barley may be sprouted, and this sprouting process has the effect of changing starch to a material similar to sugar, which seems to be partly pre-digested, and is thus quickly absorbed by the digestive organs. It is more satisfying and also greatly relished by the fowls. Less sprouted grain is required than the dry, therefore proving it to be, not only a more economical food but also more sure of satisfactory results.

The question of good healthy birds for breeders is as necessary in raising turkeys as in all branches of live stock breeding. We may keep our same stock for several years but must have hens and toms that are unrelated, which insures their vitality.

Sour milk should not be left out of the feed of growing or laying fowls, winter or summer, if it can be secured at any reasonable cost. It is usually much cheaper and easier to get on the farm than beef scrap or any other substitute and no common substitute except buttermilk will give as good results.

Save Your Chicks

That's your greatest problem. Little chicks die by thousands from *indigestion, diarrhoea, gapes, leg weakness, etc.* They need help—three-fourths of the loss can be avoided. Begin with the bowels—make the digestion right by using

Dr. Hess Poultry PAN-A-CE-A

Cures Gapes, Indigestion, Leg Weakness, etc.

Here are a few of the valuable ingredients in Pan-a-ce-a to meet the requirements of your poultry which I have just stated: *Nux Vomica*, a nerve tonic; *Carbonate of Lime*, a shell former; *Hyposulphite of Soda*, an internal antiseptic; *Quassia*, an appetizer; *Iron*, to enrich the blood, and other valuable ingredients, all well known and recommended by the highest medical and veterinary authorities.

Costs 1 Cent a Day for 30 Fowls

1½ lbs. 25c
3 lbs. 50c
7 lbs. $1.00
25-lb. pail $3.00

My Guarantee

So sure am I that Dr. Hess Poultry Pan-a-ce-a will prevent and cure gapes, indigestion, leg weakness and the like, reduce your loss to mere nothing and help your chicks grow and mature rapidly, that I have told my dealer in your town to supply you with enough for your flock, and if it doesn't do as I say, return empty packages and get your money back.

Write for free book on Poultry Culture.

Dr. Hess & Clark
Ashland, Ohio

Dr. Hess Stock Tonic

Positively expels worms. A valuable tonic and conditioner for cattle, horses, hogs and sheep. Improves appetite, tones system, helps digestion. 25-lb. pail, $2.25; 100-lb. sack, $7.00; smaller packages as low as 65c.

Dr. Hess Instant Louse Killer

Kills lice on poultry and farm stock. Destroys bugs on cucumber vines, slugs on roses, etc. Use by dusting or sprinkling. Comes in handy sifting-top cans. 1 lb. 25c; 3 lbs. 60c.

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TWENTY VARIETIES

Send today for our free 66-page Illustrated BABY CHICKS CATALOG, giving detailed prices of all chicks, ducklings, turkeys, goslings, hatching eggs, poultry supplies, etc. We also carry a large stock of laying Hens, Pullets, Cocks, Cockerels, Guineas, Pigeons, Rabbits; Brooders, Incubators, etc. Send for 48-page "Pioneer" Incubator and Brooder Catalog—we sell on Easy Payments. Write us your wants. Get our prices.

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Mandy Lee Incubators

We are selling out our line of Mandy Lee Incubators. While they last we will offer 140-egg Mandy Lee Incubator for $15.00 f.o.b., Los Angeles. This is less than we paid for them. Absolutely guaranteed. Other sizes for sale. Send for catalog.

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TREES

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For Sale — Washington and Thomson Navels, Valencias, Seedless Grapefruit, Eureka, Lisbon, Villa Franca and Seedless Lemon, Harman Avocados. Buds were selected from the best bearing trees and will yield bumper crops. Also 40,000 Mission and Manzanillo Olives. The above stock is growing in Rialto, Whittier, Glendora and Fallbrook. Budding cloth 30c yard, post paid. No frost damage. We solicit your patronage. Prompt replies to inquiries. Cyrus W. Wilhite, P. O. Box 154, Glendora, Cal. Phone 303.

By far the lowest priced means of reaching a buyer for what you have to sell is through classified advertisements in California Cultivator. The cost is only 3 cents per word per issue, with a minimum of 35 cents.

Olive Trees—Three years old this spring. Stock taken from a record-bearing grove. 2000 MISSIONS, 4000 MANZANILLOS; absolutely no finer nursery stock to be had in California. A portion of stock located near Redlands, the balance near Porterville. Price reasonable, mailed on request. J. A. Burke, 612 Black Building, Los Angeles, Cal.

I Have 300 Placentia Perfection Walnut trees; buds selected from an exceptionally heavy bearing orchard. They were interset in an orchard in 1915. Have decided to remove them and offer the lot at 75c each. Are in good growing condition, no die back the past winter. A. E. Nelsen, El Monte, Cal.

250,000 Home Grown Fruit Trees—Apples, pears, plums, peaches, apricots, figs, ornamentals, etc.; finest ever grown. Investigate the low prices of our first class stock before ordering elsewhere and save money. Inspection of nurseries invited. Orange County Nursery & Land Co., P. O. Box 235, Anaheim, Cal.

Eureka Lemons—Healthy, nearly 5000 two years old. Buds from known heavy bearers of fancy fruit. Trees grown between young orchard and must be sold this year. Information cheerfully given. E. J. Vander Sluis, Glendora, Cal.

Citrus Trees—All leading varieties. Large line, Lisbon & Villa Franca Lemon and Washington Navel trees. All first class and clean. Special prices to dealers or in carload lots to growers. Randall Bros.' Nurseries Co., Whittier, Cal.

For Sale "Lane's Wonder" Tangerine. My own propagation. A delicious fruit. Will send sample of fruit by request. 1-year-old buds $2.00 each, ready for June setting. Harmon Avocados $1.00 and $2.00. A. Z. Lane, Glendora, Cal.

For Sale — 600 Valencia oranges, 400 Washington Navel, 500 Eureka lemons, 50 grapefruit; fine 2-year-old stock. Get our prices. Laguna Nursery, Bell, Cal. P. O. Address R. F. D. No. 2, Box 360C, Los Angeles. Home phone 28257.

Broad Leafed Mission and an extra early strain of Manzanillos. If you want the early ripening and early bearing kinds, we have them. Every tree guaranteed. Olives exclusively. H. Detmers & Son, Exeter, Cal.

Pears on Japan Root, Bartlett, Comice, 4-6, $18.00; 2-3, $12.50 100. Clean, heavy caliper, heavy roots. Stock limited. Grafted walnuts special low prices. Barren Hill Nursery, Nevada City, Cal.

For Sale 6000 Valencia Trees—One year old this spring. Buds from Performance Record trees in one of the best groves in the state. Write today. L. V. W. Brown, Riverside, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

Apricots and Olives—Royal Blenheim and Tilton apricots. First class trees. Large stock of Mission, Manzanillo and Ascolano olives. Balled or open root. No scale, no defoliation. C. E. Moyer, Hemet, Cal.

For Sale 23,000 trees, Valencia oranges, 18,000; Eureka lemons, 5000, all two years old, extra fine this spring. Frank R. Baxter, R. F. D. 1, Fullerton, Orange County, Cal.

Citrus Trees—Fine stock, no frosted stock. Best root system. Get our prices. Main 3604 Smith Citrus Nurseries F2729 315 Marsh Strong Bldg. Los Angeles

For Sale—6000 fine thrifty two-year-old Lisbon lemon trees. Bud selection the best. Address Chas. Story, Rivera, Cal. Phone Whittier 4721.

For Sale—Excellent citrus trees, principally Eureka lemons and Marsh grapefruit, 2 years old. B. C. Dodson, Glendora, Cal.

Apricots Apricots Apricots
5c up, 5c up, 5c up, 5c up, 5c up
The largest in the state to select from. Carsten Truelsen, Nurserymen, Hemet, Cal.

Mission Olive Trees—Raised from my own bearing trees. This is only sure way to get what one wants. W. A. Hayne, Box 461, Marysville, Cal.

Olive Trees—Mission, Manzanillo, Ascolano. Propogated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, Cal.

TREES

CHEAP—A TWO-YEAR-OLD AVOCADO GROVE OF THE VERY HIGHEST ORDER. ABOUT 2½ ACRES PLANTED HALF TO "TAFT" THE BEST SUMMER VARIETY; HALF TO "CHALLENGE", THE VERY BEST WINTER FRUIT, AND THE MOST PROFITABLE VARIETY GROWN; LARGE, HARD SHELL, COMMERCIAL FRUIT. LOCATED NEAR CAR LINE, PASADENA, GAS PIPED TO PROPERTY. IDEAL IF YOU WANT TO COMBINE A HOMESITE WITH A PROFITABLE ORCHARD. NOW LISTEN! THIS ORCHARD WILL BE AMONG THE VERY FIRST CHALLENGE ORCHARDS TO BEAR AND WHILE THE FRUIT BECAUSE OF ITS SCARCITY SHOULD STILL BE HIGH. IT IS NOT EXPECTING TOO MUCH OF THIS GROVE TO PAY FOR ITSELF THE FIRST TWO YEARS IT BEARS. VALUE $6000, BUT MUST SELL. FIRST REASONABLE OFFER ACCEPTED. BE QUICK IF YOU WANT SOMETHING REALLY GOOD. C. T. JAMES, BOX 126, R. D. 2, SAN BERNARDINO.

For Sale—3000 trees of A1 nursery stock, half Valencias, half Navels, two years from bud. Prefer to move in bulk, but will sell part, price favorable to buyer. Please communicate with us at once. Los Angeles Ice & Cold Storage Co. Home 10053, Sunset, Main 8191. Box 643, Station C, Los Angeles.

Fine Large Satsuma Plums, Royal Apricots, Mission Olives, $10 per 100. Placentia Walnuts on black root, 50c up. All kinds trees, berries, ornamentals. A. R. Marshall's Nurseries, 5th and Broadway, Santa Ana, Cal.

Fifteen Thousand lemon, navel, Valencia trees. Tulare County grown which means clean stock. Budded from best orchards in Central California. Make us prove it. No frosted stock. E. A. Bennett, Ducor, Cal.

Valencias, one and three years old. Eureka lemons, three years old. Selected stock. May A. Miller, Glendora, Cal.

Olives and other fruit and shade trees. Write for our special low prices. Kavan Nursery Co., San Bernardino, Cal.

Budded Avocados—All leading varieties. Address Mather's Avocado Nursery, 137 N. Fair Oaks Ave., Pasadena, Cal.

Place Your Order for Eureka and Placentia Walnut Scions now. E. Holve, Fullerton.

Citrus Trees—All kinds, any quantity. Butler's Morning Side Nursery, Lamanda Park, Cal.

For Sale—Fine two-year-old Chase Walnut trees. Magnolia Nursery, Whittier, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

HOGS

Smith's Poland-Chinas—Sows and gilts bred to Joker, first prize boar at Wisconsin State Fair 1915. These sows and gilts were sired by Iowa Wonder, who is a son of the great A Wonder, the most celebrated Poland-China boar living or dead. Litters from this mating are the best I have ever seen anywhere. Prices low, quality considered. Will sell one or a carload. As a special inducement each purchaser will be given a year's subscription to the American Swineherd, the best swine paper published, and a copy of the Handbook on the Sow, also a copy of the Pig Feeders' Manual. Geo. A. Smith, Corcoran, Cal.

Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

Send for Free Catalog—Finest ever issued. Tells of the famous Whitten Ranch money making strain of Big Type Poland-Chinas. Make greatest weight in shortest time at lowest cost, topping market at 225 lbs. in 6 months. 600 head, both sexes, all ages, reasonable prices. Satisfaction guaranteed. Ranch in Tulare County, but address owner, R. H. Whitten, 610B Security Bldg., Los Angeles.

Billiken Herd of Chester Whites—The big prize winners at the 1916 California state fair. The breed that makes money for the rancher and dairyman. Have 4 nice young service boars left and 20 young open gilts that will be bred as desired by buyer. Write for the Chester White booklet that tells all about them. C. B. Cunningham, Mills, Cal.

Poland-Chinas—Twenty good gilts and three 2-year-old sows for sale. Either sired by or bred to I. B. A. Wonder, reserve champion at P.P.I.E. A few good young boars ready for service, sired by I. B. A. Wonder. A fine lot of fall pigs. I please you or refund your money. W. A. Young, Lodi, Cal.

Thirty Medium Big Type Poland-China boars for sale. Shipped on approval. We will send a good one for $30 and a crackajack one for $50. Bernstein Ranch, L. C. Trewhitt, manager, Hanford, Cal.

Choice Boar Pigs for Sale. Sired by Superba 220620, champion Poland boar at San Francisco. Prices right. C. R. Hanna, Riverside, Cal.

Duroc-Jersey Sow and Boar. Pigs from registered stock. Low prices. Delta Farm and Live Stock Co., Colton, Cal.

HOGS

Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P.P.I.E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

Superba World's Grand Champion Poland-China boar and one of the greatest sires of the breed. Spring boars ready for service, also few sows bred to this noted sire, reasonably cheap. Rough's Greenfields, Arlington Sta., Riverside, Cal.

Cholera Immune Berkshires—Fine sows, bred to excellent boars, for spring farrow $50 and $60 each. Splendid August and September boars and gilts $20 and $25 each. W. H. Waugh, Riverside, Cal.

Registered Poland-Chinas, prolific, fabulous, profitable, porkers. Choice young boars now ready for service, $25 each, weanlings $15 each. Dr. J. A. Crawshaw, Hanford, Cal.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, Cal.

Duroc-Jersey Hogs—Weanlings and gilts, open or bred. Write for prices. A. B. Johnson, Newport Beach, Orange Co., Cal.

Rancho Rubius Durocs all sold except a few extra good July and September gilts. Write for prices. Elmer Lamb, Ceres, Cal.

Carruthers' Farm Berkshire Hogs. Our herd won Premier Exhibitor prize at the P. P. I. E. Exposition. Mayfield, Cal.

Durocs—Choice Sows, gilts and boars of best breeding. Ed. E. Johnson, Turlock, Cal.

Durocs—A few gilts of exceptional quality. H. E. Boudier, Napa, Cal.

Big Type Durocs—Quick maturing, easy keeping. F. M. Johnson, Napa, Cal.

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Live Stock Insurance: Registered live stock and farm work horses should be insured. The Hartford Company, strongest in the world, writing live stock. No trouble to answer questions. D. O. Lively, Special Representative, 215 Hobart Bldg., San Francisco.

Butte City Shorthorns, Shropshires, Berkshires and Ponies. Stock of all ages for sale. Can supply one or a carload. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., Cal.

At Last the Perfect Silo—the Stay Round. No hoops, no bolts. No experiments. Any one can erect. Close price. Address D. O. Lively, 125 Hobart Bldg., San Francisco.

Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco, manufacturers of Calf Meal, Balanced Dairy Feed, Balanced Hog Feed. Write for samples.

Fine Young Jacks and Jennies for sale. Black with white points. Eligible to register. Geo. A. Mast, Madison, Yolo Co., Cal.

The Best By State Fair Test Percheron stallions, mares and first and second prize filly colts for sale. H. G. Learned, R. 4, Box 22, Stockton, Cal.

For Sale or Exchange—30 Toggenburg grade and thoroughbred goats. 25,000-gallon redwood water tank. Pearl guineas. Mrs. J. Lenert, Chino, Cal.

Registered Shires — Blackhawk Stock Ranch. Importers and Breeders. Easton & Ward, Burlingame, Cal.

For Sale—Fine registered Belgian stallion. S. D., R. 1, Box 24, Buena Park, Cal.

CATTLE

For Sale, 20 grade cows, 1 Ayrshire bull, Robin Hood stock; milk test 49 up to 55 at Monroe condensary; 9 heifer yearlings this spring. Cows are above the average, all big milkers; 2 horses, machinery, etc., all for $2570 cash, no trades. 123-acre farm to rent. Land cannot be beat. House of five rooms and other outbuildings. Possession at once. Chas. J. Davies, R. 1, Tolt, King Co., Wash.

For Sale—From 1 to 100 extra fine, straight, well marked, light colored, highly bred, registered Holstein heifers from 6 to 12 months old. They are rich in the blood of King of the Pontiacs, Pontiac Korndyke, Hengerveld De Kol, Rag Apple Korndyke, 8th, King Segis and other most celebrated sires of the breed. Prices very reasonable. Write Geo. A. Smith, Corcoran, Cal.

Registered Shorthorn Bulls for sale. I have just from Iowa, 30 registered Shorthorn Bulls, 4 of that lot are Herefords. I have 18 grade Shorthorns, all yearlings, and 2-year-old, all ready now for service, on my ranch, 9 miles northeast of Delano, Cal. Will make special price on car load lots. E. B. Armstrong, Earlimart, Cal.

Grandsons of Hengerveld De Kol and out of A.R.O. cows for sale. Prices reasonable. Write for pedigrees. Many years of constructive breeding has made my herd one of the prominent ones of the San Joaquin Valley. R. F. Guerin, Visalia, Cal.

Wanted—A Bred Sow, Poland-China or Berkshire preferred, due to farrow soon. Must be reasonable. No scrub considered. Write or phone particulars and price delivered at Burbank. C. A. Rives, Burbank, Phone Burbank 11.

D. O. Lively Stock Farm, Inc., 215 Hobart Bldg., San Francisco. Breeders of Hereford cattle. A few choice heifers for sale. We buy and sell live stock on commission. Farm at Mayfield, Cal.

Have a Nice Registered Holstein bull calf from dam with 18.025 lbs. record. Is 3 years old. J. W. Benoit, Route C, Modesto, Cal.

Registered Guernsey Bull—High pedigree. Price $150. Two years old February. G. N. Hesgard, Newberg, Ore.

Venadera Jerseys, the herd with official yearly records. Calves of both sexes for sale. Guy H. Miller, Route 1, Modesto, Cal

Well Bred, Well Born—Well developed and well worth owning are "Rolling Meadows" Jerseys. Silverton, Ore.

J. R. Carhart, Fullerton, Orange Co., Cal. Registered Jersey bulls for sale or will trade them for heifers.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

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Baby Chicks, hatched from my own carefully selected and Hoganized flock of S. C. White Leghorns, $10 per 100, $95 per 1000, hatch eggs $5 per 100, $45 per 1000. I have built up a very good, pure-bred and vigorous flock of S. C. White Leghorns during the last 12 years, and as I use hatch eggs from my own flock exclusively and only from hens that are two and three years old, I can furnish a good, vigorous, thoroughbred chick at a reasonable price. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

Penn's Rocks and Reds: A Western bred strain that wins wherever shown. Utility and exhibition. P.P.I.E. winners. Barred Plymouth Rock and S. C. Rhode Island Red eggs for hatching. Barred Rock males $3.00 and up. Free catalogue. Golden Rule Poultry Farm, St. Helena, Cal.

The Reliable Poultry Exchange invites your correspondence on the Baby Chick business. We can start you RIGHT with strong, sturdy chix from the best thoroughbred flocks in Southern California. Also the best of breeding stock in poultry, rabbits, pigeons, of all kinds, etc. 741 Los Angeles St., Los Angeles, Cal.

East Side Poultry Yards, established 1904. Our object, egg type and size for ideal utility stock, thoroughly Hoganized, baby chicks, correctly hatched, dozen or thousand. White Leghorn 10c, R. I. Reds 13c in February. After that cheaper. Satisfaction guaranteed. 255 S. 18th St., San Jose, Cal.

Baby Chicks, reasonable prices—White Leghorns, R. I. Reds, settings, 100's-1000's. Hatched right in our $60,000.00 brick and concrete hatchery from our quality heavy layers. Stock, hatching eggs. Pebbleside Poultry Farm & Hatchery, Sunnyvale, Cal.

White Plymouth Rock, White Leghorn incubator chicks, breeding stock, eggs high class. Scientifically bred. Awarded all first prizes California State Fair 1916. Make your arrangements for 1917 delivery of chicks. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

Baby Chicks from mothers with 180 to 240 eggs each per year. S. C. White Leghorns, the best ever, $10.00 per 100, $90 per 1000; also Mammoth kale plants for sale 35c a hundred—$2.50 a thousand. Delivered free. A. P. Ward & Son, Box 100, Calistoga, Cal.

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Baby White Leghorns—Hatched from high producing utility and ribbon winning matings. Booking orders for baby chicks, pullets, cockerels and hatching eggs. A. D. Roberts Poultry Yards, Box 566, Ceres, Cal.

White Leghorn and Brown Leghorn day-old chicks from healthy, vigorous breeders. "Chicks well hatched are half raised". Will be pleased to send you circular. San Jose Hatchery, 371 Meridian Road, San Jose, Cal.

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Model Poultry Farm, White Leghorn specialists. Baby chix and hatching eggs from heavy laying stock, bred by us for thirteen years. Our prices are right. W. C. Smith, Prop., Corning, Cal.

Rose Comb Rhode Island Whites—Have had this strain of general utility fowls for two years. Find them superior to any other strain I have ever raised. 15 eggs $2.25, 100 $10. S. Fairburn, Burbank, Cal.

Barred Rock Eggs for hatching, from selected layers, $2.00 per 15. Exhibition matings $5.00 per 15. Vigorous cockerels $5.00 each. Arthur W. Huskins, 1517 Ivy Street, Glendale, Cal.

Quality Single Comb White Leghorn Chicks and eggs for hatching. Utility strain. Bred to pay. Write for prices. Quality Egg Ranch, Artesia, Cal. Phone Artesia 7027.

P. P. I. E. prize winning stock English Penciled Indian Runner ducks. Eggs per setting $1.50. Scranton Strain Rhode Island Reds. Sturgean Bros., Lemoore, Cal.

Baby Chicks—White Leghorns, Brown Leghorns, Reds, Barred Rocks, Black Minorcas, Anconas. Prices on application. Orland Hatchery, Orland, Glenn Co., Cal.

Petaluma Hatchery, Established 1902, Capacity 16,000 chicks a week—the kind the hen hatches. Five varieties. Send for free circular. L. W. Clark, Petaluma, Cal.

Rainescourt Reds—Eggs from prolific laying strain and exhibition winners from $1.50 up. Day old chicks $15 per 100. Rainescourt Poultry Ranch, Zeluah, Cal.

"Eastman's Bred-to-Lay" Barred Plymouth Rocks. Chicks and eggs. We Hoganize and trapnest. Fairmead Poultry Farm, Fairmead, Cal.

Day Old Chix—Barred Rock, R. I. Reds, White Leghorns, Black Minorcas, Light Brahmas, Buff and White Orpingtons. Enoch Crews, Seabright, Cal.

Baby Chicks, White Leghorns, from healthy, vigorous, heavy laying, two-year-old hens. Satisfaction guaranteed. John F. Forney, Kingsburg, Cal.

Baby Chicks—Now booking orders for spring delivery. White Leghorn and Anconas, also custom hatching. Wilmar Hatchery, San Gabriel, Cal.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Rural 1, Sonoma, Cal.

S. C. Rhode Island Red and Ancona Baby Chicks and eggs from bred-to-lay finely colored stock. Imwood Poultry Farm, Box 192, Folsom, Cal.

Wedgewood Poultry Plant. No better White Leghorn mountain baby chicks, as my hens are bred for vitality and productiveness. Dutch Flat, Cal.

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Extra Quality White Leghorn Chicks 12c each until March 1, then 10c. Carefully line bred from MacFarlane, Young, Cynhers and Martin strains of foundation stock. Eggs $1.50 per 15, $2.50 per 30, $5.00 per 100, $50 per 1000. Acres of free range connected with our breeding pens, 20,000 feet under roof. Only Jubilee incubators used, disinfected every hatch. Don't save 2c per chick in buying and lose a dollar per pullet in raising, get the best and succeed. Newton Poultry Farm, Dept. 3, Los Gatos, Cal. Catalogue free.

Roofden Ranch Chicks are well hatched from first class utility breeding stock; money making egg producers our aim, and the prices are right. 7 to 14c, depending on breed, month, quantity (dozen to thousands). White, Buff, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks. For Dollars and Sense. Send card for circular. Roofden Poultry Ranch and Hatchery, Campbell, Cal.

The J. K. Bigelow Poultry Ranch and Hatchery, 300 acres devoted to superb vigorous selected White Leghorns. The greatest egg farm in the West. Bigelow chix are incomparably superior to the product of commercial hatcheries. Price same as former seasons, 10c each till April 1, 9c during April and May, 8c thereafter. Shipped on approval; examination before paying. The Bigelow Poultry Ranch, R. R. No. 2, Sonoma, Sonoma Co., Cal.

Farmers, sell your scrub stock and order some thoroughbred White Leghorn or Rhode Island Red Chicks from us. Leghorns $10 per 100, Rhode Island Reds $12.50 per 100, from March 20 to July 1. Brooke Farm (Rancho Del Paso), Office 807 J Street, Sacramento.

Baby Chicks and Eggs for Hatching from pure bred McFarland strain of carefully culled and Hoganized stock; bred-to-lay S. C. White Leghorns. Write for folder of prices and terms. Sonoma Valley Hatchery and Poultry Ranch, R. F. D. 2, Sonoma, Cal. Box 48.

Baby Chicks—Hatching Eggs. White, Buff, Brown Leghorns, R. I. Reds, Barred Rocks; sturdy chicks from well mated fowls. Prompt, efficient service. Write for circular. Campbell Poultry Ranch, Campbell, Cal.

Baby Chicks and Eggs for Sale—Hoganized Cyphers strain of Barred Rocks and McFarland strain of White Leghorns. I. B. Williams, Route "B", Box 13, Kingsburg, Cal.

Blue Andalusian and Blue Orpingtons—Finest Blues on the coast. Stock and eggs for sale. Write for prices. J. R. Huddleston, 342 Edgeware Road, Los Angeles, Cal.

Baby Chicks from select free range White Leghorn stock. Place orders now for early delivery. Prices on application. Western Hatchery, Petaluma, Cal. W. S. Waldorf, Proprietor.

Eggs for Sale—Thoroughbred Leghorns, E. B. Young strain, bred to lay. None better anywhere. Also Anconas and Mammoth Bronze turkey eggs, from fine stock. Rives Ranch, Burbank. Phone Burbank 11.

Black Leghorns—Eggs for hatching from prize winning stock; can supply in limited quantity only. Write for information. Otto Nielsen, Rt. E, Box 287, Fresno, Cal.

200-290-Egg Rocks, Reds, Leghorns, Wyandottes, Anconas; breeders, eggs, chicks; surprisingly reasonable considering quality. $3-$10 profit every hen. Hundreds satisfied customers. C. Beeson, Pasadena, Cal.

White Rocks—Fine show record. Hens, pullets, $1.50, $2.00. Cockerels $3.00 up. Eggs $2.00 setting up. Ancona eggs $1.25 setting. E. H. Leonard, 318 E. Kelso, Inglewood, Cal.

Barred Rock Cockerels for Sale. Fine selection, thoroughbreds, Choice eggs for hatching. Price consistent with this class stock. F. H. Wier, San Ysidro St., Bell, Cal.

Selected S. C. White Leghorn and Barred Rock eggs for hatching, from hens typed to lay 200 to 260 eggs per year each. $6.00 per 100, $1.50 for 15. Jay Maxwell, Madera, Cal.

Baby Chicks—White Minorcas and Golden Buff Leghorn. Two popular breeds. Cockerels for sale. Sandridge Hatchery, Kerman, Cal.

Earl E. Sanders, Modesto, Cal., breeder of M. B. Turkeys, S. C. White Minorcas, S. C. Black Minorcas and S. C. Barred Plymouth Rocks. Nothing but the best.

Choice White Minorca Hatching Eggs—America's finest breed. Mating list free. Leech Poultry Yards, 1170 West 37th Place, Los Angeles, Cal.

Pure Bred White Rocks, White Leghorn chix, quackless White Muscovy ducklings, Embden goslings. White Star Hatchery, Kerman, Cal.

Incubators—Essex Model Incubators at factory prices. Write Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco. Poultry supplies.

Eggs for Hatching—Blue Orpingtons, Partridge Rocks, Rose Comb Rhode Island Reds and Silver Laced Wyandottes. Tribble Nurseries, Elk Grove, Cal.

Shade for Chicken Yards—Black Walnut trees, 4 ft., 15c; 6-ft., 20c; 8-ft. 25c. Keep them cool this summer. Pioneer Nursery, Dept. 6, Monrovia, Cal.

For Sale—S. C. White Leghorn Chicks and hatching eggs. Monitor Egg Ranch, R. 1, Box 211, Inglewood, Cal.

Write for Free Catalog pertaining to Rhode Island Reds. J. M. Hacock, Fresno, Cal.

Chicks For Sale at C. A. Gray's Hatchery, Lemoore, Cal. Brown, White Leghorns, 10c.; Anconas, Rocks, Reds, 12½c.

Turlock Hatchery—Baby chicks. A chick that will live. Turlock Hatchery, Turlock, Cal.

Silver Campine Setting Eggs. Utility stock, $2.00 for 15. B. W. Taynton, 3022 Shattuck Ave., So. Berkeley, Cal.

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10 Acres, irrigated, 4-room house and barn, chicken houses, 2 miles out, $2000. 30 acres, irrigated, checked, nearly new cottage, 40x52 barn and tankhouse, with concrete floors, other outbuildings, fenced hog tight, $6500. 80 acres, on Highway, 2 miles out, very level, for alfalfa, corn, rice, $10,000. 145 acres, on river front, nothing better anywhere for walnuts, prunes, etc., 55 acres alfalfa, complete dairy, electric light and power, subdivision 1 mile selling at $250. My price $125 per acre. 640 acres, level and rolling, house and barn, finest soil for almonds, lands nearby selling at $75 and $100. My price $30 per acre. 720 acres in foothills, 15 miles from R.R., easy auto and stage road, 150 acres has been plowed, 35 acres alfalfa, 3000 cords of wood in large trees, no brush, 7 room house, barn and other outbuildings, windmill, garden and some fruit. A pretty and very cheap place at $15 per acre. JOHN C. MOGK, Colusa, Cal.

For Sale—320 acres fine sandy loam soil, 5 miles northeast of Modesto, 1¼ miles directly south of Riverbank in Modesto Irrigation District. Average yearly water costs less than $1.00 per acre. Land suitable for alfalfa, grapes, deciduous fruits or farm trucking. Will sell as whole or in 20-acre tracts. Average price $150 per acre. Special inducements to possible purchaser of entire tract. Will make suitable terms to parties buying for improvements. B. F. Kierulff, 757 S. Los Angeles St., Los Angeles.

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In the course of my business of making appraisements of farm land, I have inside information regarding a piece of reclaimed river bottom silt which can be bought right and on terms. No irrigation has ever been required to mature first class bean crops on this property. Government test. It produced as much as 35 sacks to the acre last season. For further information write APPRAISER, Box 25, California Cultivator, 112 Market Street, San Francisco.

Wanted—Farmers, orchardists, live stock men to use classified liner advertisements like this. Thousands of people read every ad, and the cost is only 3 cents per word per issue, **minimum 35 cents.** Extra lines of white space above and below cost only 16 cents per line.

For Sale—80-acre improved foothill ranch, 12 miles east of Porterville. 30 acres citrus land now in wheat; 15 acres alfalfa land; hog fencing; pasture; timber; river; railroad adjacent. Modern new house (furnished if desired), gas plant, furnace, etc. Five outbuildings; implements; live stock. Nothing delapidated. Ideal place for country life. Sacrifice $25,000. $17,000 will handle. Address New, Box 3, California Cultivator.

Oregon & California Railroad Co. grant lands. Title to same revested in United States by act of congress dated June 9, 1916. Two million three hundred thousand acres to be opened for settlement and sale. Power site, timber and agricultural lands. Containing some of best lands left in United States. Large sectional maps showing lands and description. Price $1.00. GRANT LANDS LOCATING CO., P. O. Box 610, Portland, Oregon.

Buy Good Land Cheap—Seven sections, all in cultivation, being farmed now, two sets of improvements, all fenced for cattle; good grain or cattle ranch; 24 inches rainfall. Irrigating water for one section. No alkali or hardpan; near R.R. Location, Central California. Price $150,000. $50,000 cash, balance 5 years 6 per cent. C. G. Paul, Chamber of Commerce Bldg., Los Angeles Cal. (Loans).

100 Acres Good Land, three miles S. W. from Shafter. Well, pumping plant, small house, barn and tool house. 40 acres fenced, leveled and checked. $4000 for quick sale. ¼ cash, balance 6 years at 6 per cent. Owner G. W. Squire, Angiola, Cal.

For Sale or Trade for cheap Southern California property, 5 acres set to trees, mostly bearing, plenty of berries, good buildings. Price $5000. 3 miles from Hemet. F. W. Henley, Hemet, Cal.

Up-to-Date Poultry Plant—Near Laveaga Park. Write owner for particulars. No agents. Address Box 595, Santa Cruz, Cal.

Placer Co., 20 acres fine fruit and poultry land. Cost $1500. Sell cheap on terms or exchange for small improved place or poultry. Box 203, St. Helena, Cal.

Free New Blue Booklet—State, government and Indian lands. Bargains overlooked. Joseph Clark, Sacramento.

Write for List of ranches and homesteads. Low Priced Lands Company, Carmel, Cal.

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AAA—Lumber, New and Second-Hand; rough, $10 M; finished, $15 "A"R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St., San Francisco, Cal.

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Contour Tree Staking, pumping plants, pipe lines, flood control and conservation. Bennett & Duling, Engineers, 1125 Central Bldg., Los Angeles, Cal.

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Indian Runner, Mammoth Pekins and White Muscovy ducks. Toulouse geese. Breeding stock and hatching eggs for sale. Also White Leghorns, Barred Rocks, R. I. Reds. Beaver Grove Poultry Farm, St. Helena, Cal.

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Free for Six Months—My special offer to introduce my magazine, "Investing for Profit". It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

Second Hand Pipe For Sale—All sizes standard water pipe and screw casing, half inch to ten inches. Also valve and fittings. Guaranteed good as new. Cheap for cash. Write for our prices. Weissbaum Pipe Works, 169 Eleventh Street, San Francisco.

Desire to Hear from parents on ranch in Southern California who will pay $50 month for music instructions. Daily lessons, pupils five to 16 years. Best equipment. References. Address 2727 Regent Street, Berkeley.

Buy Fish at Wholesale—World's famous salmon in brine—100 lbs. net $6.50, herring in brine 25 lbs. net $1.50, 20 lbs. smoked salmon $2.50, 20 lbs. net salmon bellies in brine $2.50. T. A. Beard, 4322 Winslow Place, Seattle, Wash.

Study Telegraphy, Stenography, Bookkeeping, Law, English. Board, room and tuition may be earned. Catalogue free. Mackay Business College, 911 Main St., Los Angeles.

Reward for Information of whereabouts of C. H. (Harley) Anderson, wanted in settlement of estate. Address H. O. Anderson, 205 N. Flower St., Los Angeles.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St. San Francisco.

For Sale—300,000 four-foot redwood grape stakes; first class. Rolla Bryant, Jr Rio Dell, Cal.

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Material guaranteed. Save half. Why buy new? It's second-hand after used few times, but not necessarily worn out.

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8-ft. windmills, $21.50; 10-ft., $29.50; 12-ft., $45 to $55; 16-ft., cost $250, for $125; 1000-gal. new galv. tanks, $29.50; 2000, $39.50; 600-gal. used galv. tank, $14; 4000 redwood tank, $32.50; 8000, fine shape, $60; 100,000-gal. fine 3-in. redwood, $400; wagon tank, $38.

ENGINES PUMPS PIPE

Most all sizes—in good shape.

CENTRIFUGAL PUMPS—2-in $24; 3-in., $35; 4-in., $45; 5-in., double runner, $95; all size plunger pumps, $5 up; new pump jacks, $12.50; double-acting No. 2 Ames deep well pump, $125; No. 3 Ames pumps, 30-in., $150 cost $660; fine Means double-acting deep well pump, $350, pumps 50 inches; fine heavy duty Stearns straight lift jack, $95, cost $215.

HALF PRICE—BRASS CYLINDERS—ALL SIZES

Plunger rods, pipe, pipe fittings.

RANCH MACHINERY SUNDRIES

Walking, riding plows, $15 to $22.50; fine 2-gang large mouldboard plow, $45; 3 or 4-gang disc tractor plow, $55; alfalfa renovator, $28; manure spreader; another fine BULL TRACTOR, $350; new Samson tractor, $550 on cars Thermal; steel cable, 5c; cement mixer, $35; sprayer, $19.50; mowers; buck rake, $25; fine horsepower baler, $75; 250 feet 7-in. irrigating pipe, 16½c; bone grinder, feed cutter, 1000 feet 4-in. riveted pipe, 9¾c.

STEAM BOILERS, ENGINES

8, 20 and 80-h. boilers, steam compressor; 3x8 Gould compressor, $27.50.

Buy first class material. No junk wanted. Pioneers in our line. Trade us your machinery and little cash for what you need. DEMMITT CO., UPSTAIRS, 120 N. MAIN, LOS ANGELES.

Several New and Slightly Used Engines at a bargain. Best makes. 1 to 35 horsepower. Arnott & Company, 112 South Los Angeles St., Los Angeles.

WANTED

Wanted—Man in each California county to represent established California company. Should have rig or auto to get around. Good pay and several weeks' work to right parties. Address J. H. Yetter, Sales Department, 810 Santa Marina Building, 112 Market St., San Francisco, Cal.

Wanted—Salesmen owning auto, to call on farmers to sell silos and other farm requirements. Address D. O. Lively, 215 Hobart Bldg., San Francisco.

Partnership—Advertiser with fine poultry ranch, stock and market, wants partner with capital. Give full particulars. Box 203, St. Helena, Cal.

Wanted—Lowest price on 2000 to 3000 Citrus Trifoliata Seedbed Stock. Give size, age and condition. Address Box B, Cultivator office.

TURKEYS

GIANT BRONZE TURKEYS

Let me tell you how to make more money on turkeys. Large turkeys can be raised at practically the same cost as small ones. It is in the strain. By scientific cross-breeding I have developed a strain of turkeys which mature rapidly and attain unusually large size by holiday time. You can introduce some of this blood into your flock and make money by it the very first year. Gold Nugget strain wins again. At Pacific Coast largest shows, 1916, the California and Arizona State Fairs and San Diego, also the great Los Angeles Show 1917, eleven prizes, eleven entries. Stock and eggs from my flock should put you in the Giant Bronze Turkey lead in your locality. Toms for sale, also eggs. Write for circular. Raised on 320-acre farm. Address J. Will Blackman, 607 East Third St., Los Angeles, Cal.

PATENT ATTORNEYS

Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS".

SEEDS AND PLANTS

Free 1917 Planting Guide and Pure Seed Book! 96 pages. Handsomely illustrated in many colors. Describes latest, best varieties vegetables, flowers, field crops, fruits, shrubbery, etc. A dictionary on gardening! Flower lover's delight! Field crop guide! An orchardist's manual! Berry grower's book! A postal gets it. Don't buy seeds until you read it. Galloway Bros. & Co., Pure Seed Specialists, Waterloo, Iowa.

• • SEEDS • •

Don't You Want pure home grown seeds? Of course you do. Ours are all tested and are good enough for anybody. Prices, information, samples, etc., upon application. Write, wire or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

• • MAKE OUR SEED YOUR SEED • •

• • ALFALFA SEED • •

As has been our custom in the past, we are offering alfalfa seed both retail and wholesale. This is tested stock and up to our usual high standards. Samples, prices, etc., on application. Wire, write or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

• ALFALFA SEED OUR SPECIALTY •

Alfalfa Seed — Common variety and smooth Peruvian, good quality, excellent color, high germination test, grown in Arizona under ideal conditions. Do not buy until you have compared my samples and prices with seed others offer. E. F. Sanguinetti, Yuma, Arizona.

Giant Winter Rhubarb Plants. Big profits. From ⅝ acre first season after planting I sold 675 boxes rhubarb, receiving $673.70. Grand prize San Diego Exposition. Big discount on plants for prompt orders. Booklet Free. W. A. Lee, Covina, Cal.

Berry Plants—Delivered Free. Saint Regis Everbearing red raspberries bear first year. Seventy cents dozen; $4.00 100 red. American Beauty Everbearing Strawberries, Magoons or Ettersburgs, 70 plants, $1.00; 500, $3.00; 1000, $5.00. Brown Berry Ranch, Capitola, Cal.

Alfalfa Seed—There is a great difference in the different strains of Common Alfalfa seed. Send us your address for sample and our low price and we will tell you just how our seed is selected and why. Bomberger Seed Co., Modesto, Cal.

Old Fashioned Spring Blooming Shrubs: Lilacs, Bridal Wreath, Golden Bell, Weigelias, Deutzias, Spireas and many others. 6 of them, all different, delivered to express company for $1.00. Pioneer Nursery, Dept. 6, Monrovia, Cal.

ALFALFA SEED
Leo Turner, Yuma, Arizona

Strawberry Plants, Brandywine, Klondyke and Winner. The Winner plants the finest for home markets. Plants best I ever offered. 12 years in business. E. H. Learned, Route 1, Burbank, Cal.

Alfalfa Seed—Tested, good as the best grown at the Garrison Sub-irrigated Seed Ranch. None proven better, $14 per 100 by ton. $16 in 160-lb. lots or over. H. S. Garrison, Murietta, Cal.

Cory's Mammoth Thornless Blackberries. Orders are being booked now for February delivery. Prices and other information upon application. Ekstein Nursery Co., Sole Distributors, Modesto, Cal.

Florida Sour and California sweet seedling orange seed from cultivated Florida and California groves. Order early. Milo Hunt, Whittier, Cal.

Mr. Alfalfa Grower—Permit me to send you samples and prices of alfalfa seed; common and Peruvian. Best seed at lowest prices. O. C. Nordahl, Bard, Cal.

Ever-blooming Choice Roses 12 for 50 cents postpaid. All will bloom this summer. Kavan Nurseries, San Bernardino, Cal.

Alfalfa Seed—The very best, guaranteed 16c. Wm. Stuthman, 1239 West Pico St., Los Angeles, Cal.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

Wagner's Giant Crimson rhubarb roots, $2.00 per 100, 5c each, small lots. Currier Bulb Co., Seabright, Cal.

Strawberry Plants—Everbearing. Northern grown, strongly rooted. Price list free. F. I. Moffet, Ellensburg, Wash.

For Sale, Avocado Seed. J. H. Walker, 1547 Los Palmas Ave., Los Angeles.

MONEY TO LOAN

Money on Hand at all times, for good loans, on Improved Farms, Land, City Property, Business Blocks, Bungalows, to pay off mortgages, or for building loans. I deal with the largest mortgage companies in the United States, who have loans from San Diego to Seattle, and as far east as New York, also with the best companies on the Pacific Coast. Inventions financed. Send full information and legal description. C. G. Paul, 407 Chamber of Commerce Bldg., Los Angeles, Cal.

AGRICULTURAL IMPLEMENTS

Large Assortment Slightly Used and agents' sample plows, harrows, cultivators, wagons. Call and see them before buying. Save 50 per cent on some. Four floors. Largest stock. Arnott & Company, 112 to 118 South Los Angeles St., Los Angeles.

FARMS WANTED

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis Minn

Wanted—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

DOGS

For Sale—Ten English bloodhound puppies, $10.00 if taken when weaned. Both sire and dam registered in A.K.C., also pups 6 months old for $20. M. A. Watson, Lucerne Valley, Cal.

The Hueneme local of the California Lima Bean Growers Association has endorsed the new contracts and expects to pool its entire 1917 crop through the state association.

Household Department

THE WISE FARMER

There was a man in our town
  And he was wondrous wise,
He knew that if he wanted crops
  He'd have to fertilize.

"It's nitrogen that makes things green,"
  Said this man of active brain;
"And potash makes the good strong straw,
  And phosphate plumps the grain.
But it's clearly wrong to waste plant food
  On a wet and soggy field;
I'll surely have to put in drains
  If I'd increase the yield.

"And after I have drained the land
  I must plow it deep all over;
And even then I'll not succeed
  Unless it will grow clover.
Now acid soils will not produce
  A clover sod that's prime;
So if I have a sour soil,
  I'll have to put on lime.

"And after doing all these things,
  To make success more sure,
I'll try my very best to keep
  From wasting the manure.
So I'll drain, and lime, and cultivate.
  With all that that implies;
And when I've done that thoroughly
  I'll manure and fertilize."

—Alfred Vivian.

A GARDEN STORY

Written for California Cultivator
By Doris Woodworth

THE Millers had come from the city with lots of love for the country and bought a small ranch, with good soil, in a small valley. They did not have a great deal of money. When they had bought the necessary stock and farm implements they had a small debt on their ranch, but they were young and ambitious and determined to make the ranch pay.

Mr. Miller wanted to put all their time and money into such things as would bring money back, and Mrs. Miller wanted to plant ornamental trees and shrubs around the house and have flowers to beautify the place. They discussed it from every side until he saw it would give her so much pleasure—and she would have so few pleasures that she had been accustomed to—that he consented to help her if it didn't cost much.

They first laid out a nice driveway with a sweeping curve around the side of the house to the barn, and he hauled gravel from a nearby creek to make it. They put a lawn in front of the house, and he decided that was enough. She didn't say anything but

Let the Wife Do It
It's easy with good tools for the wife to grow a good garden of her own.

she was determined to complete the picture she had in mind, so she went around to all her neighbors and asked for slips from all the different kinds of shrubs she could get, and planted a border on one side of the yard, with some of the old fashioned perennials in front, and such plants that when established would take very little care, for she knew in the busy time of the year she wouldn't have much time to give them. She sent cards out and got seed catalogues from different seed firms she saw advertised in the papers, and these were a great help to her. She grew some fine California pepper trees from seed. Back of the house she planted weeping willow trees that grew from little whips she had broken from a tree by the roadside on her way home from town.

Every year she planted a few trees in some out of the way, unused place.

One year hard times came and everything they had to sell was cheap. Their little boy was brought home from school with an injured eye. Their home doctor did all he could for them, but he could not see. He had to be taken to the city for an operation. They felt that they must give the boy every chance to save his sight, but they had no money, and, owing to the hard times, the banks were lending very little money on real estate.

With very gloomy faces they asked the president of the bank for a loan. He said, "As you know we are not lending much money on ranches now, but as your place is one of the show places of the valley I will see what I can do. One of the directors was telling me the other day that when he has company he always drives them past your place. It is like a picture you see of country homes. That's a fine background of trees for the green and flowers in front. I shall never forget going past there last spring when that lilac hedge was in bloom." He gave them the loan and wished them success with the boy.

Mr. Miller had a very thoughtful look on his face all the way home, and when he got in sight of the ranch he took a long look. He had been so busy and not being interested in ornamental trees he had not noticed how quickly those trees had grown up, and he

Bursting buds,
Shedding duds,
Setting spuds,
Spring.

Powerplus—the Master of the Steep Hills

Swift as a bird, without protest, clean as a whistle, you take on high gear the high hill ahead when you ride a 1917

Indian Motocycle
With Powerplus Motor

This speedy, powerful machine gives you access to the world at large, takes you where you elect to go at low cost, in the hammock-like comfort of the *patented*, exclusively Indian *Cradle Spring Frame*—the world's greatest shock-absorber.

Indian Powerplus is the fastest, most powerful, cleanest, most accessible, quietest, most enduring motorcycle motor in the whole wide world. Other 1917 Indian models: Light Twin, Side Car, Electrically Equipped and ten other model Bicycles. 1917 Indian Catalog sent anywhere.

HENDEE MANUFACTURING CO., 832 State Street, Springfield, Mass.
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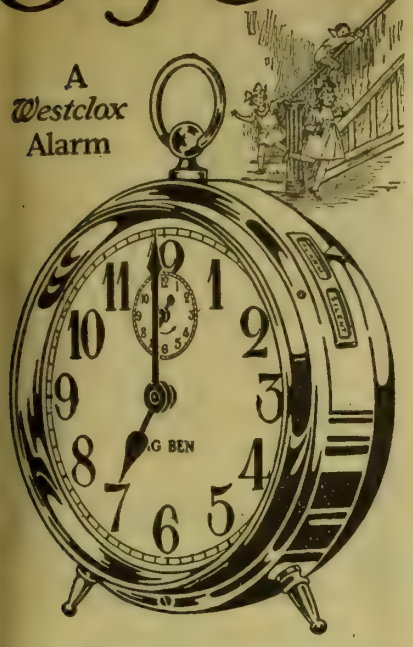
California Distributors for
Indian Motorcycles, Bicycles, and Sidecars
Accessories and Supplies
924-26 S. Main, Los Angeles 1038-40 Market, San Francisco

Big Ben

A Westclox Alarm



SEVEN A. M.—BIG BEN at his best—opening little folks' eyes—there's a race to hush him—a pillow battle—merry laughter—and mother to tidy the kiddies for school.

For the rising generation there's no better get-up. Big Ben's little men bubble health and cheer, and they feel as big as Daddy with a clock all their own.

He gets 'em to school long before the last gong and this habit lingers when the children grow up.

You'll like Big Ben face to face. He's seven inches tall, spunky, neighborly—downright good.

At your jeweler's, $2.50 in the United States, $3.50 in Canada. Sent prepaid on receipt of price if your jeweler doesn't stock him.

Western Clock Co.

La Salle, Ill., U. S. A. Makers of *Westclox*

Other Westclox: Baby Ben, Pocket Ben, Bingo, America, Sleep-Meter, Lookout and Ironclad

They Fit and They Last-

Mayer

HONORBILT WORK SHOES

Ask your dealer for Mayer Shoes. Look for the trade-mark on sole.

F. Mayer Boot & Shoe Co.
Milwaukee, Wis.

Dr. Isaac Thompson's **EYE WATER**

strengthens weak, inflamed eyes, and is an ideal eye wash. Good since 1795. Keep your eyes well and they will help keep you.

25c At All Druggists or Sent by Mail Upon Receipt of Price

Write for our Booklet. It is FREE

JOHN L. THOMPSON SONS & CO.
159 River St., Troy N. Y.

Those who do not read the advertisements in the California Cultivator will miss a lot of useful information.

said, "That was a good investment for us today, Mary." She did not answer but she had a look on her face that said, "I told you so."

You never put a single improvement on your property, but it pays in the end, no matter how great or how small it may be.

MY GARDEN IN THE IMPERIAL VALLEY

Written for California Cultivator
By Mrs. John Norton

MY garden in the Imperial Valley has reached the interesting stage where fresh vegetables may be picked for the table without appreciably diminishing the supply.

Though conditions here invite vegetable growing, and it is done on a large scale by market gardeners, comparatively few ranchers or town dwellers have their own kitchen gardens, and I have been particularly interested in demonstrating that a small garden may be made to pay. There is much satisfaction in supplying my vegetable-loving family with my own crisp lettuce and radishes, succulent greens, and peas that are sugar sweet, but greater than this is the benefit that has come to me from the work in the open air among the young growing things.

The garden plot is approximately 40 by 60 feet, and in it I am experimenting with a dozen or more varieties of vegetables. Peas of the Stratagem and Yorkshire Hero variety, planted in November, are in bearing, and the vines are covered with an abundance of bloom that promises a heavy yield later. Successive plantings of New York Head lettuce and White Icicle radishes have proved satisfactory. Beets have been quick to respond to the care given them, and carrots, turnips and cabbages are thriving beyond my expectations. White Bermuda onion seed, planted in October and November, has given me a quantity of small green onions for the table, besides furnishing enough for transplanting to grow the mature onions. These I expect will be ready to harvest in May and June.

My hot-bed promises a good supply of eggplants, tomatoes and sweet potatoes.

It is my plan to can the surplus peas or other vegetables I may have which are suitable for canning.

Each of my 20 rows is numbered and divided into sections for successive plantings. Numbered and lettered stakes mark the divisions. In my garden account book I have a complete diagram of the garden, with the date of each planting. This shows at a glance the record of every row. My rule has been to make frequent small plantings to lengthen the season for each vegetable as much as possible. In planning my garden, special attention was paid to securing proper drainage. This is of greatest importance.

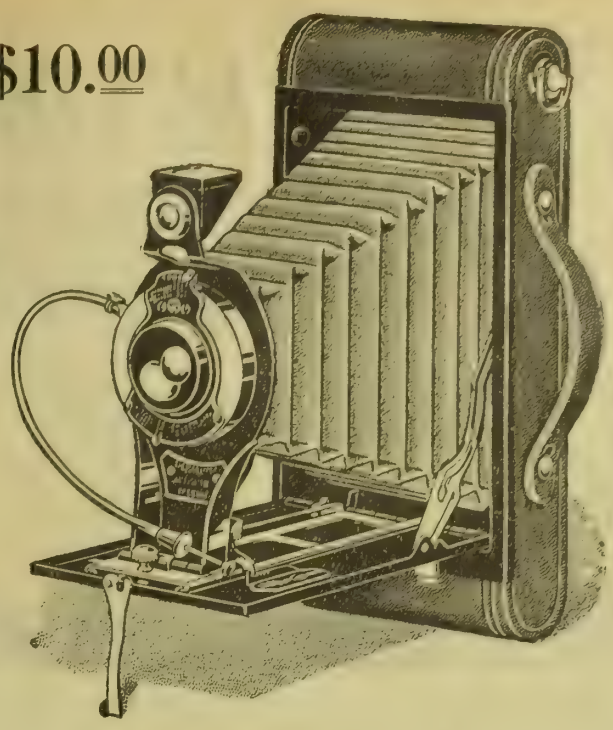
The seasonable gardening advice in the California Cultivator has proved most useful, and a careful study of California Vegetables, has saved me many discouragements. Last year's gardening, which was less systematically done, also taught me much.

The work was done principally in the glorious early morning hours with the larks and mocking birds singing a gay chorus about me.

Tired muscles meant rested nerves, and the exchange was gladly made. It interested me to see the spectacular manner in which my beans made their appearance in the world, and the countless little daily happenings of my garden were watched with the keenest pleasure.

My garden has paid me many times over for the effort it has cost.

$10.00



The New Model 3A BROWNIE

Here is a new camera for pictures of the post card size, (3¼ x 5½ inches). Manufactured under experienced superintendents by skilled mechanics with whom honest workmanship has become a habit, it has quality. Designed by the men who have helped to simplify photography, manufactured in the largest, best equipped and best organized camera factory in the world it has been possible, through quantity production combined with high efficiency, to produce this camera of real quality at a low price.

It has the new Brownie Ball Bearing shutter, with cable release, having both time and "bulb" actions and snap-shot speeds of 1/25, 1/50 and 1/100 of a second and is equipped with Kodak Autotime Scale as an aid to correct exposure.

Loads in daylight with ten, six or two exposure cartridges, has automatic focusing lock, reversible finder, two tripod sockets, genuine leather bellows, is constructed of metal throughout and is covered with a durable and attractive imitation leather of the finest quality. With its black enamel fittings it is a handsome as well as an efficient camera.

It is autographic, of course, all of the folding Brownies and folding Kodaks now incorporate this valuable feature by which you can date and title each negative *at the time of exposure.*

THE PRICE.

No. 3A Folding Autographic Brownie, meniscus achromatic lens, $10.00
Do., with Rapid Rectilinear lens, ... 12.00

All Dealers'.

EASTMAN KODAK COMPANY,
473 State Street, ROCHESTER, N. Y.

Worn Out Soils Made Productive

by using

Hauser's Organic Fertilizers

Science and practice both indicate that Nitrogen and Phosphoric Acid are necessary to produce the best results from the Citrus Orchards, and these two essentials are most prominent in organic fertilizer. Hauser's Organic Fertilizer is a concentrated soil builder and fruit producer. Put back into the soil at least a portion of the natural elements the orchard has taken out.

Home Products

Send for booklet "Good Reasons," tells you why "Natural Fertilizers" fertilize and return you many times the money spent for this unexcelled plant and tree food.

HAUSER PACKING COMPANY, Los Angeles

Home Phone 10336 *Bdw. 5600*

APOLLO ROOFING

Fireproof, weatherproof, strong, rigid, durable—specially adapted to the construction of farm buildings. Formed from APOLLO-KEYSTONE Copper Steel Galvanized Sheets.

APOLLO-KEYSTONE Sheets are the most satisfactory, rust-resistant sheets obtainable for Roofing, Siding, Culverts, Tanks, Silos, Cisterns and all exposed sheet metal work. Look for the Keystone added below regular Apollo brand—it indicates that Keystone Copper Steel is used. Demand the genuine—accept no substitute. Sold by weight by leading dealers. Our free booklet "Better Buildings" contains building plans and valuable information. Send for copy today.

AMERICAN SHEET AND TIN PLATE COMPANY, Frick Building, Pittsburgh, Pa.

Pacific Coast Representatives: United States Steel Products Co., San Francisco, Los Angeles, Portland and Se

BLASTING Made my trees grow twice as fast

Three-year cherry trees, same size when planted, in orchard of Herman H. Smidt, R3, Oregon City, Ore. That at left in soil blasted with Eureka Stumping Powder; that at right in dug hole. Illustrations reproduced from photographs taken February 14, 1916.

"The trees that I planted in blasted ground show a growth of 75 to 100 per cent. over the trees that were planted in ground not blasted," says Mr. Smidt. "They also appear healthier and more satisfactory in every way. I have just bought 1,100 more prune trees and would not think of planting them without preparing the ground with

GIANT FARM POWDERS
STUMPING — AGRICULTURAL

Hundreds of fruit growers have found, like Mr. Smidt, that the Giant Farm Powders—Eureka Stumping or Giant Stumping—are the proper explosives to use in tree planting. They pulverize the soil for several feet in every direction, instead of caking and packing or throwing it high in the air.

Be sure your dealer supplies you with the *genuine* Giant Powders and blasting supplies, made especially for Pacific Coast conditions. If you do not know where to get them, we will see that you are supplied.

Five Valuable Books FREE We issue five valuable illustrated books—on Tree Planting, Stump Blasting, Boulder Blasting and Ditch Blasting. Mark on the coupon the books that you prefer.

THE GIANT POWDER CO., Con.
Home Office: San Francisco
"Everything for Blasting"
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FREE BOOK COUPON
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212 San Francisco
Send me your illustrated books on the subjects which I have marked X.
- ☐ Stump Blasting
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- ☐ Tree Planting
- ☐ Ditch Blasting
- ☐ Subsoil Blasting

Name .....
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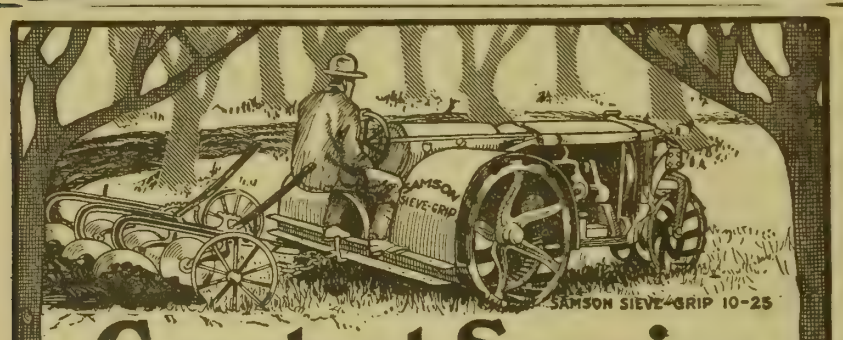
Write below your dealer's name.



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Constant Service SAMSON SIEVE-GRIP

Pat. and Reg. U. S. and Foreign Countries

TRACTORS

will stand by you in the rush season, and all the year 'round. Their steel construction, dust-proof qualities, over-size bearings and thorough lubrication insure constant service at low cost. The world-known Sieve-Grip wheel gives complete traction---no slipping, no soil packing.

You Can Do Better Work

in the orchard and field with a Samson Sieve-Grip Tractor. Your plowing and cultivating will be easier, crops larger and expenses less. Your farming business needs a Samson Sieve-Grip. By placing your order NOW, you will get your tractor when you want it. Though the demand for Samson Sieve-Grips is tremendous, we can make deliveries on time.

Samson Sieve-Grips are built in two sizes—
10-25 at $1350 and 6-12 at $775, f. o. b. Stockton.

SAMSON SIEVE-GRIP TRACTOR CO.
Stockton, California, U. S. A.

When writing advertisers, mention The Cultivator.

FARM LOAN QUESTIONS ANSWERED

Continued from Page 243

merely to cover the interest and amortization payments, called the installments, as well as the deposits likely to be in the hands of the secretary-treasurer at any one time.

What is the judgment of the farm loan board as to compensation for the loan committee?

This depends so much on the size of the association that no fixed rule can be made. Since this is a cooperative banking system the farm loan board desires that the work as far as possible be done without expense. The board believes that in a small association it will not be necessary to pay the loan committee any fees. The board believes that in very few cases will it be necessary to pay the loan committee more than actual expenses.

What is the judgment of the farm loan board as to the compensation to be paid the secretary-treasurer?

This also depends so much upon his relative duties as fixed by the size of the association that it is difficult to name an amount. This compensation should be based upon the time actually required to perform the work of the association.

May one man, by owning two pieces of land, become a member of two associations and borrow in excess of $10,000?

He may become a member of two associations, but the total amount of his loans may not exceed $10,000.

May an association operate across state lines even if both states are in the same bank district?

No, no association may designate territory in two states in which loans can be made.

In a general way what sort of abstracts will be required? Must they be prepared by bonded abstractors, or is this a matter for the judgment of the land bank officials?

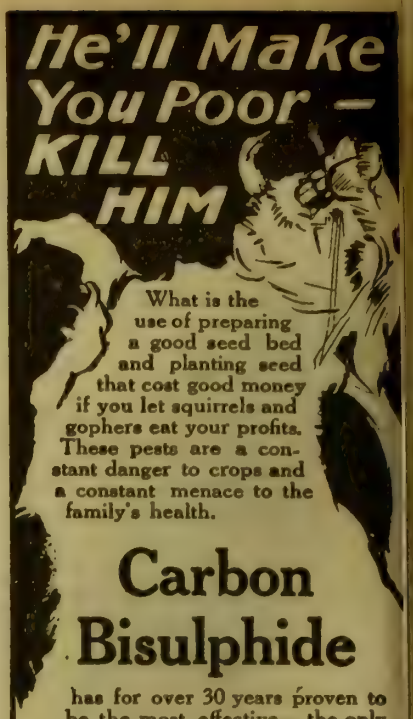
It is a matter for the federal land banks to determine. Any abstract of title sanctioned by ordinary sound business usage in the community will be sufficient under this act. The federal land banks will recognize any system of title registration approved by the law of the state in which the land is located.

DECIDUOUS EXPERIMENT STATION

President Leonard Coates of the California Nurserymen's Association sends us a letter urging support of the bill proposing establishment of a deciduous fruit experiment station in California. He writes:

"There has sprung up in the past month an organized effort to have appropriated by our state legislature, out of any state funds that may be available, a sufficient sum of money for the establishment of a deciduous fruit experiment station (to be located at some point in California best suited for experimental and research work) in relation to deciduous fruits. The movement has been inaugurated after a careful consideration of the necessity and practicability of such an institution, and the equity of the use of state money for the purpose, in the light of the importance of deciduous fruit growing as compared with other branches of California agriculture.

"Will you write your representatives at Sacramento at once, just a line, urging them to support a bill for this purpose? Please act at once: a deciduous fruit experiment station is badly needed."



What is the use of preparing a good seed bed and planting seed that cost good money if you let squirrels and gophers eat your profits. These pests are a constant danger to crops and a constant menace to the family's health.

Carbon Bisulphide

has for over 30 years proven to be the most effective—the only sure killer of squirrels, gophers, rats, prairie dogs, ants, moles, yellow jackets, moths, weevils, lice, etc. It is easy and safe to use.

Write today for interesting folder and learn how this profit saver works.

Wheeler, Reynolds & Stauffer
M-626 California Street
San Francisco California

Since 1902

Pomona DUPLEX-PLUNGER Pumps

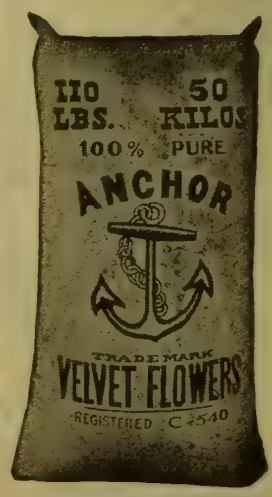
Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface. Send for catalog 115.

One Pump Will Do Your Work.
Pomona "Made Right" Irrigation Gates and Valves
PRICES RIGHT—QUALITY RIGHT
SEND FOR BOOK C.

Pomona Mfg. Co.
Pomona, Cal.

SULPHUR

Fleur de Soufre, Anchor Brand, Velvet Flowers of Sulphur and Eagle Brand.



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SAN FRANCISCO SULPHUR CO.
624 California St., San Francisco, Cal.

Los Angeles Market

LOS ANGELES, Feb. 28, 1917.

BUTTER

Wholesale prices:
Rcts. wk. ending Feb. 27, 311,306 lbs.
California extra creamery 35
Prime first 33

Extr. Cr'y Exch. past week.

Feb.	21	22	23	24	26	27
'17	37	37	36	36	35	35

CHEESE

Brokers' prices:
California fresh, lb. .....24@25
Longhorn 28
Tillamook Triplets 25

EGGS

Exchange quotations:
Rcts. wk. ending Feb. 27, 3452 cases.
Fresh extras 23½
Case count 21
Pullet 21½

Fresh Ranch Exch. past wk.

Feb.	21	22	23	24	26	27
'17	29½	29½	29½	28	26	23½

POULTRY

We quote from growers:
Broilers 32
Fryers 30
Hens 21
Roasters 23
Geese, Young 18
Ducklings, lb. 22
Roosters, old 13
Turkeys .....20@30

LIVE STOCK

CATTLE—We quote cwt. f.o.b. L. A.
Beef steers, av. 1000 to 1100 lbs..9.00@9.50
Heifers, good 8.00
Cows, good .....7.00@7.50
Fair .....6.50@7.00
HOGS—
Heavy av., 175 to 250 lbs.....11.00@11.50
Mixed, av., 150 to 175 lbs.....10.50@11.00
Light, av. 125 to 150 lbs.....10.00
Rough, docked 20 lbs.; piggy sows, 40 lbs.; stags, 40%.
We quote per cwt. f.o.b. L. A.
Prime wethers .....9.50@10.00
Ewes .....9.00@9.50
Lambs 13.00
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:
Northern 5.00
Local 4.75
Lompoc 5.00
Oregon Burbanks 4.75
Idaho Russets 5.00
Sweet, cwt. .....4.75@5.00
Seed: Early Rose, cwt. 4.75
White Rose 4.75

ONIONS

Wholesale selling price:
White Globe 12½
Brown, lb. 11
Onion Sets, Brown 20
Garlic, lb. 8

VEGETABLES

Wholesale prices:
Artichokes, doz. .....1.00@1.25
Asparabus, lb. .....40@50
Brussels Sprouts, lb. 15
Beets, doz. bunches 60
Cabbage, lb. .....6@6¼
Red, lb. 6½
Carrots, doz. 50
Chicory, doz. .....40@50
Cauliflower, doz. 1.00
Celery, cr. .....5.50@6.00
Cucumbers, Hothouse, doz.....1.50@2.75
Eggplant .....18@20
Horseradish, rt. lb. 12½
Lettuce, doz. 40
Leeks, doz. .....40@50
Mint 40
Onions, green, doz. 20
Oyster Plant, doz. 40
Peas, lb. .....12@15
Parsnips, lug 50
Peppers, Bell .....35@40
Radishes, doz. 25
Rhubarb—Crimson Winter 1.65
Romaine 50
Spinach, doz. 25
Squash—Hubbard, lb. 3
Turnips, doz. 45
Tomatoes, cr. 2.75

FRUITS

Wholesale prices:
Apples—
Bellflower .....1.50@1.65
W. W. Permain .....1.25@1.60
Newtown Pippin, Yellow .....1.35@1.50
Avocados, doz. .....5.00@10.00
Bananas, lb. 4½
Pears—Winter Nelis, lug 2.00
Pomegranates, ½ bx. 1.35

CITRUS

Navels .....2.25@2.75
Lemons .....2.00@2.50
Juice 1.50
Grapefruit .....2.50@2.75
Limes, basket 85
Tangerines, lug .....1.25@1.50

NUTS

Prices named by Cal. Walnut Growers'

Assoc.	1914	1915	1916
No. 1	16.50	13.60	15.50
No. 2	12.00	10.60	12.50
Pkgs., 16 oz. Net	.....	.....	16.50
Budded	20.00	17.00	19.00
Jumbos	18.50	16.60	17.50

HONEY

Wholesale prices:
Extr. lb. White 8½@9½c; A. 8½@9c; W.W. 10@11c; Comb. lb. W. 12½c; Lt. A., 12½@14c; W. W. 14½c
Beeswax, lb. 32

BEANS

Wholesale Prices:
Lady Washington 12.75
Limas 12.00
Pinks 9.50
Manchurian Reds 8.20
Baby Mex. 7.00
Small White 12.75
Blackeyes 6.25
Tepary 8.00
Lentils 18.00

HAY

We quote ton f.o.b. L. A. to producers:
Barley .....15.00@19.00
Oat, tame .....16.00@19.00
Alfalfa, local .....17.00@20.00
Northern .....15.00@17.50
Stock .....11.00@14.00
Straw .....9.00@11.00

GRAIN

Wholesale selling price f.o.b. L. A.
Wheat—No. 1 .....3.25
Corn—No. 2 yellow, 2.55; white.....2.60
Oats—California feed 2.80
White Oats 2.45
Standard 2.40
Texas Red 2.90
Cal. Seed Oats 2.60
Barley—No. 1 bright feed.....2.50
No. 1 dark feed 2.45
Seed 2.60
Milo 2.60
Egyptian Corn 2.40
Rye 3.25

FEED STUFF

Wholesale, cwt. f.o.b. L. A.
Alfalfa Meal 1.45
Bran, heavy 1.90
Shorts and Middlings 2.35
Alfalfa Molasses 1.50
Meat Scraps, accd. to quan.....3.20@3.30
Beet Pulp 1.60
Cracked Corn 2.60
Cracked Wheat 3.50
Cotton Seed Meal 2.40
Bone Meal 2.45
Feed Meal 2.75
Green Bone 2.25
Middlings 2.40
Oil Cake Meal 2.40
Fish Meal .....3.60@3.70
Rolled Oats 2.50
Hulled Oats 3.50
Feed Meal 2.65; Scratch Feed...3.00@3.20
Oil Cake Meal 2.40
Pigeon Feed 3.70
Chick Feed 3.70
Blood Meal 4.20
Cocoa Meal 1.85

San Francisco Markets

SAN FRANCISCO, Feb. 27, 1917.

BUTTER

Dairy Exchange quotations, lb.:
Rcts. wk. ending Feb. 26, 395,200 lbs.
Fresh extras 37½
Prime firsts 36½
Firsts 35½

Extr. Cr'y. Prod. Exch. past wk.

Feb.	20	21	22	23	24	26
'17	36	36½	..	36½	38½	37½
'16	..	32	..	32	31½	28

CHEESE

Dairy Exchange quotations:
Cal. Flats ...20@21½ Y. Am....20½@22
Ore. Trip. .....22½@23 Y. Am. 24

EGGS

Rcts. wk. ending Feb. 26, 19,236 cases.
Dairy Exchange quotations:
Fresh extras 27½
Select Pullets 26

Fresh Extr. Prod. Exch. past wk.

Feb.	20	21	22	23	24	26
'17	32	31½	..	31	29	27½
'16	..	22½	..	20½	19½	19½

POULTRY

We quote from producers, lb.
Hens, large .....25@26
Fryers, lb. .....27@28
Broilers .....29@35
Roosters, old..15@16; young.....27@28
Squabs, doz. .....3.00@3.50
Ducks .....21@23
Geese .....18@19
Turkeys, live .....22@24
Belgian Hares, live 13@15; dr.....17@18

LIVE STOCK

Prices gross weight:
Cattle:
Steers, lb., 7½@9¼, cows and heifers, 5¾@8; calves, 6½@9.
Sheep:
Wethers, 10@10½; shorn, 1½@2c less; ewes, 9@9½; lamb, lb., 11½@12½.
Hogs:
Hard grain fed, wt. 100 to 150 lbs., 10¾; 150 to 300 lbs., 11¾@12; 300 to 400 lbs., 11¼@11½; undesirable, 6@7.

POTATOES

Wholesale selling prices at wharf:
Delta .....3.90@4.25
Oregon Burbanks .....3.90@4.25
Yakima Gems .....4.00@4.10
Sweet, Cellar .....3.00@3.25

ONIONS

Wholesale selling price on wharf:
Yellow, cwt., 11.00@12.00; off grade 9@10
Jap. Yellow .....6.00@7.50
Garlic, lb. .....3@5

VEGETABLES

Wholesale selling price:
Artichokes, doz., large 60-80; small, 40-50
Celery, cr. .....3.50@5.00
Cucumbers, bx., hothouse .....1.00@2.00
Lettuce, cr. iced 1.75-2.00; uniced 1.00-1.50
Mushrooms, bx. .....40@1.00
Peas, lb. .....5@8
Rhubarb, box .....1.60@1.75
Squash—Hub., lb. .....2½@3½
Tomatoes, Mex., bx. .....2.50@3.26

FRESH FRUIT

Wholesale selling price:
Apples, bx.—Bellefleur .....60@75
Newtown Pippins .....90@1.25
Bananas, bunch .....1.00@1.50
Pineapples, doz. .....2.25@2.50

CITRUS FRUIT

Wholesale selling price:
Lemons .....1.75@3.50
Lemonettes .....1.00@2.00
Grapefruit .....1.50@2.50
Navels .....1.25@2.75
Tangerines, half orange box.....1.50@2.00

PEACH PRICES

The California Peach Growers announces price list No. 6. Please note the following advance in prices, effective Saturday, November 18, 1916, at 6 p. m. All prices are f.o.b. factories, California common points, but no orders will be confirmed by us, at the following prices, unless f.o.b. factories where grades and varieties desired are available. All quotations are subject to our approval of variety and assortment, subject to our confirmation and subject to advance without notice: November, December and January shipment.

Price list No. 5 is hereby withdrawn, and ineffective after 6 p. m. Saturday, November 18, after which time prices herein quoted shall apply.

	Yellows.	Muirs.
Standard Peaches	.06¼	.06¼
Choice Peaches	.06½	.06½
Fancy Peaches	.07¼	.08¼
Extra Fancy Peaches	.08	.08⅝
Slab Peaches	.....	.06½
Choice Peeled Peaches	.....	.09¾
Fancy Peeled Peaches	.....	.11

Above prices bulk basis.

For 50-lb. bxs., unfaced, add	⅛c
For 50 lb. bxs. faced, add	⅜c
For 25-lb. bxs., unfaced, add	⅛c
For 25-lb. bxs., faced, add	⅜c
For 10-lb. bxs., unfaced, add	1¼c
For 10-lb. bxs., faced, add	1½c

For prices on graded peaches, original, in bags, add ⅞c to the bulk basis prices above quoted.

	—Per Lb.—	
Ungraded, original bags	.07⅛	.07⅜
Choice Unpld. 1-lb. cart.	.08½	.08⅝
Choice Unpld, 5-lb. cart.	.08¼	.08⅜
Fancy Unpld, 1-lb. cart.	.09¼	.09⅞
Fancy Unpld. 5-lb. cart.	.09	.09¾
	Per Lb.	
Choice Peeled 2-lb. Cartons	.12	
Choice Peeled 5-lb. Cartons	.11¾	
Fancy Peeled 2-lb. Cartons	.13¾	
Fancy Peeled 5-lb. Cartons	.13¼	

The above prices are guaranteed against our own decline to March 1, 1917, and apply only to sales and shipments made direct to the recognized jobbing trade. No goods will be confirmed at above prices to Coast or Eastern brokers, or to speculators, it being our object to eliminate speculation in dried peaches, we preferring to carry our stock in storage here on the coast until actually required by the jobbing trade.

DRIED FRUITS

Wholesale quotations:

PRUNES—Bulk basis, per lb.: 30s and 40s, 6½c; 50s, 6⅞c; 60s, 7¼c; 70s, 7¼c; 80s, 7½c.

Other fruit, 50-lb. boxes:

	Stand-ard	Choice	Extra Fncy.	Extra Fncy.
Apples	8 c	8½c	9 c	....
Apricots	15¾c	15¾c	16 c	16⅝c
Peaches	6¾	7 c	7½c	8½c 9⅛c
Pears	8 c	8½c	9 c	10 c ....

California Associated Raisin Company's prices on 1916 crop: Package Sun Maid Seeded, 36-16s, per case, $3; package Sun Maid Seeded, 48-16s, per case, $3.95; Bakers Sun Maid Seeded, 25-lb. boxes, per box, $1.75; fancy Seeded Muscats, 36-16s, per case, $3.05; fancy seeded Muscats, 45-12s, per case, $3.15; fancy bulk Seeded, 25-lb. boxes(per box, $1.75; choice Seeded Muscats, 36-16s, per case, $2.90; choice Seeded Muscats, 45-12s, per case, $2.95; choice bulk Seeded, 25-lb. boxes, per box, $1.75. (Wood cases if desired.)

Loose Raisins in 50-Lb. Boxes

One-crown loose Muscatels, floated, per box, $4; 2-crown loose Muscatels, per box, $3.25; 3-crown loose Muscatels, per box, $3.50; 4-crown loose Muscatels, per box, $3.75.

London Layers

Three-crown London Layers, 20-lb. boxes, per box, $1.50; 4-crown clusters, 20-boxes, per box, $1.75; 6-crown Imperial Clusters, 20-lb. boxes, per box, $2.60; 5-lb. boxes, 50c additional; 10-lb. boxes, 25c additional; fancy clusters, 1-lb. cartons, 20 to case, per case, $1.85; fancy clusters, 2-lb. cartons, 12 to case, per case, $2.20; fancy clusters, 5-lb. cardboard cartons, 4 to case, per case, $2.35, bulk layers, in 50-lb. boxes, per box, $3.25; bulk layers, in 100-lb. boxes, per box, $6.25.

All f. o. b. common shipping points. Regular California dried fruit terms. Prices guaranteed to April 1, 1917. All raisins not shipped before January 1, 1917, to be paid for at that time. The company will carry the raisins free of expense to time of shipment, which must be before March 1, 1917, unless otherwise arranged.

No export rebate will be allowed.

Prices subject to change without notice.

NUTS

Jobbers' Prices:
Almonds.—Exchange opening prices: Nonpareil, 20½c; Ne Plus Ultra, 17c; IXL, 18c; Drake, 16c.
Peanuts .....5½@6½

BEANS

Jobbers' prices, cwt. recleaned:
Limas .....11.00@11.50
Bayous .....8.00@8.25
Garbanzos .....4.75@5.00
Small White .....11.75@12.00
Mexican Red 8.00
Large White .....11.50@11.75
Pinks .....8.25@8.35
Horse Beans .....5.50@6.00
Black Eyes .....6.25@6.50
Red Kidneys .....11.75@12.00
Cranberry California .....8.50@8.75

HONEY

Jobbers' prices:
Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. .....11@12
Ex. Fy. lb.....9c; Lt. A.....6@8
Beeswax .....20@32

HOPS

Prices to growers at shipping points:
Sacramento, lb. .....8@9
Sonoma .....10@12
Mendocino .....9@10
Oregon and Wash., lb. .....6@10

HAY

Scott, Magner & Miller say under date of February 24:

Receipts past week 1376 tons; last week 1617 tons. Export trade fairly good. Alfalfa remains about the same. A few cars have been brought in from Nevada of very good quality. Straw is scarce. A few carloads of rice straw arrived during the week which was of very good quality.

We quote the average wholesale price of hay in carload lots on today's market as follows, viz:

Wheat, Fy., lt. bales.....22.00@23.00
Wheat or Wh. & Oat, No. 1...20.00@21.50
Wheat, or Wh. & Oat, No. 2...18.00@20.00
Oat, Choice Tame .....21.00@22.00
Other Tame .....18.00@20.00
Wild .....17.00@20.00
Barley .....17.00@20.00
Alfalfa .....16.00@20.00
Stock .....16.00@17.00
Barley Straw No. 1.....90@1.10

GRAIN

Grain Exchange prices, cwt.
Wheat, California Club .....2.60@2.65
Wheat, No. Bluestem .....2.90@2.95
Corn, Eastern Yellow, sk.....2.20@2.22½
Corn, Egyptian White .....2.15@2.35
Oats, White Feed .....2.00@2.02½
Barley, feed .....2.20@2.25
Shipping .....2.32½@2.37½
Rye, cwt. .....2.65@2.75

FEEDSTUFFS

Wholesale prices per ton:
Bran .....29.00@31.00
Cornmeal feed .....48.50@49.50
Rolled Barley .....45.00@47.00
Cracked Corn .....48.50@49.50
Middlings .....35.00@37.00
Alfalfa Meal, carlots .....21.00@22.00
Shorts .....31.00@32.00

SEEDS

Prices in round lots, lb.:
Millet, recleaned .....3½@4
Alfalfa .....20@21
Rape .....2¼@2½
Flax .....t@6

Citrus Fruit Market

LOS ANGELES, Feb. 28, 1917.

Navels are selling a little better in the Eastern market, except in St. Louis, where a large supply of Floridas has brought down the price. Lemons are selling up to $4.50 in Philadelphia. Large size navels are meeting very good demand.

Shipments

Shipments of oranges from Southern California since November 1, 1916, 8358 cars, lemons 1849, total 10,407; to same date last year, oranges 7565, lemons 1863, total 9428. From Central California to date this season, oranges 4030, lemons 155, total 4585; to same date last year, oranges 4158, lemons 138, total 4323. From Northern California to date this season, oranges 842 cars; last year 609.

FROM THE AUCTION

February 21

New York: 15 cars nav., $2.10@3.45; 1 car lem., $3.45@3.85.

Boston: 11 cars nav., $1.80@3.20; lem., $3.10@3.70.

Philadelphia: Market higher, 8 cars nav., $2.00@2.90; lem., $3.10@4.00.

St. Louis: 7 cars, nav., $2.00@2.40; lem., $2.25@3.25.

Pittsburg: 10 cars, good demand. Oranges, $1.25@3.15; lem., $2.85@3.40.

Cleveland: 6 cars, nav., $2.05@3.25.

Cincinnati: 4 cars, nav., $1.90@2.70; lem., $2.35@3.05.

February 23

New York: 17 cars nav., 2 mixed bloods and tang., 2 lem. Fy. nav. high on large sizes. Bloods, $1.70@1.80; tang., $2.15; lem., $3.65@4.00.

Cleveland: 3 cars, nav., $2.25@2.70.

Boston: 10 cars, nav., $2.50@3.25; lem., $3.25@3.70.

St. Louis: 6 cars, nav., $1.60@2.30, lem., $3.15@3.50.

February 26

New York: 27 nav., $2.30@3.70; 7 lem., $3.05@3.80.

Pittsburg: Nav., $2.10@2.20; lem., $3.25 @3.45.

St. Louis: 10 cars, nav. slow account Floridas on market; nav., $1.40@2.25.

Cleveland: 5 cars, nav., $1.90@3.00.

Cincinnati: Three cars, nav., $2.55@2.95; lem., $2.80@3.10.

WEATHER CONDITIONS

For the Week Ending February 24, 1917

	Rainfall Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	3.54	29.31	30.58	56	38
Red Bluff	3.06	14.36	17.12	60	40
Sacramento	4.34	10.94	13.61	60	40
San Francisco	3.00	13.57	15.89	60	44
San Jose	3.78	10.50	11.36	60	42
Fresno	.58	6.20	6.29	64	40
San Luis Obispo	5.46	20.89	13.49	60	42
Los Angeles	2.76	13.24	10.60	64	44
San Diego	.94	8.38	6.88	64	48

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Send us a trial shipment. Write for price list and our beautiful 36-page book on trapping and handling furs.

All Sent Free.

E. R. Skinner & Co. 1107 24th St. Sacramento, Cal.

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Also First Class Orchard Land 10 Acres and Up.

BRENTWOOD IRRIGATED FARMS

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Easy terms of payment. For prices, etc. address

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Land Department.

350 California St. -:- San Francisco

Oakland Sensible Six

"Sturdy as the Oak"

Satisfaction

There's a lot of *solid* satisfaction waiting for you in the purchase of an *Oakland "Sensible Six."*

From the first time you ride in it, you'll find the *Oakland* really "sensible" in power, comfort, ease of handling, and operating cost.

Its valve-in-head motor delivers full 41 h. p. at 2500 r. p. m.—one h. p. for every 53 pounds of car weight.

Its big oversize tires, 32x4; long supple springs, 51 inches in rear; wide seats and ample leg room, —mean *comfort* over any roads.

Its *sensible* weight, 2150 pounds, assures fuel and tire economy.

Its excellent finish, real leather upholstery, beauty and high class equipment stamp it a quality car at a *sensible* price—$875.

Oakland Eight—$1585—is a big luxurious 73 h. p., 7-passenger touring car for those who demand the utmost in power, speed and luxury.

OAKLAND MOTOR COMPANY, Pontiac, Michigan

(52)

CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES March 10, 1917 SAN FRANCISCO

A Beautiful Olive-Bordered Avenue

$1150 F. o. b. Racine
Mitchell Junior —a 40 h. p. Six
120-inch Wheelbase

Mitchell SIXES

$1460 F. o. b. Racine
7-Passenger — 48-Horsepower
127-inch Wheelbase

How Mitchells Differ

Because of What John W. Bate Has Done

Hundreds of Extras

Factory efficiency has been made a fine art in this plant. John W. Bate, our efficiency engineer, has spent millions to attain it.

This entire plant, covering 45 acres, was built and equipped to secure it. Now our new body plant completes it. We urge you to learn where these tremendous savings show in extra value.

For a Lifetime Car

Part of this saving pays for 100 per cent over-strength. Our margin of safety used to be 50 per cent. It has now been doubled.

Steering parts, gears, axles, etc., are made oversize. Our rear springs are built so that, in two years, not a single spring has broken.

Over 440 parts are built of toughened steel. Parts which get a major strain are built of Chrome-Vanadium. The steel in Mitchells costs us up to 15 cents per pound. And we do not skimp on weight.

The result is safety, freedom from repairs and troubles. And a car which probably will serve men for a lifetime. Time will prove, we believe, that this double strength is worth half the price of the car.

$4,000,000 in Extras

There are 31 extra features in Mitchells, most of them exclusive. On this year's output these extras cost us about $4,000,000.

They are things like a power tire pump, an easy control, a ball-bearing steering gear, engine primer on the dashboard, a light in the tonneau, a locked compartment, etc.

Every one is a wanted feature. Yet they are impossible, at a modest price, without Mitchell factory efficiency.

Extras in Luxury

The Mitchell has long been considered by experts one of the handsomest cars on the street. The output is largely sold in metropolitan centers.

Yet this year we have added 24 per cent to the cost of finish, upholstery and trimming. We are giving you heat-fixed finish, extra-grade leather, and scores of new dainty touches.

TWO SIZES

Mitchell —a roomy, 7-passenger Six, with 127-inch wheelbase. A high-speed, economical, 48-horsepower motor. Disappearing extra seats and 31 extra features included.

Price $1460, f. o. b. Racine

Mitchell Junior —a 5-passenger Six on similar lines, with 120-inch wheelbase. A 40-horsepower motor—¼-inch smaller bore than larger Mitchell.

Price $1150, f. o. b. Racine

Also all styles of enclosed and convertible bodies. Also demountable tops.

All this results from another economy. We now occupy our new body plant. All Mitchell bodies, open and closed, are built here now, under Bate efficiency methods. And this added luxury clearly shows the result.

What So Important?

What else is so important?

Extra values like these, without extra price, come only through efficiency. Under other methods, all these values are wasted in the shop.

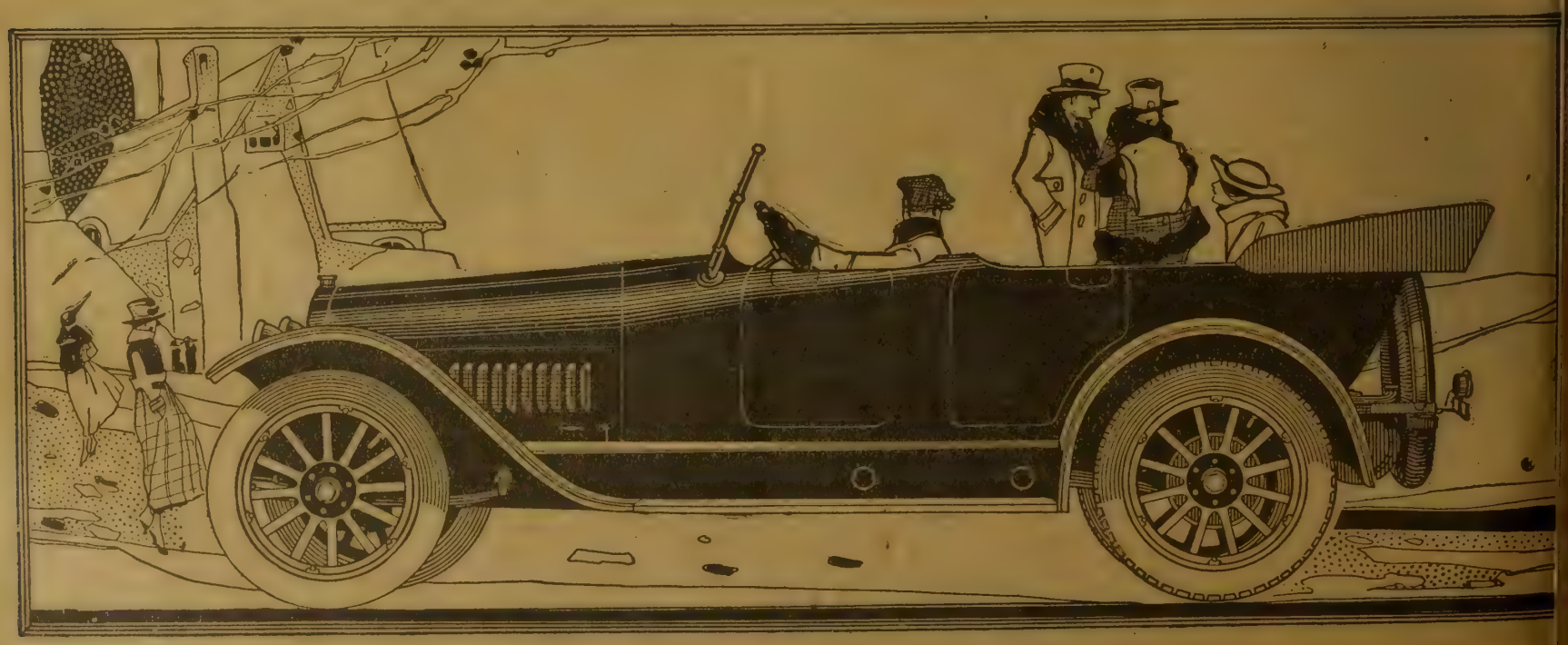
Mitchell stands unique among fine cars in respect to efficiency. For a dozen years John W. Bate has worked here to attain it. Go to your Mitchell dealer and see the results. Compare it with cars built otherwise. If you can, take an engineer with you, and we will abide by his verdict.

$1150 Mitchell Junior

Note that this year's line includes two sizes—the Mitchell and the Mitchell Junior. But the Mitchell Junior—for five passengers—is still powerful and roomy.

This is also for efficiency. So the man who wants a 5-passenger car need not pay for more power or more room than he needs.

MITCHELL MOTORS COMPANY, Inc.
Racine, Wis., U. S. A.



California Cultivator

Vol. XLVIII No. 10 LOS ANGELES: March 10, 1917 One Dollar Yearly

More Heat---Less Smoke

Conference of Citrus Growers at Pomona. Improved Orchard Heaters Demanded. Exhibit of New Types of Burners Which Give Almost Perfect Combustion

RESOLVED, That it is the sense of this meeting that black smoke (which is unconsumed carbon) is not desirable in orchard heating.

That we commend the efforts now being made toward the practical elimination of the smoke by securing a better burner, or improved appliances, looking toward that end.

That we solicit the cooperation of all citrus growers in forwarding the above work to the end that eventually, as the present heater equipment deteriorates, it may be replaced with the improved burners of a practical, economical and durable type.

* * *

THERE has been a great sum of money invested in equipping citrus orchards for fighting frost. Some think this puts too great a burden on the industry and that perhaps more is gained by taking chances than by equipping, but notwithstanding the immense losses of 1913 and the comparatively slight losses of this year we think the investment in frost fighting equipment installed in some orchards has been more than returned. We must also take into account the loss which comes from injury to orchard and fruits, also to household goods and stocks of merchandise because of the smoke nuisance.

One of the Latest Types of Orchard Heaters

This photo was taken by the Cultivator at the Pomona demonstration last week. As may be seen by the flame in the openings near the bottom of the pipe the stove was going at full draft when the photo was taken and yet there is no perceptible smoke escaping from the top of the pipe.

Amongst the Frost Fighters

At the reader's left is Fred J. Smith, Pomona pioneer and one of the first frost fighters, talking to D. C. Crookshank, chairman of the frost fighting conference and owner of a large orange producing property.

When frost fighting with oil first began the crudest of appliances released great clouds of smoke or, worse, clouds of soot which carried a certain amount of oil. This soot went through the tiniest crevices in to every home, and the injury was serious. The invention of burners giving more perfect combustion has lessened this nuisance. Merchants and homemakers in citrus sections insist that this smoke nuisance must be further reduced, and the orchardist likewise is insistent on this point, and to aid

Continued on Page 278

Benefits of the Farm Loan Act

How It Will Help the Farmer. Some Details of Its Workings.

BY reason of the facilities created by the federal farm loan act, which was passed last summer, it will be easier in the future for a farmer to secure money to make needed improvements, or for the purchase of live stock, and it will be easier also for the landless man to purchase a farm, according to a recent publication of the department of agriculture (Farmers' Bulletin 792) entitled "How the Federal Farm Loan Act Benefits the Farmer."

The federal land banks established under this act will stand ready at all times, it is expected, to lend money to farmers on farm-mortgage security. The interest charges will be not more than six per cent, nor more than one per cent above the rate paid on the bonds sold by the banks. If four and a half per cent bonds should be issued, therefore, the rate charged on loans would be five and a half per cent or less. There will be no commissions or bonuses. The loans will be made for periods of time ranging from five to 40 years, thus doing away with the trouble and expense of frequent renewals.

The payment of a certain part of the principal annually or semi-annually, with the interest, will be required. The total payment, including the interest, will be the same for each year and will be just large enough so that the entire principal will be paid off at the end of the period. The annual payment thus required to pay off a loan of $1000, with interest at five per cent, in 20 years, is $80.24.

After a loan has run five years the borrower will be permitted to pay off the whole amount, if he desires, on any interest date, or to make partial payments in addition to the regular installment.

The requirement of installment payments on the amortization plan will serve first to cultivate habits of thrift in the borrower and second to make possible the placing of the loans at a lower rate of interest since the gradual reduction of the principal constantly improves the security for the unpaid balance. The privilege of optional payments after the first five years leaves the borrower free to discharge his indebtedness before the end of the loan period if he finds it convenient to do so.

The federal land banks will perform three important services. They will convert the security which farm mortgages afford into a negotiable form known as farm-loan bonds. They will furnish additional security for the protection of these bonds through their capital and surplus, and thus make the bonds more attractive to investors. They will sell the land-bank bonds in the open investment market, which for obvious reasons the small farmer could not reach to advantage.

The bonds are to be issued in denominations ranging from $25 to $1000, and it is expected that the bonds of small denomination will encourage saving through their appeal to individuals who have not been in the habit of making investments. The bonds will be secured not only by farm mortgages deposited in trust with a government official (the registrar for the land-bank district) but also by the capital and surplus of the 12 land banks.

Both mortgages and bonds will be exempt from all forms of taxation.

Farmers who wish to obtain money from the federal land banks will ordinarily be obliged to form local loan associations and to get their loans through these organizations. The local loan associations will improve the credit of their members and reduce the cost of their loans through the performance of certain definite services, among which are the following: The committee called the "loan committee" of the association will appraise the property offered as security and approve all applications for loans which are sent to the land bank. The secretary-treasurer of the association will transmit the papers and carry on all correspondence with the land bank relative to the loans. The association will guarantee the mortgages of its members, the liability of any individual member being limited, however, to an additional sum equal to the amount of his capital stock, or approximately to five per cent of his own loan.

One important function of the new system will be to establish safe standards for the farm mortgage business of the United States; for it is not proposed to extend any credit except on the basis of proper security. In addition to the indorsement of the local association, every loan must have the approval of one of the salaried appraisers appointed by the government for the several land banks.

Further, not more than $10,000 may be loaned to one borrower, nor more than 50 per cent of the value of the land offered as security plus 20 per cent of the value of the buildings; and the money must be used for specified productive purposes, such as the purchase of farm land, improvements, equipment, fertilizers, or live stock, or for the payment of existing indebtedness.

The federal farm loan board of the treasury department has general charge of the system. The department of agriculture will cooperate with this board in supplying information and rendering assistance to farmers who desire to take advantage of the federal farm loan act, especially with reference to the organization of local loan associations.

Frost Protection in Citrus Groves

By Prof. R. S. Vaile

Continued from Last Week.

Does It Pay to Smudge?

The question of whether such expense is justified depends on three things.

1. Liability of injury without protection.

2. Average length of time equipment would need to be used.

3. Average yield of the orchard to be protected.

The first question must be answered for each locality individually. Temperatures vary several degrees within very short distances so that government records for a given city may not have very much relation to conditions in groves surrounding that city. Except in extreme cases and unfavorable locations a one year injury is all that is to be expected. Table IV gives the shipments of citrus by counties as affected by the 1913 freeze. These figures indicate little effect holding over more than the one season. Of course individual groves felt a decided hold-over effect, but shipments as a whole were not materially influenced.

TABLE IV

Carload shipments by counties:

	1910-11	'11-'12	'12-'13	'13-'14	'14-'15	'15-'16
Los Angeles	14,723	12,695	5,025	16,536	14,066	14,793
Orange	4,069	3,529	3,762	4,806	5,578	6,165
Riverside	7,676	4,485	1,751	6,103	5,493	4,748
San Bernardino	12,031	10.506	2,877	12,857	12,045	9,824

The average annual liability must be greater than the fixed charge of $26.00 per acre. If oranges are worth $1.00 per field box the average annual loss must be 26 boxes per acre, or 130 boxes every five years. There are certain districts where the risk is much less than this and one immediately concludes that protection is not justified. Table V gives the annual risk in field boxes at $1.00 each, that should be present to justify various expenditures above the $26.00 fixed cost.

TABLE V

Annual risk necessary to justify smudging. Figured in field boxes at $1 each:

Fixed cost.	Operating cost.	Total cost.	Field boxes.
$26.00	$ 5.00	$31.00	31
26.00	10.00	36.00	36
26.00	20.00	46.00	46
26.00	30.00	56.00	56
26.00	40.00	66.00	66

(See table III.)

In other words, if experience shows that 230 field boxes are lost by frost damage on an average of once in every five years, one would be justified in maintaining a complete equipment. and if it were not used at any time except on that one year he would be justified in spending $100 for operating costs during that year. Refering again to Table III, that $100 would permit 20 hours of light firing, 20 hours of moderate firing, and five hours extreme firing. Or if, on the other hand, the cold weather came once every three years with no firing on the intervening years, and if experience shows that as much as 138 field boxes per acre might be lost every third year without protection, then one would be justified in fully equipping the grove and spending an average of $20 an acre per year for operating expenses, or $60 per year for the one year in three. Referring again to Table III, this $60 an acre would permit of 20 hours of light firing, ten hours of moderate firing and five hours of extreme firing. If, on the other hand, one is in a district where some damage is realized every year, if that damage amounts to as much as 46 field boxes per acre per year one is justified in fully equipping and in spending $20 per acre every year for operating expenses. Again referring to Table III, this $20 would permit of 20 hours of light firing or ten hours of light firing and five hours of moderate firing each year. It will be remembered that if the four typical cases which were reviewed earlier in the discussion of this season's operations, none of them showed as much firing even as would be allowed as an annual proposition in case the risk is as much as 46 field boxes each year.

Continued Next Week.

Balanced Ration for the Orchard

From Address by C. I. Lewis, Chief Division of Horticulture, Oregon Agricultural College, at Corvallis

A SOIL is really known by the crop it will produce. Provided climatic conditions are favorable a properly balanced soil should produce first class fruit. Unfortunately much of our soil does not produce such fruit. Trees need certain balanced foods. If one of these necessary foods is missing the tree is upset and its functions are interfered with. It is like the old adage—"A chain is no stronger than its weakest link." In the same way our soil is no stronger than its weakest necessary element.

The animal husbandry men know that an improper diet reacts on the animal: too much coarse material makes too large a barrel: too much concentrated food means an upse diggestion. The skillful animal hus bandry man studies his animals ver carefully to find signs of impropе feeding. Our fruit trees hang ou just as strong signs. They are con stantly furnishing us with a barome er which we can read.

Definite chemicals enter into th make-up of an apple tree and it fruit. These can be divided naturall into two classes. First, those whic are very essential and are often d ficient and, second, those which ar generally not quite as essential an are generally present in the soil.

The first class embraces nitroge potash, phosphoric acid and lime. Th second class includes such solution as iron, sulphur, sodium, etc.

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San Dimas, California

Nitrogen is the life giving element. It gives vegetative growth, makes vigorous wood and foliage, and determines to a large extent the percentage of crop. When used to excess it produces abnormal wo-- growth and overgrown specimens of fruit.

Potash is the basis of fruit acids as well as a large percentage of the ash, and when properly balanced has much to do with maturity and good firm growth of the tree. Potash is sometimes said to be the principal element in producing color. This, however has not been thoroughly demonstrated. The proper balance of nitrogen probably has more to do with the degree of color than any other factors as far as food is concerned.

Phosphoric acid aids in maturity and is stored in large quantities in the seed.

Lime is an important factor in making plant food available. It has a mechanical, chemical, and biological influence and probably, indirectly at least, plays a role in cell structure.

To determine the weak links in your soil and to determine whether your trees will be improved by the aid of a certain plant food, it is essential that you divide a small portion of your orchard into plots where you can try out these various elements. On a dozen trees which are situated in a block apply nitrate of soda at the rate of 100 pounds per acre. To another block apply high grade potash, such as muriate or sulphate, at the rate of 100 to 150 pounds per acre. On a third block apply a high grade superphosphate, 100 pounds to the acre.

Then on the one plot use all three: then use combinations of two and finally a plot for lime. This will give you eight plots which will not cost very much money. Apply the fertilizer about a month before the trees bloom and if possible harrow it in.

From my own personal observations and experiments, as well as data I have obtained from chemists and other scientists, the great element that is apt to be lacking in the light soils of the Pacific Northwest is nitrogen. Its lack is shown in low vitality of trees from 12 to 25 years of age, thin, small, yellow foliage and weak wood growth, feeble blossoming and small percentage of set, small individual specimens of fruit, light crops and an increase in functional troubles, such as little leaf, apple rosette, so-called winter kill, dry core rot, and so on.

During the past three or four years we have been conducting extensive experiments in Oregon. Nitrogen has been added to the orchards in dry form, in the form of a liquid on the ground, or as a spray on the trees.

With the exception of the first year nothing was seemingly gained by placing a liquid on the ground or spraying it upon the trees. The average of the three years is slightly in favor of these practices, owing to the fact that the first year they gave more striking results than did the dry, because the season was so dry that the crystals did not get into solution. Had we added the dry crystals a month before the blossoming time we would have secured more striking results. The check orchards have been improving during the three years, but the planting of clover and alfalfa and also irrigation have had an influence and the fact that the trees have rested for several years makes some difference.

Striking results have been secured in the Hood River Valley with apples and peaches on light soils in the Rogue River Valley. The increase in yields by the use of nitrate of soda is about seven to one, but one of the most striking characteristics seems to be that there was less frost damage among the trees which received the nitrogen. Our theory is that the stimulation strenghtened the buds and spurs and made the trees more vigorous, for during the entire season there has been a wonderful improvement in the vigorous, healthy, green appearence of the trees, while where other fertilizers were used or where none was used, the trees had a starved appearance. Also with peaches, while we did not receive remarkable results the spring the fertilizer was applied, we secured very striking results the second year, due we feel to two conditions. First, the nitrogen made the trees vigorous and healthy and furnished strong buds. Second, these trees seemed to be more frost resistant. The results are that this year, for every 36 boxes of peaches from the nitrogen plots, we have only secured at the rate of 7-9 from those plots where other fertilizers, or no fertilizer, has been used. A large commercial orchard at Hood River this year gave 23,000 boxes, last year, 1,500 boxes and the year before 4,500 boxes, the increase coming from the use of nitrate of soda at the rate of five to six pounds to the tree.

This nitrogen fertilization is relatively inexpensive. From five to seven pounds of nitrogen to the tree is ample, and this will mean a cost of only 16 to 20 cents per tree. Our work is demonstrating that this fertilizer to be of the greatest value should be added to the soil a month before the trees bloom. In fact our work is pointing strongly to the fact that moisture and food added just before the trees bloom plays a mighty role in the corn which will be picked the following October. It was formerly thought that the nitrate would have only a very brief effect on the trees, but our results indicate that trees stimulated in this way may continue vigorous for at least three years and possibly longer. We believe that in orchards where nitrogen deficiency is demonstrated that the orchard should be sown to shade crops and irrigated if possible. Where this cannot be done possibly the growing of cover crops will suffice to supply the organic matter and nitrogen, giving you the desired physical, chemical and bacterial condition in your soil.

We feel, however, that the nitrogen question can be easily overdone and we fear that some of the orchards are going to be overstimulated.

In conclusion I will state that we feel from our work at the Oregon Experiment station that the missing element in most of our light soils is nitrogen and that the trees can be aided to a remarkable extent through the use of nitrate of soda applied three to seven pounds to the tree, and that the trees must be well supplied with food and moisture in the early spring previous to blooming and that this knowledge may result in important revolutions in our orchard practices in the Northwest.

Nitrogen seems to affect the set of fruit at the time of blooming and later the size of crop, size of individual specimens, color of fruit and general vigor of trees. And lastly, it is very easy to overdo the nitrogen stimulation and, consequently, orchardists should keep in close touch with the horticulturists in the various experiment stations concerning the use of this valuable element.

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MORE HEAT—LESS SMOKE

Continued from Page 275

in this campaign for better and more economical combustion of the oil a meeting was held in Pomona last Friday, when frost fighting from its various angles, was discussed. Several burners with practically no smoke emitted when in full operation were exhibited. Some of these—of which there were about 15 different types—are almost perfect. A white card held over the smokestack, which seems to be a feature of most of the improved types, showed absolutely no soot or mark of smoke.

The question now is whether these burners may be invented, manufactured and sold to the growers on an economical basis. As indicated above, many growers believe in taking chances rather than in making an investment of from $100 to $200 per acre required for present-day appliances. Formerly it was thought that a higher grade oil with a lower percentage of asphaltum, or with practically none, would result in cleaner burning, but it has now been shown that the cheaper oils in the proper kind of burner give out a greater number of heat units than the higher grade oils with an indifferent burner. Presumably then, it is a question for the burner maker rather than for the oil manufacturer. This is fortunate, for it would be an impossibility for the manufacturer of the oil to provide on but a few moments' notice the trainloads of oil which are necessary when the emergency comes.

The Pomona meeting was presided over by D. C. Crookshank, and C. N. Burton acted as secretary. The meeting had been called by the Pomona chamber of commerce, of which Mr. Crookshank is the president. It was more in the nature of a conference, for there was no previously arranged program, but Mr. Burton requested that in the discussion the three factors noted in the resolutions above should be considered as far as possible.

Joining in the conference, besides Pomona people who have put up the most effective campaign of any one section of the state, there were Messrs. Fleet of the Sespe Ranch, Willis Jones of the Claremont section, Huff of Orange County, Price, Laidlaw and Hamilton of Ontario and Uplands, Prof. Vaile of the experiment station, with Adamson, Smith, Nichols and others of the Pomona section. After the discussion and adoption of the resolutions at the head of article the meeting adjourned to examine into the merits of the various heaters exhibited.

• • •

NOTES

Eliminate the smoke. More heat, less "smudging."

The amount of asphaltum in the oil or the quality of the oil is of less importance than the efficiency of the burner.

Electricity has been tried in the heating of orchards. As yet it is not a success, but with improved heaters and in view of the fact that the electric current would be used in orchard heating at a time when not needed for transportation and other activities, orchard heating appliances operated by electricity call for more investigation.

Injury to citrus fruits is caused by humidity, or lack of it, to a greater extent that by change in temperature.

Frost in July is a long question and one which many an orchardist fails to grasp. When the scientists begin discussion of dew point, dry and wet bulb, temperature, radiation and some others of the factors which enter into the control of frost injury we all get muddled.

It is important to get temperature of the fruit. This is done, excepting in the case of smallest sized lemons, by the use of the pencil type of thermometers inserted in opening made in the fruit.

The air temperature is often low enough to indicate possibility of injury while the fruit temperatures may be higher. Here is where "radiation" and "low dew point" enter into the discussion.

"We cannot expect to eliminate entirely all smoke from our orchard heating operations. Our modern railways are examples of efficiency and waste reduced to the minimum, but note that a locomotive under forced draft emits vast quantities of dense black smoke. It is only reasonable then to suppose that our heaters cannot be made more efficient than the ordinary locomotive."

"Soot is not smoke. Soot is unconsumed carbon. It may in a large part be eliminated by combustion."

"There has been vast improvement in heaters during the past four years. Let us work together for still greater improvement and not work against each other by objecting."

The chemical combination of the hydrogen of oil with oxygen of the air makes water. Water in the air makes lower dew point, lower dew point makes for less injury to the fruit, and besides this, moisture in the air acts as a blanket over the orchard to prevent general radiation of the heat.

There are streaks of cold and streaks of warmer air. If they can be mixed the orchard is saved. It has usually been the custom to fire "across these streaks." "We now believe it is better to fire with the streaks."

HOME GARDENS

The Los Angeles Chamber of Commerce announces a series of lectures on home gardening. The talks are only 15 minutes long at 12 o'clock daily beginning Monday, March 12. At that time Hon. Eugene Grubb of the Southern Pacific Company will talk on potatoes and how to grow. Other lectures daily will follow in this order: "Intensive Gardening," C. F. Palmer of Los Angeles schools; "A Little Land, a Better Living," C. L. Schufeldt; "Successive Cropping," Commissioner Wood; "Garden Seeds and Relation to Garden Soil," H. L. Musser.

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NITRATE OF SODA AND THE USE OF COMMERCIAL FERTILIZERS

By Ricardo Simon

IN the March number of the California Citrograph, J. F. Breazeale of the United States department of agriculture, Riverside, has contributed an article entitled "The Use of Commercial Fertilizers." In the last paragraph he says: "With the experiments which are now going, in a few years we will know the best methods of cultivation and irrigation and what fertilizers will produce the best results. But just now we have many men of many minds, and are in the "transition stage between guesswork and hard facts."

Not one of the many citrus growers but will agree with these last remarks of Mr. Breazeale. On the face of it, this reads like an unbiased and unprejudiced statement of facts.

But when we turn to the first half of his article we are astonished to find that Mr. Breazeale has reserved to himself the unique position of being the only one who has passed the transition stage between guesswork and hard facts". Let us read what he here says: "If I were fortunate enough to own a citrus grove, with my present knowledge of fertilizer requirements, I would certainly use some commercial fertilizers. I would probably under certain conditions even use some nitrate of soda which in my opinion is probably the least desirable form of fertilizer upon the market."

This uncalled for attack on nitrate of soda seems almost incomprehensible. Is it based on scientific or commercial data? With one dash of his pen Mr. Breazeale sweeps aside the work of the foremost agricultural and scientific specialists of the world, of Dr. Paul Wagner and Professor Maercker of Germany; of Lawes and Gilbert, Sir William Crooks, Dr. Dyer, Dr. Hall and Dr. Voelcker of England; of Professors Grandeau, Cassarini, Migneaux and Cadoret of France; of Professors Bernardo and Alino of Spain; of Drs. Edward B. Voorhees, Brooks, Duggar, Ross, Patterson, Hilgard and Garcia of America.

But let me quote a few lines from a pamphlet on "The Cost of Available Nitrogen", by the late Dr. Voorhees of the New Jersey agricultural experiment station, and see what he has to say about nitrate of soda and its value:

"In 1898, plant nutrition experiments were begun at the New Jersey station, one object of which was to study the 'relative availability' of these three forms of nitrogen, (ie. nitrate, ammonia and organic nitrogen), using a rotation of corn, oats, wheat and timothy,—crops which, because of their long periods of growth would be likely to absorb relatively large proportions of organic nitrogen. The results of these experiments for two rotations (ten years) show that the recovery for nitrogen as nitrate was 62.09 parts per hundred; for the nitrogen as ammonia 43.26 parts per hundred, and for organic (dried blood nitrogen), 40 parts per hundred. These results agree almost exactly with those obtained by Dr. Wagner and his associates. With the returns from nitrate, the highest recovery regarded as 100, the relative availability of the nitrogen as ammonia would be 69.7 and of nitrogen as dried blood 64.4.

"A concrete example will make clearer the economic phases of the question. The analysis of the various brands sold in the state of New Jersey in 1909 shows an average of 2.5 per cent of total nitrogen, divided as follows:

Nitrate ..... .48% or 19% of the total
Ammonia ..... .77% or 30% of the total
Organic ..... 1.32% or 51% of the total

"Assuming that the forms of organic nitrogen used in these brands were as good as in dried blood, it would require 1.55 pounds of the organic nitrogen to furnish as much 'available' nitrogen as is contained in one pound of the nitrate nitrogen, and 1.43 pounds of the ammonia nitrogen to furnish as much 'available' nitrogen as is contained in one pound of the nitrate nitrogen. Yet because of commercial conditions the farmer paid a higher price per pound for his organic nitrogen than he paid for his nitrate and his ammonia nitrogen. Using the same relations that exist in the commercial cost of nitrogen, the actual prices paid were for organic nitrogen 26.52 cents per pound, ammonia nitrogen 23.73 cents and nitrate nitrogen 23 cents. At these prices the nitrogen purchased in New Jersey last year cost about $1,157,400 and in the entire country nearly 60 times as much. If, therefore, instead of buying organic and ammonia nitrogen, nitrate only had been purchased, the same gain in crop from the use of the nitrogen could have been purchased for $733,460 instead of $1,157,500."

The above data, given by the late Dr. Voorhees' work, but corroborated much of that already done by Dr. Paul Wagner.

It might be well for Mr. Breazeale to bear in mind the words of Dr. Voorhees, to-wit: "The experiment stations do not discourage, but strongly encourage, the utilization of waste products containing nitrogen. They would be false to their duty to the farmers, however, if they did not clearly point out to them what is known of the relative agricultural value of such products . . ."

Farm Adviser Williams of Sacramento County announces farm bureau meetings at Wilton March 10, Fair Oaks 14, Elk Grove 17, Franklin 21, Hood 28.

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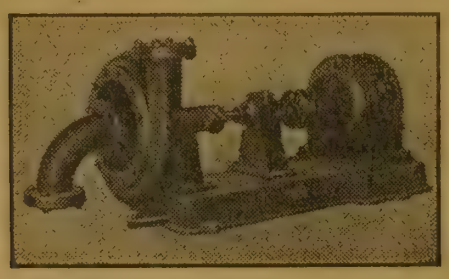

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Natural Gardening

Written for California Cultivator By E. Braunton

NATURAL or landscape gardening consists in making beautiful pictures rather than a collection of plants and objects, no matter how interesting or beautiful these objects may be in themselves. The true test of a garden is, will the artist care to paint it or photograph it? If it strongly attracts him you have succeeded admirably.

Mere grading, introduction of road, paths, etc., and planting, no matter how finished, do not make a landscape; on the contrary such work often spoils one which naturally constituted a beautiful picture to those who know. Plants have of themselves but little value unless properly placed. Scattered about promiscuously, without aim or association, they may be fine plants but they do not make a landscape garden. Properly massed they present attractive groups and perfect pictures of natural beauty.

School Grounds

In these more modern days it is considered desirable to have school gardens rather than mere school grounds. These considerations should lend themselves to decoration of school yards, in which the school garden should play an important part. Aside from the reservation of space for tilling the soil the greatest need of schools is shade and protection. If violent winds prevail the side toward the wind, or two sides, should be planted with Monterey cypresses fairly close together. If shade for summer alone is desired plant trees that will grow large, cast abundant shade and shed their leaves in autumn so that the area may be warm and sunny during winter. For this purpose none is of greater value than Platanus orientalis, the oriental plane or sycamore.

Rural Parks

When are we to have rural parks belonging to community or county? It is coming to be recognized that rural residents need parks for rest and recreation fully as much as do dwellers in the city. In some Eastern states may be found parks owned and controlled by the townships, where the latter contain no town, or village, or even a post office. Some such plan is possible in California, or counties may purchase spots of great natural beauty and interest and hold and improve them for the benefit of all the people. We are all coming to feel, however, that every community should have a park or reservation reasonably available to the most thickly settled portions of the district.

Bizarre Gardening

It must not be thought that in olden times all gardening was more or less barbaric, for in every stage of the world's history we find traces of nature lovers. Landscape gardening, or the natural way, first found expression in England a little more than a century ago. But more than 300 years ago Bacon wrote: "As for the making of Knots or Figures, with divers Colored Earths, they be but toys, you may see as good sights many times in Tarts. I do not like Images cut out of Juniper, or other garden-stuff; they are for Children."

Layer Propagation

Too little attention is paid by those of limited time and means and likewise limited needs, to propagation by laying. Take lower branches of carnations, shrubs of many kinds, also vines, and lay them upon the soil, dig out a hollow, cut stem of plant halfway through, put cut part in hollow, cover with soil, peg down with hairpin or a double piece of wire and leave until well rooted. Then cut away and plant. Tops on tall, "leggy" plants, or side branches may be layered in same manner of preparation, but binding the parts up in balls of florist's moss instead of soil. The balls of moss must not, however, be allowed to dry. Keep dampened until roots show through. Then cut away young or new plants.

Perennial Peas

Many find the yearly planting of sweet peas too much care, and too much care must be lavished upon them or results are poor. While this is true there is no other means by which you obtain the wondrously beautiful modern sweet pea. But if you will be content with two or three colors, and these not very good, and with small crops and short stems; in short if you merely wish pea vines to cover a fence, wall or other object, seed stores will furnish you with seeds that will give you plants admirably suited to the purpose.

Tree Asters

In New Zealand there are about 100 species of olearias or tree asters that have found wide acceptance in some counties but not in the United States. They did, however, create quite a sensation at the New Zealand exhibit at San Francisco in 1915, where they flowered abundantly. It is rumored that at least one San Francisco firm has these plants for sale. None are known to be in Southern California though we are assured they would thrive.

Raising Tomatoes at 5300 Feet

Written for California Cultivator By W. F. Hewlett

OUR location is the top of Palomar Mountain, San Diego County, 70 miles north of San Diego City, and 5300 feet above sea level.

When we purchased this place the former owner told us that we would not be able to raise tomatoes because of early and late frosts. As we were very fond of them we resolved to do our best to overcome the climate, and for three years have succeeded in producing the ripened fruit. Especially was this so the past season, owing to our having studied the climatic conditions and in a great measure overcome them.

We began preparations for planting seed March 15 by sawing oil cases in two, making two shallow flats out of each box. Then the tops and bottoms were melted from large size condensed milk cans, leaving cylinders of tin. These were placed one end down in the flats and filled with rich loam soil taken from under trees in the timber, and seed planted in them. The boxes were carried into the house and kept in one corner of the dining room near a sunny window.

As the plants grew, they were transplanted to other cans of same

style, leaving only one plant to a can. They made a fine, strong growth, and whenever the weather permitted were placed outdoors to harden, preparatory to planting.

Early in May a piece of ground in yard surrounding house was plowed and six rows for 82 plants were staked off. The stakes were placed four feet apart in the row and the rows six feet apart.

Holes were dug with a trowel, about one foot deep and eight inches across. In the bottom of each hole was placed two trowelfuls of mixed chicken manure and ashes, which was well dug into bottom of hole. Water was then poured in holes, half filling them.

The plants were removed from the cans by inserting a small wooden potato masher into bottom of can and pushing out ball of dirt. We were careful not to break soil about plants and they were set in water in hole and dirt filled in and well pressed down. The plants were set very deep, so that when hole was finally filled the leaves of plant were level with ground.

Last of all, a small pan was made about each plant, filled with water, allowed to soak away, and dirt filled in.

Six varieties were set out, viz: First Early, Earliana, Stone, Ferris Wheel, Little Giant, and Mack.

May 19 the weather turned cooler, and in anticipation of frost we made cones of heavy wrapping paper large enough to cover each plant and with a projecting edge upon which to place dirt to hold them down.

We watched the thermometer closely, and whenever it started down placed the cones over plants. We thus saved every plant through the cold spell while others about us who did not protect plants, lost them and had to make a fresh start.

Shortly after danger of frost was over six-foot stakes were cut and driven in near each plant, leaving about five feet of pole to tie plant to as it grew. Pans were then made about each plant, large enough to hold a pail of water. These were left open throughout the entire growing season and three times each week were filled with water from garden hose.

As the plants grew the lower branches were pruned off and tops tied to stakes. The fruit set well, and we were not troubled with blight.

We picked our first ripe tomato from the First Early July 27. The Earlianas soon followed and by August 17 we had an abundance. They ripened as follows: First Early, Earliana, Mack, Stone, Ferris Wheel, and Little Giant. Our largest tomato was from the Ferris Wheel and measured 15½ inches in circumference and weighed one and a half pounds.

We picked a total of 1075 pounds of tomatoes from the 82 vines up to October 3, when an unusually early frost caught and killed the vines. We estimated there were still about 500 pounds of green tomatoes on vines when killed by frost. This from a piece of ground which measured 1-22 of an acre.

From the crop we sold several hundred pounds, canned 125 quarts and had sliced tomatoes on the table nearly every meal during the season. The plants were a sight when at their best and greatly admired by all who saw them and fully repaid us for the extra effort spent in growing them.

The Rhizoctonia Disease of Tomatoes

The disease of tomatoes known as blight, yellows, yellow blight or western blight, is due to the sterile fungus, rhizoctonia, which lives upon the roots of the affected plants. According to the pathologist of the Washington experiment station, the symptoms and effects of the disease are as follows:

Dwarfing or reduction in size of plant; production of rosette type of growth; discoloration of foliage; curling of leaflets; reduction in size of fruit and premature ripening or failure to set any fruits; wilting and death of entire top.

Net work of brown fungous filaments upon the surface of the roots; occurrence of black nodules (sclerotia) at various points upon the roots; dead corroded areas (lesions upon the roots or base of stem; death of roots from tip backward; abnormal production of adventitious fibrous roots.

The parasite is present only on the roots or basal portion of the stem and the symptoms shown by the foliage are only an indirect effect of the parasite. The disease may be barely evident or sufficiently severe to kill the affected plants. The same fungus causes the "damping-off" of seedlings.

Control

The fungus is common in many soils and attacks many wild plants and cultivated crops. It has been noted during the past two years as the cause of serious disease in potatoes, beans, beets, peas, cucumbers, peppers and strawberries. Infected seed potatoes are undoubtedly responsible for many cases of serious soil infection.

Use soil free from rhizoctonia for the growth of tomato plants if they are to be transplanted, or if the soil is infected use some method of sterilization.

Avoid ground upon which potatoes have been grown during the past four or five years. Give attention to the possible occurrence of the disease upon some other crop that might have infected the soil. Cereals and other grasses are never attacked by rhizoctonia.

Supply growing plants with abundance of moisture. Lack of moisture increases the severity of the disease since the fungus is constantly cutting down the supply of absorbing roots, and so making it more difficult for the plant to obtain sufficient water. Good cultivation for the aeration of the soil is an important factor.

Use liberal amount of barnyard manure to stimulate the growth of the plants, and if the soil is known to be acid use lime also.

In transplanting do not set plants too shallow. Deep setting gives a greater opportunity for the development of adventitious fibrous roots to take the places of those killed by the fungus. It may even be advisable to set the plants in shallow trenches and gradually fill around them with successive cultivations.

Growing the plants in the field to avoid transplanting is sometimes of value, but carefully transplanted plants that suffer little or no check in their growth are more likely to keep ahead of the fungus.

In case soil infection is suspected, early fall plowing with frequent cultivation seems by aeration of the soil to lessen amount of fungus that will remain alive. Some growers have used this practice with excellent results.

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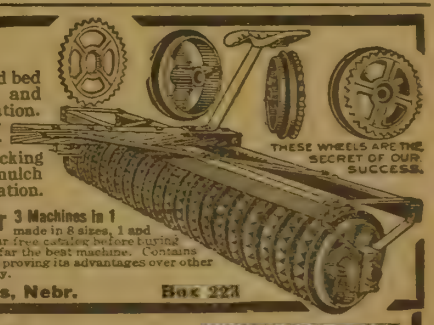

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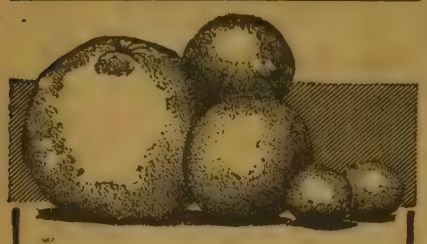

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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Squirrel Poison

A subscriber from Yreka and one from Santa Susana both wish information as to a satisfactory squirrel poison. The Yreka subscriber is not only having trouble with squirrels injuring various crops but they are also taking eggs out of the nests.

The remedy most often recommended is that used by the hospital service of the federal government in its campaign against the rodents about the bay counties. This has been found satisfactory by farm advisers and others in all parts of the state. The formula is: Whole barley, 20 pounds; starch paste, one pint; strychnine sulphate, one ounce; saccharine, one dram. The barley is placed in a receptacle large enough to permit thorough stirring (as a wash tub). One pint of water is then brought to a boil and sufficient laundry starch (about two tablespoons dissolved in a little cold water) is slowly added to form, when well cooked, a paste about the consistency of cream. The strychnine, (first powdered if in crystals) and the saccharine, are now added to the hot starch paste and the mixture well stirred until dissolved. While still hot this is poured over the barley, mixed well, and the whole put aside for several hours before using. Scatter a teaspoon of the poisoned grain along the squirrel trails on hard places near the holes. The poison should not be placed in heaps on the soft mounds at the mouths of the holes. It will probably be found most efficient if scattered early in the morning between the hours of three and seven a. m. Poisoned grain should not be placed in wet weather. Its destructive properties will not deteriorate with age so long as the grain is kept dry and free from moisture.

Besides the above there are most excellent poisoned grains and other control methods which have been advertised in the Cultivator.

Another satisfactory method, and one which we would employ near poultry yards or farm buildings is the use of the squirrel destructor or some other agent for pumping poisonous gases into the holes. Then make a campaign, ridding the place of them through suffocation. This is done by the use of carbon bisulphide. Where there are but few holes to be treated fairly satisfactory results may be had by saturating cotton waste, or even old rags, with gasoline, putting these down and filling at once. The fumes of the gasoline do the rest.

Minorcas as Layers

What do you think of the Minorcas as layers; are they as good as the White Leghorns? Are their eggs good sellers or are they too large? Could you tell me where I could get White Muscovy duck eggs for hatching?—Subscriber, Porterville.

Minorcas are all right. Their friends claim that they lay as many eggs as Leghorns and they certainly lay larger eggs than the average Leghorn. "The eggs sell themselves", says a Minorca breeder, because of their size. Probably there are poor strains of Minorcas as well as of other breeds, but they have an excellent reputation and are considered better table birds than Leghorns in spite of their black feathers. You will find advertisers of White Muscovys in the columns of the Cultivator.—J. A. K.

Lime on Adobe

Please advise if an application of lime to a stiff, adobe soil would make it more friable and easier to work up fine? If so, what form of lime and what quantity per square rod would be advisable, and at what season should it be applied?—Subscriber, Porterville.

Yes, apply say ten or 12 pounds per square rod of air-slaked or, for a small area, hydrated lime might be applied. Would apply at once and in addition the lands may be greatly benefited by heavy applications of coarse manure. This aids in admitting air and loosening up the soil.

Is Sudan Satisfactory?

We will be glad if live stock people who have had experience with feeding Sudan grass will answer the request of Mr. A. L. Grigsby of San Diego County. He writes:

"Would like to ask if Sudan grass hay will cause a dry cough in horses? My horses all have a dry cough which started after I commenced feeding Sudan hay. There is no discharge from the nose to indicate distemper. From my experience and in talking with others I learn that those who handle the hay are troubled with a dry cough. The hay is perfectly cured and the stock seems to relish it. Would like to hear from subscribers regarding this point."

Turkeys with Water Bags

Could you give me a remedy for my turkeys? They have large water bags under the eyes. They can be pressed out but fill up again. Turkeys have good appetite but do not gain in weight.—Subscriber, Woodland.

Is this a sort of air puff, such as is sometimes found on the neck or shoulder of a half grown chick that has been injured? Or is there, perhaps, something roupy about it? If the turkeys are males, and old enough to fight, it may be these bags are produced by the injuries suffered in fighting. In this case removal of the cause is the only remedy. If there is roup, either incipient or half developed, there should be some running of the eyes and a little stickiness about the discharge. If the turkeys are young and do not gain in weight something is wrong either with the ration or with the turkey itself. Young turkeys should not be fat, but there should be some slight gain from week to week. For any symptom of roup there is nothing better than the potassium permanganate treatment.

Put in a quart pail of warmish water enough permanganate crystals to color the water a deep pink. Immerse the turkey's head in this while you count ten, and repeat twice daily till there is improvement, preparing the permanganate fresh every time. See that the turkeys have absolutely fresh air at night, but are protected by some sort of shed from the rain, and that they get oyster shell and some animal food, preferably clabbered milk. If they are not on green range they should have an absolutely unlimited supply of green feed. It is often wise to feed chopped onions and onion tops and lettuce, even when the birds are on range, for they do not always get the right sort of green and are sometimes lazy about helping themselves.—J. A. K.

Scours

Am feeding very rich garbage to pigs, mixed with small amount of bran. Have some trouble with scours. What must I do to remedy it? Will it be advisable to feed copperas or lye, with the garbage and what proportions, and how often?—Subscriber, Alberhill.

This query was referred to Prof. J. I. Thompson, who answers:

"In reply to the inquiry concerning the feeding of bran with garbage to pigs, I think two things might be the cause of the scours. Your correspondent does not state where the garbage is secured, but if it contains much lye and washing powder, that is probably the cause of the trouble. Should not consider bran the proper feed to add to the garbage even though no trouble was experienced. The garbage itself is undoubtedly bulky and bran is also rather too bulky for hog feed. In case the pigs would seem to need more protein for proper growth would suggest that tankage be supplied in self feeders. If they do not fatten rapidly enough would add a little grain, preferably barley or corn, if they can be secured at a reasonable price.

"If any copperas is to be fed would feed a reasonable amount for two or three days and then discontinue it entirely."

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Disinfectant

When marking boar pigs will it be advisable to use disinfectant and what kind?—Subscriber, Alberhill.

At castration time we use liberal amounts of a disinfectant, preferably some lysol solution which can be secured at almost any drug store, and the proportions for its use are on the package.

Rebudding Lemons

Have five acres in Orange County set to two and three-year-old lemons but as I have decided this section is not especially adapted to lemons, while Valencia oranges do thrive particularly well, I contemplate changing over to the latter. Which would be the most practical and economical method, to set the orange trees between the lemons, leaving the lemon trees until the Valencias begin to bear, or budding the lemon trees to Valencias? The most of the trees which I wish to replace are small and if budded low would have only an inch or two above the original bud, leaving but very little lemon wood. From an economical standpoint would prefer the budding as it would save quite a little outlay for trees. However, I do not want to make a mistake.—Subscriber, Santa Ana.

If these are young trees, as appears from the suggested plan of budding just above the ground, and especially considering the fact that citrus trees are comparatively low priced, we would re-set with regular nursery trees. Good, thrifty trees can be had and come to bearing quicker than these others with the care they might get in orchard form. On the other hand, if the trees were lusty bearing trees then they could be changed to bearing orange trees quicker than the young ones would mature and perhaps enough quicker to compensate for cost of re-budding and the two or three years of careful attention required to get the tops in good condition. We believe in using Valencia on orange sour root there would be less liability of damaged trees from gum disease. However, we would hesitate before changing Orange County lemons into Valencias. Lemons are good property—for the stayer.

Raising Poults

A baby turkey four weeks old started to limp. In two days it had lost the use of the right leg. It seemed paralyzed. In about ten days the left leg became helpless also. It died about three days after. Now another turk has started the same way. Feed curd with onion tops and hard boiled eggs mixed in it. Do you know of any remedy for this trouble?—Subscriber, Calexico.

If curd, onion tops and hard boiled egg are the only food the poults have received, the trouble must be due to a lack of bone and muscle making material. Rolled oats, bran and bone meal are all frame builders and should be part of the ration. At the Rhode Island station the poults are started on egg, but this is given for two weeks only. On the fourth day green feed is added to the egg. On the fifth day rolled oats are added and are continued through the sixth week. On the ninth day mash feeding is begun. the mash consisting of six parts corn meal, four parts wheat bran, two parts middlings and one part linseed meal. I think bone meal could well be substituted for the linseed meal. Beginning with the third week a mixture of finely ground grains is given. After the tenth week this is replaced by equal parts of corn and wheat. The feeding of sour milk begins about the tenth day and the amount is gradually increased as the birds become older. Up to the end of the fifth week the birds are given five meals a day, only a very little being given at each meal. The three main meals, morning, noon and night, consist of a mixture of mash, grain and green feed, we are not told in exactly what proportion, but I should mix them in equal parts. In the middle of morning and afternoon the poults are given curd or cottage cheese. After five weeks the number of meals is reduced to three. If the poults are on range they need not be fed so often, but the ration must contain some grain, both whole and ground. As your poults are already over five weeks old two or three meals per day, depending on the amount of feed they get on range, will be sufficient. Let them have in the morning and at noon a feeding of dry mash consisting of six parts corn meal, four parts wheat bran, two parts middlings, two parts rolled oats and two parts bone meal, with cracked wheat and cracked corn at night and sour milk before them most of the time. This ration, if they are not overfed, will help to develop the muscles and strengthen the bones of their legs. If they have not an abundance of green feed on range, lettuce and chopped onion should be added to the mash. I have heard of turkeys being raised successfully on a diet of bran and onions and have myself raised them on little else but chopped greens and rolled oats. In fact, a mixture of rolled oats, onions and cottage cheese makes a very good ration for poults that have been well started.—J. A. K.

English Sparrows

Please advise best method of protecting young vegetable plants from the depredations of the English sparrow. Am told that strychnine will not poison them.—Subscriber, Porterville.

The English sparrow pest has put up a long question to producers all over the country. They make a fine dish for the table and where one can do so their ranks may be thinned by the use of a small shotgun. A system of trapping, showing plans of different traps, is outlined in Farmers' Bulletin 493, "How to Destroy English Sparrows." Anyone troubled with the pest should get this bulletin. It was published in 1912 and may be out of print but doubtless the department has issued others to replace it. As to poisoning, there is no way of poisoning the pest which does not also endanger song birds, poultry and other domestic stock. A poison which works satisfactorily is made by dissolving one-third ounce strychnia sulphate in a glass of hot water, add three teaspoons starch, heat until the starch begins to thicken, this mass to be poured over a quantity of wheat or kafir corn, or similar grain, stirred and dried. It is said that if the strychnine is used according to this method it will be effective.

"Standard" Plumage

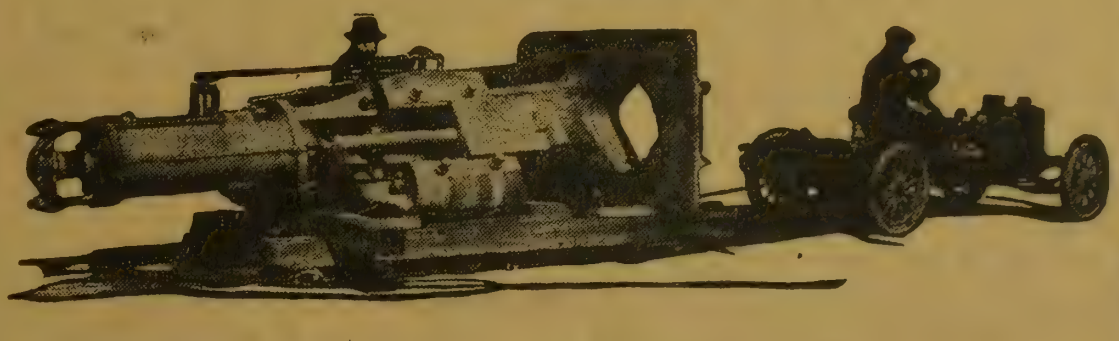
Should a White Orpington cockerel have brassy feathers? Should a Barred Plymouth Rock cockerel have any light feathers at tips of wings?—Subscriber.

"Feathers other than white in any part of plumage" are one of the disqualifications in White Orpingtons, and this includes brassiness, which is a disqualification in all white birds. In the Standard of Perfection's description of color in Barred Rock males and females we read: "Grayish-white, each feather crossed by regular, narrow, parallel, sharply defined, dark bars that stop short of positive black; free from shafting, brownish tinge or metallic sheen; the light and dark bars to be of equal width and to extend throughout the length of the feathers in all sections of the fowl." At the tips of the wings of the male the bars are farther apart than in other sections, but each feather, in the ideal bird, is barred to the skin.—J. A. K.

Vegetables for the Desert

Please give best varieties of vegetables, such as string beans, peas, potatoes, sweet potatoes, onions, etc., for the Mojave desert. Would you advise the use of farmogerm?—Subscriber, Hinkley.

With right soil conditions and plenty of water we see no reason why one should not grow practically all the vegetables needed on the Mojave desert. Those mentioned and practically all other common garden vegetables should do well. It is a matter of fitting the vegetable to desert culture and this one can do only by studying local climatic conditions. At this period of the year we should think all vegetables might well be planted. The heat of summer might make it more difficult but crops planted now would be out of the way before that time. As to use of farmogerm, or any of the bacterial cultures, that would depend upon the particular legume to be raised and whether your soil needs it. With alfalfa we would certainly make a test plot, with another plot on which the



This proves, more powerful than words, the great pulling power of the Chalmers. A short time ago a big steam hammer arrived at the Chalmers works. It weighed in excess of 30,000 pounds. After it was unloaded from a freight car it had to be moved to a building a quarter of a mile away. A Chalmers chassis, just finished, was taken from the factory and a towing rope attached. Several times the rope broke and the steel rollers placed under the hammer were crushed like eggshells. The Chalmers, however, hauled the load with ease, and the hammer was in place in an hour.

Specifications

Engine—6 cylinders, bore 3¼ ins., stroke 4½ ins., piston displacement 224 cu. ins. Power—45 h.p. (on the brake test.) Starter—Westinghouse 2 unit. Carburetor—Stromberg, horizontal, hot air heated. Clutch—Dry disc, asbestos on steel. Fuel feed—Stewart-Warner vacuum system. Ignition—Remy distributor, Willard 80 ampere hour battery. Tires—32 x 4, chain tread on rear.

Prices

Five-passenger Touring - -	$1250	Seven-passenger Sedan - -	$1850
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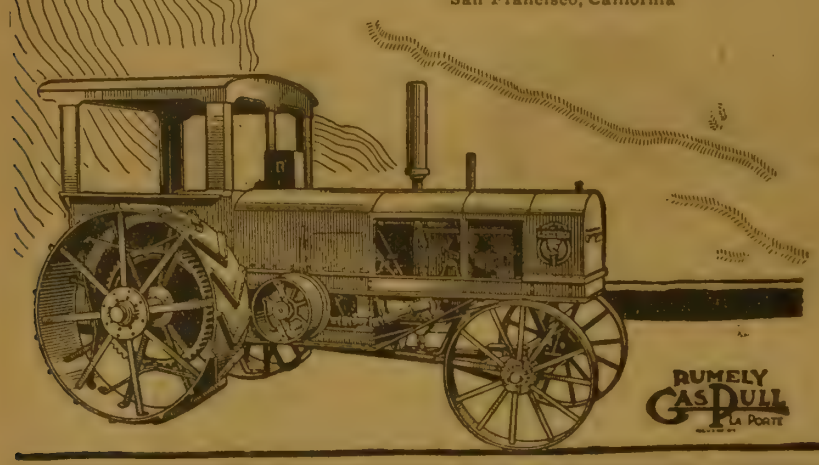

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On peach roots, dormant, light, well branched, heavy roots:

	5 ft.	4 ft.	36 in.	24 in.	18 in.
Prices:	20c	17c	14c	11c	9c
I. X. L.	125	200	150	450	60
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Walnuts on California Black Roots

Prices:	75c	60c	45c	30c
Placentia	8	6	163	300
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Plums: 4 ft, 16c; 3 ft., 12c. Satsuma, Sultan and 10 others.
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Request your storekeeper to supply the goods advertised in the California Cultivator.

culture has not been placed. Then the first year will probably show whether its use is beneficial. The only garden crops on which the cultures would prove beneficial would of course be the peas and beans.

Phylloxera

Would like to see an article in the Cultivator on control of phylloxera.—Subscriber, Morgan Hill.

About the only method of control of phylloxera, other than planting pest-free vines on soil which is not infested, is by the use of resistant stocks. We believe there has been no effective remedy for a vineyard which is already infested. When vineyards are on sandy soil carbon bisulphide may prove fairly efficient, but it must be applied with care. It is extremely explosive. Where one has an abundance of water, flooding the vineyard and keeping the ground covered with water for the period of a month or more in the winter will help to exterminate the pest.

Distance from Line

I am going to set out a hedge. How close can I set to the property line? Is there any law in regard to this?—A Subscriber.

There is no law yet enacted which touches upon this question. Of course the question of damage might be settled in the courts, that is, if one plants trees which injure neighboring property it is probable the owner of the land could recover such damage as may be actually proven.

Manure

Kindly tell me which manure is best, that of the horse or cow, and which of the two will be beneficial for the greatest length of time.—Subscriber, Anaheim.

As a general thing we may say that horse manure is quicker in action or, as often expressed, cow manure is "colder" and not so quickly assimilated by the soil. For that reason presumably the action of the cow manure would cover a longer period. In either case, however, the fertilizing value will depend very largely upon the feed. Taking average samples as far as possible, Van Slyke's "Fertilizers and Crops" gives one table in which the percentage of plant food constituents in fresh animal excrements is shown to be, for the horse .70 per cent nitrogen, .25 per cent phosphoric acid and .55 per cent of potash, while that of the cow is .60 per cent nitrogen, .15 phosphoric acid and .45 potash. This lower percentage of the cow manure is partly due to the fact that it contains a larger percentage of water, that is 86 as against 78 per cent for the horse manure. Another table in the same book gives the value of horse manure per year for each thousand pounds of animal to be $29.60, for each cow $32.60. The weight produced by the horse being about 24,000 and by the cow about 30,000 pounds. In each case of course the straw used in bedding entered into the computation.

Agriculture in the Imperial Valley

How California can now adorn and delight the American family table with such novel fruits of the earth as dates of unfamiliar types, Japanese persimmons, jujubes, Spanish mulberries, kumquats, the roselle, and the cassava (from which tapioca is made, is told in a new bulletin on "Agriculture in the Imperial Valley: A Manual for Settlers," written by Walter E. Packard and obtainable free by writing College of Agriculture, Berkeley. The university's object in issuing this manual is to give settlers in the agricultural wonderland reclaimed from the desert the results of five years of scientific investigation at the Imperial Valley experiment farm established at Meloland in 1912.

"Its feet in the water, its head in the fire," the date palm has flourished marvelously as an immigrant to the reclaimed desert of Southern California from Northern Africa and the Persian Gulf. It has been shown that dry or "bread dates" can be produced so cheaply that they would be profitable if sold for a very few cents a pound, while others, such as the famous Deglet Noor, demand such care and skill in their production that they command sale as a confection at prices as high as the choicest of candies. The Arabs have never developed the date by scientific selection, so work of great interest is being done by California date growers in planting seedlings, retaining only the best of the resulting plants, and thus starting the development of new California varieties of dates which in time will win world fame.

The fact that figs will ripen on the desert as early as May, and early table grapes in June, means that "every man's own vine and fig tree" will be a proverb full of meaning in the Imperial Valley.

The development on the desert of cotton, another newcomer in California, has been highly successful, but has been hampered by the fact that too many types of the race have come, and that the resulting hybridization has been a difficulty. The university particularly recommends the Durango long-staple cotton, which commands a premium of from two to six cents a pound over short staple cotton. California cotton commands a premium over cotton grown in the South because of the greater whiteness of the fibre.

Six thousand cars of cantaloupes were shipped from the Imperial Valley during May and June, 1915, and watermelons ripen by June. Barley, the most successful grain crop of the valley, ripens early enough to be followed by a crop of corn or of milo maize, the sorghums thriving during the heat of the desert summer.

Besides telling how to raise fruits, vegetables and field crops, Mr. Packard gives much valuable information on planning a rotation system, so as to maintain the fertility of the soil and prevent the growth of weeds, on the controlling of desert pests, such as grasshoppers, plant lice, the alfalfa worm, or the "farmer ant", which sometimes kills not only alfalfa or vines, but even—so some claim—young pigs—and on the importance of making soil-borings from time to time so that the farmer may know whether he is giving the soil as much irrigation as his crops need, and—equally important — not too much water, for too much irrigation is not only wasteful but harmful.

REPORT OF STATE WATER COMMISSION

The first report of the state water commission, which is just from the hands of the printer, covers a period from March, 1915 to December, 1916, a little less than two years. Among many other things it shows that agriculture tops the list for use of water by the overwhelming percentage of 93 per cent of the total amount applied for. Power represented five per cent, mining 1 7-10 per cent and municipal supply 3-10 per cent. The following are the amounts applied for for all purposes, given in the unit of second feet, which should be multiplied by 40 to give the equivalent in miner's inches: Agriculture, 91,360 second feet; power, 4892 second feet; mining, 1624 second feet; municipal supply, 257 second feet.

WOOD-STAVE PIPE

The Rural Engineering Division of the United States department of agriculture has issued a professional paper in Bulletin 376, touching upon the flow of water in wood-stave pipe. It is by Fred C. Scobey, Irrigation Engineer, assisted by six other engineers. As noted, this is a professional paper and of practically no interest excepting to engineers. The introduction, however, is interesting, and from it we quote:

"During the past ten or 15 years the use of wood pipe for the conveyance of water has been greatly increased. Such pipe is now quite commonly used to convey water for the irrigation of land, the domestic needs of towns and cities, and the development of power. So long as wood pipe consisted of bored logs its carrying capacity was limited to a small flow and its adaptation to a limited set of conditions, but the conversion of clear, sound lumber into staves and the making of stave pipe into sizes from 12 to 72 inches in diameter led to a great expansion in both carrying capacities and uses. More recently it has been found that stave pipe can be successfully built and operated in sizes up to 12 and 13 feet in diameter, the largest to date being 13½ feet. This great increase in size and carrying capacity has been brought about by providing yokes or cradles which support the lower part of the pipe and thus prevent its collapse.

"Being well adapted to low heads and large diameters, such pipe has proved one of the best and cheapest means of conducting large volumes of water under low or medium heads from the sources of supply to the places of use, regardless of whether the latter be a power plant, a storage reservoir, the highest portion of an irrigated tract, or the distributing reservoir of a municipality. Stave pipe is also frequently used in the construction of inverted siphons, so called, in conjunction with canals and grade pipe lines, to convey water across gulches, ravines, or other depressions or down chute drops to lower levels. It is likewise well adapted to rolling ground where the building of canals on grade might be impracticable. Finally, in the smaller sizes it is often used to convey and distribute water to orchard tracts, manufacturing plants, and municipalities.

"The present economic importance of stave pipe in this country, which arises from its adaptation to so many diverse uses, its wide range of capacities, the ease with which it can be laid on rough ground, and its cheapness when compared with other pressure pipes, has led this department to investigate and report upon its merits and demerits."

In one of the conclusions, of interest and perhaps surprise to most of us, is this: "Wood pipe will convey about 15 per cent more water than a ten-year-old cast-iron pipe or a new riveted pipe, and about 25 per cent more than a cast-iron pipe 20 years old, or a riveted pipe ten years old."

Book Review

FOR THE COTTON BELT

"Field Crops for the Cotton Belt", by James O. Morgan, professor of agronomy, College of Texas, published by The Macmillans, New York, at $1.75.

For years there has been appreciation of the fact that if the South is to prosper as it should it must diversify. It has pinned its faith almost exclusively to cotton, and years similar to the past have been most profitable ones, but such years are far between, and experts of the department of agriculture and far seeing residents of Southern states are giving serious consideration to the problem of diversified farming for cotton growers. This book aims to meet this demand and be helpful to the farmer who would prosper. There are 38 chapters in the 456 pages. The first chapter classifies and gives the value of various field crops, several chapters then discuss the cotton plant, various species and varieties, cotton breeding, climatic adaptations, fertilizers and minerals, tillage, harvesting and marketing; then comes a series of chapters discussing other crops such as Indian corn—and to this crop several chapters are given—oats, wheat, rye, barley, rice, sorghums—both grain and saccharine—sugar cane. Most unfortunately, we believe, the author leaves out discussion of the most important of all "crops", such as beef, pork and dairy products. It has, however, a fund of information touching upon conditions in cotton growing states.

APPROPRIATION FOR DAVIS FARM

The board of directors of the Sacramento Valley Development Association has endorsed the recommendation to the legislature that $620,000 be appropriated for the Davis farm of the University of California to be expended as follows: Creamery, $100,000; building and equipment for animal husbandry, $60,000; water supply, irrigation distribution, sewerage disposal and fire protection, $15,000; minor structures and repairs, $15,000; agricultural engineering, $50,000; dean's residence, $10,000; greenhouses, $10,000; total, $260,000.

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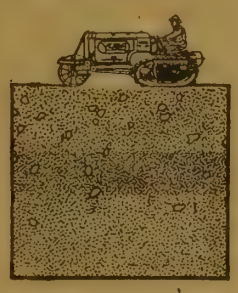
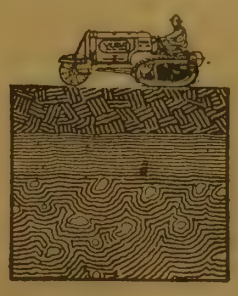


Sand? Admittedly a hard soil for any tractor. Frankly the upkeep of the tractor will be somewhat greater. But, and this may surprise you, the Yuba Ball Tread wears very little faster under these conditions. The reason? Less bearing surfaces to grind away and better steels to stand the wear.

Tule?

The Yuba is a favorite for breaking tule land. The high clearance of the Yuba disc plow keeps it from clogging up. The Model 20-35 and plow form a "one man outfit."



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In any soil the Yuba outfit — a Yuba tractor and a Yuba plow — have points of distinct advantage. Write us your conditions and let us tell you something of what you may expect the Yuba to do for you.

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I am interested in Model 12-20____ Model 20-35____

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[Check main crop raised]

___Fruit ___Rice ___Grain
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OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Tastes differ, but for a California roadside tree none equals the olive. We are aware of the beauty of the Himalayan cedar, said by some to be the most beautiful tree in the world, and of many other purely ornamental trees like our eucalyptus and pepper. Yet the olive is not only beautiful in form, in its shade of green and its beautiful trunk, but it will continue to grow and thrive for generations. Besides there is possibility of return to the property owner or the county which might well maintain thousands or hundreds of thousands of trees along its highways. Let us plant more olives.

The cover this week shows a bit of avenue planting which will be seen faulty in that the trees are planted entirely too close together and the avenue is too narrow. But there is promise in this view of the beautiful things in store for California if she will but plant the trees which the Mission fathers brought to the state.

AN APPLE A DAY

A subscriber in the North signing himself "Apple Dad" sends a clipping from an Eastern newspaper in which the big red apple and the little red school house are urged as educational factors. It says that this is an age when the value of preparedness and the necessity of retrenching have been demonstrated. The article then goes on to say that we need to fortify our children not only with intelligence and learning but with best of health, which may be secured by the eating of plenty of fruit. In fact, going one better than "An apple a day keeps the doctor away" he suggests that two apples a day be given to every attendant of the little red school house.

ORANGE DAY

Our date of issue is also the date on which the orange is to rule the United States. First of all the fruits to declare itself worthy of a special day observed in its honor, it has secured perhaps the most general recognition of any. Lovers of the apple—and that includes all of us—insist that an apple every day is sufficient to keep the doctor away and that the apples of gold shipped from this state, almost by the hundreds of carloads every day in the year, make Orange Day extend from November 1 to October 31. The California Cultivator can now do nothing more to boost for the 1917 Orange Day, but we may call attention to other days in other years to come.

There has been limited planting of oranges for the past few years; some orchards have been eliminated because of the growth of progressive California cities or possibly because of unfortunate selection of site. One who has land fitted for orange culture may well consider future demands for this luscious fruit.

ANTI-TORRENS

The banks of Orange County, after various whereases, declare:

"Whereas, such property so registered may be offered to the banks of Orange County as securities for loans or credits.

"Now, therefore, be it resolved by the Orange County Bankers' Association that certificates of title issued in accordance with the provisions of said act, which is known as the Torrens title law, will not be accepted as evidences of title by this association unless also accompanied by an unlimited certificate of title made by a responsible abstract or title company."

Yet the banks ask why farmers are not content with the present financial conditions. This is a most pointed answer.

If there is weakness in the present Torrens law of California the banks might well join in strengthening it rather than in an effort to nullify it, for one of the heaviest taxes upon the borrower is the expense of making his loan. If the banks of the state would encourage agriculture let them simplify this matter of rural credits.

BUILD SILOS

It is almost universally conceded that the cheapest dairy feed on earth is silage, yet California has fewer silos than any other section where dairying is as important an industry as it is here. The explanation often given is that we grow green feed the year around. Yet the owner of the silo who grows the right crops and carefully stores his ensilage almost invariably continues the practice. Our great crop, alfalfa, is one of the richest dairy feeds, but it needs balancing, and concentrates are now sold at war prices which are prohibitive except for feeding to highest producing cows. Silage is not only valuable to balance the ration; it is a good conditioner, and the stock eats ravenously of it.

There are all kinds of silos from low priced to high priced. Build which you prefer, but build a silo. There are 6,000,000 less cows in the United States than there were 15 years ago, and there are 24,000,000 more people. None of this loss has been in California, for which we should all be thankful, and while California's dairy production will not increase sufficiently to overcome the loss in other sections of the country, she may, by proper use of her resources, enter more largely into this most dependable of all agricultural pursuits.

SPUDS

We note the coining of a new word. We have had aristocrats, plutocrats, and various others; now comes the potatocrat. The best of it is there seems to be a general scramble of the common people to enter the class; all are growing potatoes. Eugene Grubb of the Southern Pacific is in his element and, strange as it may seem, is giving warning to the would-be potato growers to learn the requirements of the class which they would enter.

Ordinarily the United States produces less than 400,000,000 bushels of potatoes. Last year there was a shortage in supply and an increase in demand. The shortage is perhaps due more to pests and diseases of the potato than to any other one cause. New fields are being developed, and we hope this shortage will be recovered.

California is well toward the top in the total production, though she only produced 10,000,000 bushels. There are two or three large producing states, New York heading the list with nearly 50,000,000 bushels. Pennsylvania, Ohio, Michigan, Wisconsin, Minnesota, and one or two others are in advance of California. California has its troubles in potato growing, and these will be somewhat increased this year because of the great increase in number of producers. These producers have some lessons to learn, and we hope our potato experts will pass on the information which will reduce losses to the minimum.

HOGS

Well wishers of California have for years been calling for more hogs, more beef, more mutton, more milk, more everything along the live stock line. "They are needed to balance agricultural interests in our fruit growing sections; they are needed for their direct wealth bringing power; they are needed because they make a state more independent". And the live stock industry has responded to these appeals and has grown and is growing, and seemingly every effort has been made to induce further growth.

Now, however, comes the board of supervisors of Los Angeles County and puts a penalty on every hog. The hog—at least in large numbers—must not be kept within a mile of any little hamlet; he must be fed on sterilized tables; he must pay a fee for a physician or manicurist to call and inspect his manner of living, and if various regulations are not complied with his owner may pay a fine of $500.

The board of supervisors of Los Angeles County has perhaps given a paying position to some politician, but we believe it has exceeded its rights, at least from the standpoint of justice, in placing upon this branch of the live stock industry such a burden. Inspection is made of our cattle, our trees and plants and seeds and the county or state bears the expense. The hog must pay his own way and hire a politician. We believe there should be reasonable regulation of all these matters, and we believe the expense should be placed where the horticultural law places it, and not upon the man who is endeavoring to respond to the call of all of us by producing more and better live stock. Such a law, or ordinance rather, may stick when the courts take a turn at it, but we hope not. The swine breeders are so busy producing better hogs that they have no time for such a test.

Agricultural Notes

Hogs touched the 11-cent mark in Chicago last week.

The cold season in the East is making a late maple sugar season.

All supplies of rice received in England are now under government control.

Australia has put through a daylight saving bill which went into effect January 1.

More attention is being given to cattle raising in Tennessee and other Southern states.

Texas has 12,000 acres in onions this year, an increase of 2000 over the planting for 1916.

The annual meeting of the American Guernsey Cattle Club will be held in New York May 16, 1917.

The university farm at St. Paul has demonstrated that raising pigs brings profit of five cents a minute.

Exports of cotton from the United States to date of February 10 amount this season to 3,165,110 bales.

San Angelo, Texas, is planting pecan trees for shade along its streets. Over 2500 were planted during the past season.

Italy has almost 6,000,000 acres devoted to olive culture. The olive oil yield for 1916 was about 375,000 pounds.

The Hawaiian experiment station is cooperating with stations in California and Florida in experiments in the growing of the Chinese litchi nut.

Cuba exports considerable quantities of honey. Last year's shipments went largely to the Netherlands, though the United States bought about $100,000 worth.

The embargo of railroads and the scarcity of cars is interfering seriously with the movement of farm produce to market, and this at a time when prices were never so attractive.

The United States imported more than $3,000,000 worth of bean oil from the one port of Dairen, Manchuria, during 1916. Only $400,000 worth came from the same point in 1915.

American export trade to South Africa has been much increased since the beginning of the war. In the first six months of 1916 it was estimated to have increased by $5,000,000 value.

The Pennsylvania Railroad is collecting waste paper at stations and on trains and has installed baling machines which put the paper in shape for handling by the mills. Other railroads are following suit.

An increase of 25 per cent in the grazing fees on all national forests, instead of 33 1-3 per cent as was originally contemplated, will be made for the season of 1917. Subsequent increases will be based on study of local conditions.

Regarding wheat prospects Illinois reports winter wheat still looking well; Michigan, acreage same as last year and crop in good condition; Ohio, thawing and freezing bad for crop; prospects generally for wheat production the country over not as bright as hoped for.

The state experiment station at Pullman will soon issue a bulletin on "A Soil Survey of the Proposed Palouse Irrigation Project," including a detailed survey of the 103,000 acres of land in southern Franklin County, which may at some time be put under irrigation with water from the Palouse River.

Agricultural News Notes of the Pacific Coast

Northern California

The fair at Chico will be held May 21-26.

Cloverdale had a big citrus show last week.

Dates of the Glenn County fair have been named, September 19-22.

Four thousand acres has been sown to barley on the big Stanford Ranch at Vina.

The university farm picnic, held at Davis every spring, will take place this year on April 28.

The boys' agricultural club of the Placerville high school has started a potato growing contest.

The Tehama County farm loan association has asked the supervisors to secure a county farm adviser.

Sheepmen of Shasta County are reported selling wool on the backs of their sheep for 38 cents a pound.

It is announced that Ruby and Bowers are going into the cattle business. They will handle Shorthorns and Herefords.

The Glenn County Live Stock and Agricultural Association has elected J. J. Flaherty, president and E. A. Kirk, secretary.

A Chico grain buyer has started the marketing of rice straw. It is baled and used chiefly for packing purposes and as bedding for cattle.

The price of jute bags manufactured at San Quentin has been fixed at ten cents. The penitentiary expects to deliver between 3,000,000 and 4,000,000 bags.

Four hundred crates of Japanese onions came into San Francisco last week. This reverses the usual order as California has been exporting to Japan until recently.

Hop buyers are in the field trying to make contracts for the 1917 crop on a 10½ cent basis. Members of the Hop Growers' Association, however, are refusing to sign up at this figure.

The Mt. George farm center of the Napa County farm bureau gave a banquet in honor of the visiting farm adviser's conference on Tuesday evening, February 20, in the farm center hall.

The Arbuckle-College City Almond Growers' Association last week held its annual meeting, electing C. B. Morrison, president; D. S. Nelson, secretary, and H. H. Dopkins, representative of the state exchange.

A number of damage suits have been brought against reclamation districts 108 and 787 and the Knights Landing Ridge Drainage District, as a result of the cutting of Knights Landing Ridge, which lets in the waters of Colusa Basin on the lands of the plaintiffs.

Central California

The raisin dryer at Parlier has been burned, destroying about 70 tons of raisins.

The average price paid for January butter fat by Kings County creameries was 42 cents.

The proposed Madera irrigation system includes construction of three 400,000 foot reservoirs.

Stockmen of Tulare County are planning a stock and swine show to be held in Visalia this fall.

San Luis Obispo has taken the bounty off squirrels and coyotes, as a measure of retrenchment.

Tulare County stock growers have organized the Tulare County Pure Stock Breeders' Association.

A number of dairymen of Kerman have enrolled in night dairy classes of the Kerman high school.

Supervisors of Kings County have opposed the plan to establish a drainage district in the Island reclamation district.

Directors of the California Peach Growers' Association have decided to erect peach packing plants at Kingsburg and Parlier.

The California Associated Raisin Company shipped out last week 50 carloads of raisins. Freight rates were increased from 90 cents to $1.00 per cwt. on March 1.

Director Lookwood of the Turlock Merchants and Growers' Association is urging cantalope growers to cooperate in hauling their crop to market, thus effecting material economy.

The Fresno County Agricultural Association has increased the number of its board of directors from seven to 17. The next district fair will be held the first week in October.

The exhibit of the San Joaquin Valley Counties' Association at San Diego has been removed to San Francisco, where it will be kept as a state exhibit in the exposition auditorium.

According to report of County Horticultural Commissioner Ladd of San Joaquin the fruit output of 1916 was cut down to 80 per cent of that of 1915. Much better prices were secured, however.

At a recent meeting of the county horticultural commissioners of the San Joaquin Valley a law against tight packing of grapes was approved, as was the licensing of all sprayers and fumigators.

Fig growers of Stanislaus County, in a recent meeting at Ceres, effected a permanent organization. The growers will endeavor to standardize their product and market Stanislaus figs under a special brand.

Southern California

The Hemet Farmers' Club met on March 1.

A cannery is to be built at Arlington, Riverside County.

Five high schools in the Imperial Valley have pig clubs.

There are now six farm loan associations formed in Imperial County.

There is a proposal to establish a citrus pre-cooling plant at Orange.

The California Walnut Growers' Association received for its 1916 crop $3,000,000.

The stock of lima beans in warehouses is only about half what it was last year at this time.

Members of the San Antonio Growers' Assocation received $15 a ton for their tomatoes last year.

The Chile pepper crop of Garden Grove is reported to have brought the growers about $121,000.

Pear growing is proving profitable in the Imperial Valley, one grower gathering 40 tons from 20 acres.

The Sugar Beet Growers' Association of Southern California held a meeting at Artesia the evening of February 27.

The highest price ever paid in Fillmore for beans is said to be 8½ cents, paid to the Fillmore warehouse for limas.

A new cottonseed mill has been opened for business in Los Angeles and is turning out 4800 gallons of oil daily.

The Garden Grove Citrus Association has purchased land and will commence the erection of a packing house.

The cannery of the California Growers' Association at Hemet is being put in shape for the apricot and peach crops.

At the recent meeting of the Riverside County Beekeepers' Club at Riverside a score card for judging honey was adopted.

Apricot growers of Hemet gathered on Tuesday evening, February 20, to form a local association of the Prune and Apricot Growers.

The chamber of commerce of Northern San Diego County held an all-day meeting in Fallbrook recently at the Red Mountain ranch.

Nearly 37,000,000 pounds of walnuts were imported into the United States last year but California nuts sold at prices 35 per cent higher.

Garden Grove, Orange County, shipped to Los Angeles canneries the past season 1500 tons of pimientos and 1000 tons of green chiles.

A lemon pruning demonstration was given by H. S. Lee to the Riverside experiment station in the grove of S. Douglas of Covina. A number of Covina lemon growers were present.

The Coast

There will be a fat stock show at Fort Worth, March 12-17.

Culture of broom corn is arousing much interest in the Southwest.

Bannock County, Idaho, has made appropriation for support of a county agriculturist.

Seattle reports a heavy supply of low grade apples as seriously affecting marketing prices.

Farmers of the Chandler district of Arizona have organized an association with H. P. Clark as president.

The wool crop of the Yakima Valley is much heavier than last year and will be of better quality, according to recent reports.

Cotton growers of Chandler and Tempe, Arizona, are asking county aid in bringing in laborers to help in picking the cotton.

Survey has begun of the first forest road to be constructed under the federal aid road act. This will be in the Apache national forest of Arizona.

During the past year the cooperative creamery at Kennewick, Washington, has paid farmers better than one cent above the market for butter fat.

Dr. B. J. Cady, cholera expert of the United States department of agriculture, is at present working in Kings County to control the outbreak of hog cholera.

Arizona cattlemen are much gratified over the announcement of the secretary of agriculture that the advance in grazing rates would be 25 instead of 33 1-3 per cent.

A farmers' cooperative grain elevator has been built at Centerville, Washington. It will save the farmers about six cents per bushel on their sack bill alone.

Live stock men of the Northwest held meetings at Spokane February 22, 23, at the call of the Spokane chamber of commerce to discuss impending live stock legislation.

It is reported that 2000 horses now in stage service in Yellowstone Park will be sold into the army service and automobiles installed to take their place in the park.

More than 65 prune growers assembled at Vancouver (Washington) and appointed a committee of three to formulate plans for a prune growers' union or organization.

The Idaho-Oregon Honey Producers' Association will establish a warehouse at Caldwell, Idaho, to handle bee supplies. Ten thousand dollars' worth of supplies will be purchased as a start-off.

The Farmers' Union Warehouse Company of Palouse, Washington, has paid $15,000 for potatoes since the crop came in, and with other shipments it is estimated that $25,000 worth of potatoes have been shipped out of Palouse during the season.

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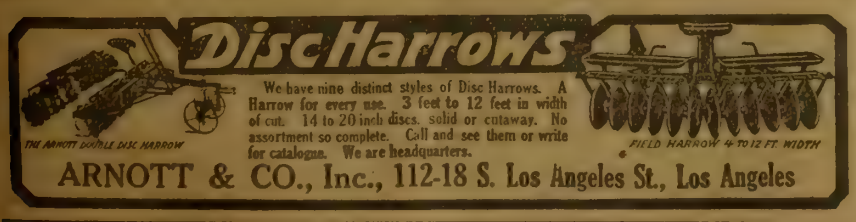
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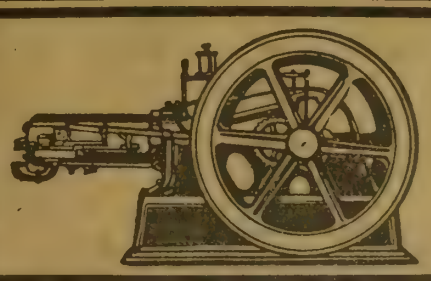
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Cow Testing in Imperial Valley

Written for California Cultivator By Paul Short

IMPERIAL Valley, though long known for its great production of alfalfa, is rapidly coming to its own as the leading county as a dairy region.

In a comparatively short time an enormous number of cows were shipped into the valley. Among them were many good herds and high producing cows and also many poor ones and culls from other districts. Many breeders and dairymen have felt the need of a higher standard of milk and butterfat production. To attain this end the Imperial County Farm Bureau, working for the farmers, organized a cow testing association. The number of dairymen joining was larger than anticipated, and the number of cows signed up totalled 4000, forming the largest cow testing association in the world and requiring the services of four testers who are now at work in the valley.

The association is divided into units according to locality, and each is handled by one man. The charge of one dollar per head per year covers the expense, each cow being tested once a month. Testing was commenced in November, 1916.

Some interesting data was brought to light by the first few months tests. During the rainy months of January 65 of the 4000 cows gave over 45 pounds of butterfat; 36 gave over 50 pounds, and ten cows gave over 60 pounds of butterfat, or two pounds per day. Notwithstanding this fact, the purebred Holstein herd of C. Darnell has entered the state dairy cow competition in the California Cultivator contest for highest average yearly production of herds in cow testing associations.

F. Vander Poel's Jersey cow, No. 1853 headed the list of high producers with 89.51 pounds of butterfat for the month.

Much service is rendered the dairyman in picking out the low producing cows, and already some men have culled out some of their low producing cows and found practically no difference in the cream check.

Considering the fact that there has been a feed shortage in Imperial Valley that has affected practically every dairyman, and many seriously, the production for the entire number of cows is comparatively high to that of other sections of the state. These facts emphasize the importance of Imperial Valley as a dairy region. The outlook for the future of Imperial Valley is certainly good.

Feeding Sorghum Grains

THE Middle West has done some consistent experimenting with the feeding of sorghum grains. These experiments have shown that the grain belt is not the exclusive producer of the finest of pork, and at low cost of production. The Kansas experiment station makes report regarding some of these experiments, from which we quote:

"Milo, kafir, and feterita are the sorghums recommended. They must, of course, be fed intelligently. Because of their deficiency in both protein and fat it is advisable to supplement them with shorts and tankage for fattening purposes. These feeds were compared with corn and different methods of preparation used to determine economical methods of utilizing them.

"Eighty thrifty stock hogs, farrowed in April and May, were started in this test November 21, 1914, at an average weight of 140 pounds. They were divided into eight equal groups similar in size, condition, thrift, and type, and were fed for 74 days.

"In the first five lots the ration consisted of shorts, 30 per cent; tankage, 5 per cent; and 65 per cent of kafir, feterita, milo, kaoliang, and corn respectively. In lot 6 whole kafir with an amount of shorts and tankage, equivalent to that fed in lot 1, were given to the animals. In lot 7 the hogs received kafir heads with an amount of shorts and tankage equivalent to that fed in lot 1. In lot 8, 50 per cent of ground kafir and 50 per cent of shorts were fed.

Milo Tops Other Sorghums

"The results secured, as shown in the table, indicate," said W. A. Cochel, professor of animal husbandry in the agricultural college, 'that corn was slightly more efficient than any of the grain sorghums, but the increased gain and decreased amount of feed necessary to produce the gain were not sufficient to justify the difference in the commercial value of the grains.

" 'Milo ranked next to corn, followed closely by kafir and feterita. Kaoliang, which is a variety of the non-saccharine sorghums grown for seed rather than for forage, was much

Banker's Boy
Property of Santa Anita Rancho

less efficient than the other non-saccharine sorghums usually grown in western Kansas. It is interesting to note, however, that the feed required to produce 100 pounds of gain, where the sorghum grains made up 65 per cent of the feed, varied from 523.4 pounds to 572.1 pounds during that part of the year when the cost of producing pork is higher than at any other time. The commercial value of these feeds was much greater than usual at that season of the year. Hence the cost of feed necessary to produce 100 pounds of pork varied from $6.18 to $6.75.

Tankage Raises Ration Value

"'Although the amount and cost of the feed required to produce 100 pounds of gain are generally a fair measure of the value of a ration, it is probable that the hogs in the lots making the more rapid and more expensive gain would sell for 10 to 15 cents a hundred more than those showing less finish, and would thus give a greater total profit. The difference would be even greater on a discriminating market when there was an urgent demand for lard. As no slaughter test was conducted, it is impossible to comment on the dressed carcasses and the quality of meat from the various lots.'"

It was found profitable to grind the grains.

Feeding Value of Plants

The recent annual report of the chief of the bureau of chemistry, United States department of agriculture, shows that much work of a research nature has been done during the past year on the chemical composition of various cereals and other plants in order to form the basis for practical nutritive experiments. The proteins of the plants have been analyzed and new constituents discovered in some of them. The feeding value of plants has heretofore been estimated largely on the basis of the protein they contained. Investigations have shown, however, that the proteins in various grains and other feeds differ greatly in composition. Two cereals which contain approximately the same amount of protein may vary much in feeding value because the protein in one of the cereals contains certain constituents necessary to nutrition which are lacking in the proteins of the other cereal.

A new protein has been found in the nitrogenous compounds of kafir corn. The composition of this new protein has been determined. It contains the amino acids lysin and tryptophan, both indispensable to the normal nutrition of animals. These are not found in the proteins of maize. Now that this is known, the report states, a rational attempt can be made to learn how kafir may be fed to make it no less valuable than maize.

The peanut has been found to contain an abundance of diamino nitrogen. This form of nitrogen is indispensable to the normal nutrition of animals and is contained in inadequate amounts in the common cereals from which most feeds are derived. Peanut press cake should therefore prove to be an easily accessible material to make such cereal feeds more efficient, the report states.

Corn Smut Not Injurious to Cattle

It is a quite common belief that corn smut is injurious to cattle. Numerous experiments have been made to ascertain whether or not this is true. One experimenter started feeding two ounces a day of the smut to each of two cows. Later the amount was increased to 11 pounds. The test lasted 49 days, but no serious results were evident. The cows had a normal milk yield at the end of the period.

Other experiments have given practically the same results, so that it may safely be said that corn smut, either in the field or in the prepared ration, is not poisonous to cattle, says W. W. Robbins, Colorado Agricultural College.

But Beware of Ergot

The same authority gives the following warning regarding ergotism:

Ergot is a name applied to one stage of a fungus that works in the heads of a number of grasses. It causes one of the oldest known stock diseases, the so-called "ergotism."

The ergot stage of the fungus is abundant in the fall. It forms purple-black, straight or horn-like, hard structures about one-fourth to one-half inch long. These structures occupy the position of the grain in the head of grass. This hard mass is not a degenerate kernel of grass, however. The black ergot masses vary in size and shape, depending upon the plant attacked. They are largest in rye. Ergot develops upon a number of grasses, chief of which are cultivated rye, wild rye, wheat-grass, meadow-grass, timothy, and red-top. The injury to the grass is slight.

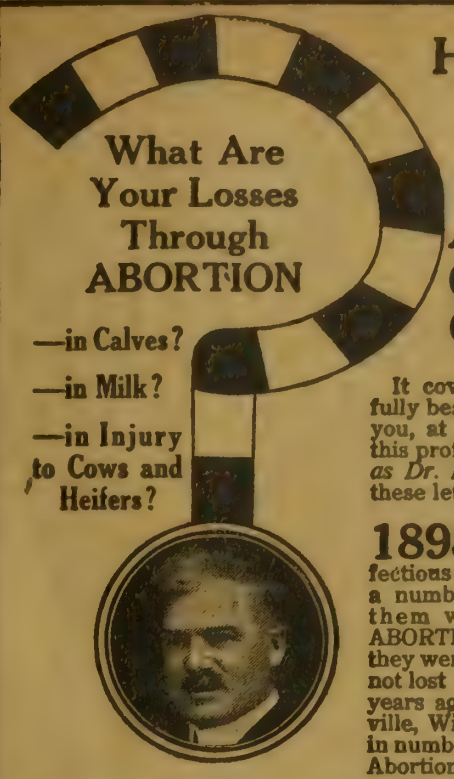
There is no effective remedy for ergotism. Hence one should become familiar with the appearance of ergot, and avoid grazing stock on badly infested areas and also avoid cutting infested areas of grass for hay.

HANDLING MILK

Milk should be kept as cool as possible, at 50 degree or lower. Do not pour it from one vessel to another until it is to be consumed. Keep the milk covered, using paper caps or an inverted tumbler on bottles, or storing it in covered utensils. Any household utensil that is to be used as a vessel for keeping milk should first be cleaned thoroughly and scalded.

Before opening a bottle of milk, wash and wipe the neck and outside of the cap with water and a clean cloth. The little depression on the top of the cap may collect dust or water and any milk that leaks out may attract flies. Lift out the cap with a pointed instrument so that the outside of the cap, which may be contaminated, will not be pushed down into the milk. Each time the milk is to be poured from the bottle it is a wise precaution to wash the neck as described.

Fertility of soil and a plentiful supply of pure water are the essential points to be considered in choosing a suitable location for hog raising. Given these, with an abundance of shade and the necessary preliminary training in swine husbandry, the man who cannot make money out of this industry may safely consider himself as out of the running when it comes to making money at anything. Soil, water, shade and energy tell the story in a few words.



Here's Evidence that COW ABORTION Can Be Driven Out of a Herd

It covers nearly twenty years and fully bears out Dr. Roberts' claim that you, at very small cost, can wipe out this profit-stealing disease *if you will do as Dr. Roberts tells you to do.* Read these letters carefully.

1898 "My herd of twenty-two cows was afflicted with Infectious Abortion in 1898. After losing a number of calves I began treating them with DR. ROBERTS' ANTI-ABORTION TREATMENT. I feel that they were permanently cured, for I have not lost any calves since that time, five years ago."—(J. A. Griswold, Duplainville, Wis.) "My herd of cows, eleven in number, was troubled with Infectious Abortion. I tried various remedies, without any relief; then I began treating my herd with ROBERTS' ANTI-ABORTION. I had ten live, strong, healthy calves come that year and have not lost a calf since that time—over three years ago."—(Sworn statement of Herman Shirley, deceased, Waukesha, Wis.)

What is lost on ONE good calf would pay for the complete treatment for an average herd.

1902 "My herd of twenty-two cows being afflicted with Abortion in 1902, I decided to try DR. ROBERTS' ANTI-ABORTION TREATMENT, which I did with results satisfactory, and I believe if used according to directions is a sure cure every time."—(I. Vandeburg, Kingston, Ill.)

1913-15 "In 1913 I applied your ANTI-ABORTION TREATMENT to my herd of forty-two head, and hereby wish to state that I cured my herd entirely and that I haven't had a single case of abortion since that time."—(Jos. F. Jira, Cary Sta., Ill.) "I am well pleased with your TREATMENT FOR ABORTION. I have nine fine calves and one cow left to calve yet. Two of the calves are from cows that aborted last year. I finished your treatment July 15, 1915, two months ago, and have seen no signs of disease since then."—(Iowa. Name on request.)

If your herd is afflicted with Contagious Abortion, and is free from tuberculosis, you can, with the Dr Roberts treatment, clean up your herd and wipe out abortion. All Abortion Treatments are shipped direct from our laboratories at Waukesha.

Write us today for free Abortion book, "Questions and Answers"

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A good fitting collar is as necessary to your horse as good fitting shoes are to your feet. The shoulders of your horse are his greatest asset. Look out for their proper care. It is humane. Besides it pays.

Felt Face Horse Collars are made with a facing of felt over the stuffing, next to the outer leather facing.

It is a gall-ease collar; hand-made from prime oak tanned leather; full hand-thonged.

It is economy to buy this never-gall collar.

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AN EFFICIENT ENGINE is one that will not only continue to develop the full amount of power required on the smallest consumption of fuel, but will also require practically no attention during operation. It must be free from repair expense and the possibility of a breakdown during the pumping season.

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Viking Pumps will deliver more water per minute for the same amount of power used than any other type. Its very high efficiency is due to its positive delivery, its correct design and careful manufacture. It is SELF PRIMING, requiring no foot valve or priming pump and is easy to install. Investigate the Viking Pump. Built in all capacities from 20 to 1600 gallons per minute.

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PREVENTED AND CURED PERMANENTLY

YOUR COWS MADE PROMPT. REGULAR BREEDERS BY

STERILOID

STOP LOSING CALVES

TREATMENT: If STERILOID is used at the first sign of abortion the cow will go her full time and have a healthy calf. If your cows or heifers do not come in season, or fail to get with calf, use STERILOID. Cows get with calf after only one treatment. Write today for **FREE BOOK.** It explains the causes and symptoms of Abortion and tells how to cure Abortion, and make your cows regular healthy breeders with STERILOID. Also contains letters from breeders who have used STERILOID successfully.

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Fifteen head Shorthorns at State Fair awarded 19 premiums. Herd boar awarded Reserve Grand Championship. Grand Champion Sow now added to our herd.

Bulls, Boars, Bred Sows and Gilts

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Agents for Southern California

INDIANA SILOS

(See opposite page)

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Hampshires For Sale

Pure bred boars and sows for sale. Some with splendid belts, for $15 to $40 each, depending on age. All good healthy hogs, free from cholera.

C. A. Canfield Estate Ranches

BEN. F. THORPE, Manager

Bonsall, - - California

Freight Tariffs on Pure Bred Stock

REGARDING freight tariffs on pure bred livestock Secretary Wayne Dinsmore of the National Society of Record Associations writes:

Breeders east of Chicago who have been compelled to pay on an arbitrary maximum weight when shipping animals in less than carload lots are requested to take cognizance of the fact that by the decision of the interstate commerce commission which went into force December 1, 1916, stallions can be shipped at a weight of 3000 pounds instead of 7000; ordinary horses at a weight of 2000 pounds instead of 5000; bulls at a weight of 2000 pounds instead of 5000; mare and colt or cow and calf at a weight of 2500 pounds instead of 5500. Other weights are scaled down in proportion and inasmuch as information has come to the National Society of Record Association that many agents are, in violation of law, still compelling shippers to ship at the old weights, all live stock breeders are urged to go direct to their agents and call their attention to the fact that the extremely high weights required in the shipment of breeding animals l. c. l. in the past no longer exist. They are further requested to ascertain whether the agents have received proper tariffs from their railroad companies.

The attention of all shippers in all parts of the United States is further called to the fact that animals may be shipped at their true values in the case of valuable breeding animals by the payment of a very slight increase in rate, to-wit: an increase of four per cent in rate for each 100 per cent increase in value of the animals over the basic values fixed in the tariffs, which are on file in each railroad station.

Any railroad company whose agent violates these rulings is subject to a fine of $5000 for each offense, and it may be wise to call the attention of local agents to this in cases where they seem negligent in informing themselves in regard to the new regulations.

Cheap Breeding Stock Expensive

By S. T. Simpson of the Missouri College of Agriculture

The unprecedented demand for pure bred live stock will sooner or later result in the marketing of many animals eligible to registry, which are inferior as individuals and which may prove poor breeders. The present high values afford all the better reason for investing in only good breeding animals even though they appear high in price. In this way only can the present high standard be maintained and the scrub pure-bred finally eliminated.

The use of the registered scrub can but discourage the cause of pure bred sires and better live stock. The breeder who markets such individuals will ultimately suffer the criticism of those who know good live stock, and finally be discriminated against in buying and selling. The purchaser of the scrub pure-bred can breed nothing but inferior individuals so long as he persists in buying the pedigree with no regard for individual merit.

The pure bred sire is the best means of live stock improvement. Whether good or bad he is half the herd and sometimes more. For this reason the selection of the sire demands equally as much attention as the entire group of females, and it is far more important to have a good sire, both in individuality and breeding, than to have one or two good females. If sacrifices must be made, let them occur in the selection of the females. Better still, let every one be a good one, both in breeding and individual excellence.

New Records and New Cattle

Official test work in the herd of registered Holsteins owned by Bridgford Company of Knightsen was well under way just at the close of 1916, and some very creditable short time records had been made. Bos Antonia Cornucopia at the age of two years and two months made 17.10 pounds butter in seven days, and for the same period Rilla Canary made 24.56 pounds, the junior four-year-old, Upland Zeffie Wayne made 25.78 pounds; Panje Hengerveld De Kol made 26.76 pounds; and the three-year-old Pauline Soldene De Kol 3d led the group with the splendid record of 27.78 pounds butter in seven days. She is a daughter of Sir Rag Apple Korndyke, whose dam is the 36.20-pound cow Sadie Vale Korndyke, daughter of Rag Apple Korndyke. The dam of Pauline Soldene De Kol 3d is Pauline Soldene De Kol, a 26.91-pound cow that has a 30.77-pound three-year-old daughter. Pauline Soldene De Kol 3d has a fine bull calf sired by King Veeman Pontiac Hengerveld, son of the $50,000 bull King Segis Pontiac Alcartra and a 29-pound daughter, with two 30-pound full sisters, of Sir Veeman Hengerveld. The first five dams of this calf average over 30 pounds butter in seven days, including two three-year-old records.

Bridgford Company has just brought out a carload of splendidly bred Holsteins from the East. Among the lot are two daughters of King Segis Pontiac Alcartra, one of them from a 31-pound dam, and the other from a 19-pound two-year-old daughter of a 37-pound cow. There are also three daughters of Spring Farm Pontiac Cornucopia, the $15,000 son of the 44-pound cow, K. P. Pontiac Lass. One of these heifers is from a 30-pound dam, one is from a 29-pound dam, and the third is from a 27-pound dam.

Then there are three daughters of Spring Farm King Pontiac, a son of King of the Pontiacs and out of a 37-pound dam. The dams of these three heifers have records of 31, 28 and 27 pounds.

Two good heifers are sired by King Pontiac Konigen, a 37-pound son of King of the Pontiacs.

The shipment also included six daughters of King Walter 5th, a son of King Walker and out of the 30.62-pound cow, Paula of Chagrin Falls 3d, who also made 751 pounds milk in seven days and 10,112 pounds in 100 days on official test. She was winner in the aged cow class at the last National Dairy Show. The dams of these six heifers all have good official records, one of them having over 30 pounds and two others above 29 pounds butter in seven days.

Some of the good record cows in the shipment are in calf to the $15,000 44-pound bull Spring Farm Pontiac Cornucopia.

102 "Indiana" Service Stations in the West!

"Our duty to a customer does not end with our delivering to him a silo that is all we represented it to be; we must also assist him in learning to use it so as to get the best possible results."

Chas K Spaulding Pres.

THIS statement, from the man who outlines the policies of this company, explains why we strive so hard to make Indiana Silo Service equal Indiana Silo Quality! It also explains why Indiana Silo owners get such splendid results from the very first. They do not have to experiment.

Every silo representative we have in the field is a "service station," so to speak. Their mission is to give information and assistance, as well as to sell silos. Each man is also an "information-gathering" station, from which source we gather much of the experience, etc., set forth every month in our Silo Service Bulletin—"The Watch Tower of Prosperity." This data, carefully edited by our own agriculturist, will save thousands of dollars annually to users of the

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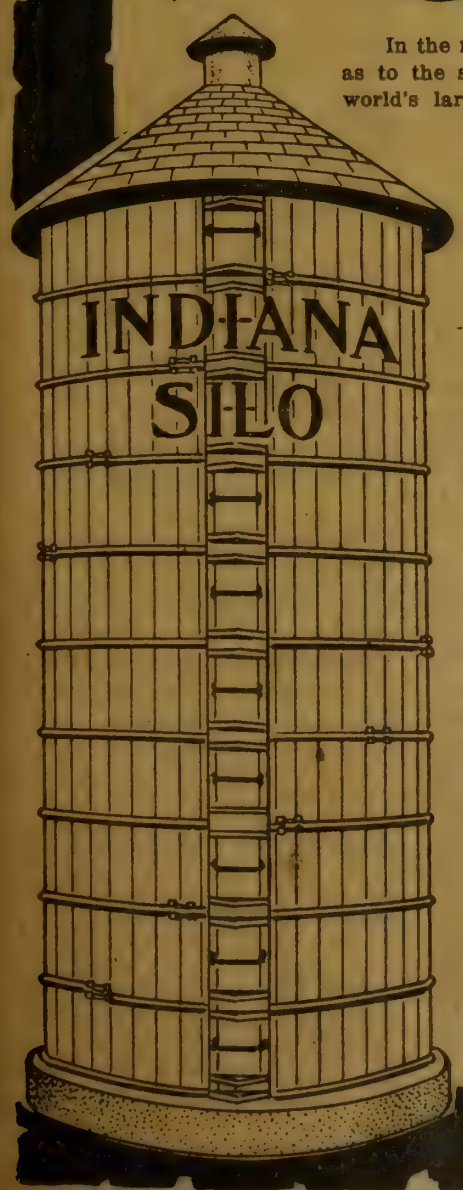

In the minds of thousands of men who read this, there is no doubt as to the superiority of Indiana Silo construction. Designed by the world's largest silo company, and tried out in actual use for over fourteen years, its clean, efficient record has been established on OVER 60,000 AMERICAN FARMS. Add to this our ABSOLUTE GUARANTEE, and we are sure you must realize your money is much safer invested in an Indiana Silo—known and sold in every state in the Union—than invested in any one of the unproven types to be found in every locality.

Indiana Silo prices have not advanced as yet, for we protected your interests as well as our by contracting for a number of cars of steel early last fall. Our business so far this year is breaking all records, and we may be forced to advance our prices, just as prices on your farm products have advanced. So our advice is—ORDER YOUR SILO EARLY!

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Whether you have an Indiana Silo now or not—regardless of what silo you are interested in, we will be glad to send you this silo bulletin each month. We'll also mail our complete free Silo book. Fill out the coupon, or send a postal. Address all inquiries to our Salem office.

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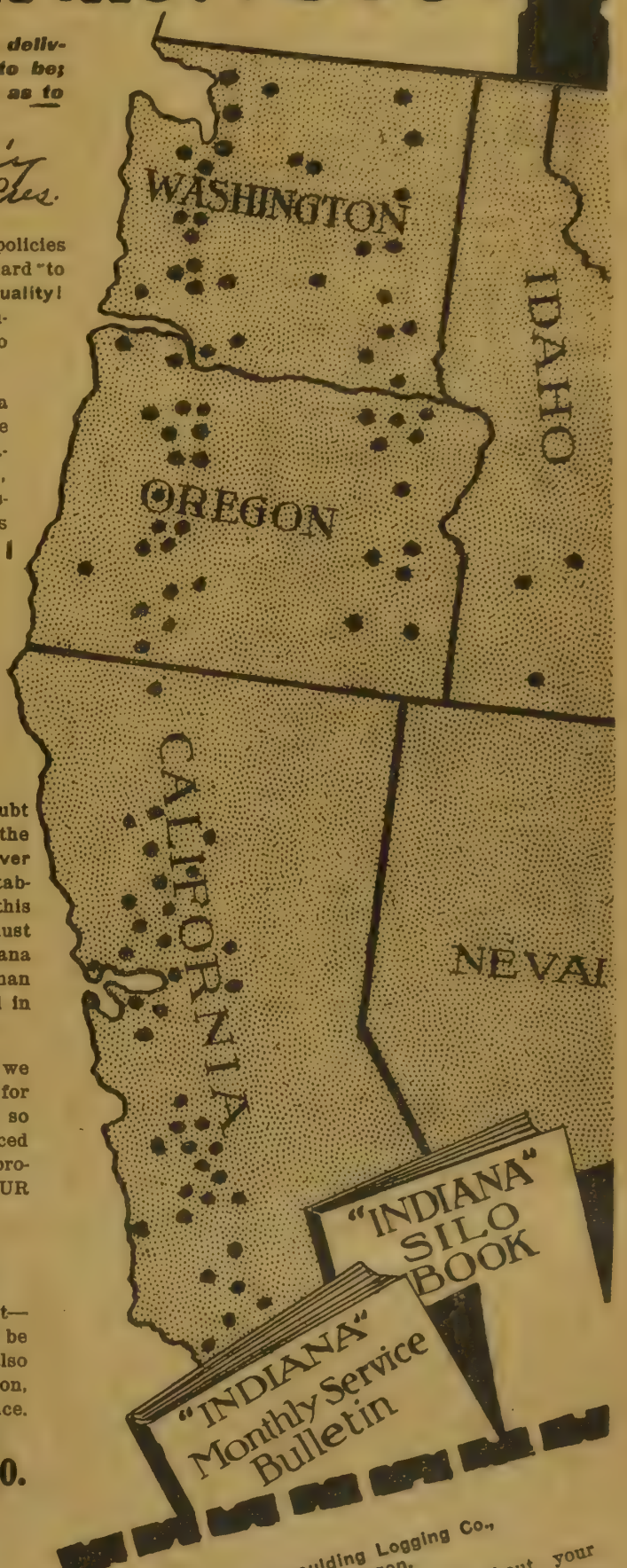

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Don't Forget

The Dispersal of that Fine Herd of Holsteins at LAKESIDE

Thursday, March 15

Absolute dispersal without reserve or limit of the well known Lakeside Dairy Herd owned by Mr. H. I. Shaw. The herd consists of 22 head of registered Holstein females, 2 registered Holstein bulls, and 27 high grade Holstein cows and heifers.

Among the registered females are 7 daughters of a 32-pound sire; a daughter of Juliana King of Riverside, out of a 26-pound cow; two daughters of Arcady Pontiac Wayne Hengerveld; and five daughters of Captain Julip Zampa.

Two fine herd sires will be sold, both good individuals and richly bred.

Dairymen: Again we say be on hand at this sale if you want some real dairy cows.

Sale on the Thum Ranch, one half mile east of Lakeside, twenty miles east of San Diego.

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Cow Testing in San Joaquin

THIS report of a year's testing in herds belonging to the San Joaquin County Farm Bureau Cow Testing Department is made by C. J. Williams, formerly assistant adviser in that county.

It is made up from herds belonging to the dairymen who have remained in the association for an entire year's test during the last year and a half of the association's existence. During this time there have been over 1000 individual cows tested but no satisfactory records could be obtained for a great many of them as they were not in the association lon· enough. This report covers practically the full lactation period of 636 cows belonging to 12 dairymen. Of this number 214 produced under 200 pounds butterfat; 147, 200 to 250; 154, 250 to 300; 71, 300 to 350; 38, 350 to 400; 12, 400 to 500; 1, over 600.

There was one cow that produced over 600 pounds of butter fat during a period of 12 months, and proved in a class by herself as no other cow came within 175 pounds of her mark. Of the 636 cows tested, 422 or 66.3 per cent of them paid a profit over the cost of their feed and care, and 214, or 33.7 per cent failed to pay for their keep.

In working out the cost of keeping a cow 200 pounds of butter fat at an average of 30 cents a pound, or $60, is taken as the cost of feeding a cow a year. The value of her calf and manure is used to cover the cost of her care and milking. Interest on the investment or her depreciation is not included in the $60, which is a very low figure for the cost of feed when it is figured at the market price.

The average lactation period of the 214 cows which produced less than 200 pounds of butter fat in a year was about eight months. The shortest lactation period taken was four months, and there were several boarders which milked the full 12 months. A great many of these boarders were sold after six months test, which was sufficient in all cases to detect them. Some of them are being held over for a second trial as they were taken sick during their period of test and did not have a fair chance or else they were heifers with their first lactation period and are being tried again.

The work of the association is a great success and will do great things for the dairies in this county. One of the main troubles is that it is being used only by the best dairymen, who need it the least. If 33 per cent of the cows in the best dairies in San Joaquin County proved to be boarders last year there is no wonder that there is a cry among the dairymen that there is no money in the dairy business. There should be 214 cows above the 600-pound mark instead of below the 200-pound mark. A 600-pound cow pays $120 above the cost of her feed, while a 200-pound cow is kept at a loss.

There is money in most any business if it is run on an efficient basis, and the dairy business is no exception. The keeping of books and the use of scales and the Babcock tester is as essential on a dairy as the use of scales and a bookkeeping sytem is in a grocery tore. Know what your product costs you to produce and you will know whether you are being cheated by your commission man or creamery or by your cows. A check on a full year's production of your individual cows is the only way to determine just what they are doing. The cow testing department of the farm bureau was formed to do this work on the most economical basis possible. If you are not a member you had better look over the above report and figure out if you can afford not to be.

WORMY HORSES DO NOT THRIVE

Many horses lose condition, or fail to make gains during winter months because they are infected with worms. This is especially true of colts. Horses suffering from worms generally have a good appetite, but apparently benefit little from the food eaten.

There may be no symptoms which point conclusively to worms, but this trouble is so common that if the colts and horses are not doing as well as they should for the feed given, a worm remedy may prove of decided value. In treating horses for worms, Dr. L. S. Backus of the University of Missouri College of Agriculture, suggests it is well to keep in mind that the drug is meant for the worm rather than the horse and should therefore be given in as concentrated form as possible. To insure this, little or no bulky food should be fed during the course of treatment, and as the parasites are stupefied by worm remedies rather than killed, the animal's bowels should be kept in an active condition so that the stupefied worms may be passed out before they regain their vitality. A well salted bran mash once a day will generally insure such an action.

The following formula is a worm remedy which is also of value as a tonic: Powdered nux vomica 2 ounces; powdered gentian root 4 ounces; powdered areca nut 6 ounces; sodium chloride 4 ounces; arsenious acid 2 drams. Mix. Give one heaping teaspoonful to every 250 pounds weight every morning and evening for about ten days. The medicine may be mixed with ground feed or sprinkled over oats or corn which has been dampened.

DEMAND FOR GOOD DAIRY COWS

The under supply of registered Guernsey females is a big handicap in the progress of the breed these days. There is a big demand for these most desirable dairy cattle all over the country from men and women who want to start herds of registered Guernseys, but it is not an easy matter to find a breeder who will part with any considerable number of females. There is a constantly increasing demand for registered Guernsey bulls from owners of grade dairies, and grade Guernsey cows are bringing excellent prices wherever any are sold.

Good grade Holstein cows were never in greater demand in California than right now. Never before have dairymen showed as much appreciation of quality as they do right now. The man who has consistently used registered Holstein bulls in his herd for years is now reaping the reward of his foresight.

Cooperation enables the growers to purchase supplies, such as machinery, spraying materials, barrels and boxes in quantities, thereby getting the lowest prices, and getting the advantage in car-lot freight rates.

NO DOSE TO MEASURE.
NO LIQUID TO SPILL.
NO STRING TO ROT.

BLACKLEGOIDS are small pills. Each pill is an accurate dose of blackleg vaccine.

BLACKLEGOIDS are easily administered—simply inject them under the skin with a vaccine injector.

TAKE NO CHANCES.

Don't wait until your calves become infected. This means certain loss—there is no *cure* for blackleg. Vaccinate now—before the deadly disease shows itself.

THE COST IS SMALL.

BLACKLEGOIDS are economical. The expense is trifling compared with the loss you are liable to sustain if you do not use them.

ORDER THROUGH YOUR VETERINARIAN OR DRUGGIST.

Write for free booklets on Blackleg, with full information about Blacklegoids.

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It restores the breeding functions; corrects the irregularity of cows that do not come in season; removes the irritation and restores the organs to normal condition in cows that are constantly in season. We will gladly mail you more information and statements from breeders who have used the Powder with success. Order today. Mention this paper. Prices by mail, $1.15, $2.75 or $5.00. Injection Tube 90c.; with $5.00 order, 75c.
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"Selecting and Developing the Jersey Herd"

is the title of a practical booklet by Prof. Hugh G. Van Pelt. Tells how to select a sire for your herd. Shows how to secure the five essential points every paying dairy cow must possess. Explains how to so feed and handle the heifer calves as to develop greatest milk production. Whether you are now breeding Jerseys or not you need this booklet—it's free. Send to-day. Please mention this paper.

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100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk.

Prevents scouring and insures the early maturity of sleek, handsome calves.

It is steam-cooked and no trouble to prepare or use.

Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or Blatchford Calf Meal Factory, Dept. 5 Waukegan, Ill.

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HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families. Some of serviceable age.

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The highest prices ever paid in the St. Paul yards for a cow or a bull for beef were paid within a year for Holsteins. Two grade Holstein cows 13 years old brought $187, one 12-year-old registered Holstein cow $116, and a registered 4-year old Holstein bull $168.93. In considering Holstein cattle as a dual purpose breed, the above authentic facts render further comment unnecessary. There is big money in the big "Black and White" Holsteins.

Send for FREE Illustrated Descriptive Booklets The Holstein-Friesian Association of America, F. L. Houghton, Sec'y, Box 120, Brattleboro, Vt.

Large Type Poland Chinas

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Woodland, Yolo County, Calif.

RESULT OF STUNTING ANIMALS

Live stock products are the result of growth. The younger the animals the greater the growth impulse. Many factors influence the tendency of an animal to grow. Among these are age, condition, gestation, lactation, and the quantity and quality of food. A given amount of food will produce more growth on a young animal than on the same animal at a later age. All the growth factors influence the young animal much more powerfully than older animals. If an animal's food supply is insufficient for normal growth the animal may be retarded in growth. If this treatment is continued for a long time the animal may become permanently stunted.

Stunting an animal as the result of insufficient food may be only a temporary condition. An animal does not lose its capacity to grow as the result of stunting. F. B. Mumford, dean of the Missouri college of agriculture, cites a feeding test at the Missouri experiment station in which an animal that had been stunted by poor feeding to such an extent that it weighed only 200 pounds at 12 months of age, gained 841 pounds during the second year. Only 5.6 pounds of grain for each pound of gain made were required on this steer stunted during the first 12 months. A steer that had been generously fed during the first 12 months of life gained only 500 pounds during the second 12 months, and this gain was more expensive than the gain made on the stunted steer. The amount of grain required to make a pound of gain on the well fed steer was 9.8 pounds. It is certain that stunting an animal even for so long a period as 12 months does not destroy its capacity to grow.

CARE OF COW BEFORE CALVING

During the dry period the cow should be given a good ration so that she will be in good flesh when she freshens. This will improve the quality as well as the quantity of the milk. Just before freshening the grain ration should not be too heavy and should contain plenty of bran. The bowels should be kept well regulated. If necessary, one to one and one-half pounds of Epsom salts may be used as a drench. The cow should have a period of rest of four to six weeks in order to give the best supply of milk during the period of lactation.—O. C. Cunningham, Ohio College of Agriculture.

The hog's greatest enemy is lice. If there was any way of telling how much feed is used in supporting the lice on hogs it is probable that the economic loss would be greater than that occasioned by cholera. Any treatment to prove effective must include preventive measures as well as destructive remedies. Kerosene emulsion or crude oil are among the best known remedies. The kerosene emulsion can be prepared as follows: Hard soap one half pound, kerosene oil two gallons, soft water one gallon. Boil the water and soap until the latter is dissolved and after removing from the fire add the kerosene, either churning or stirring with a paddle until an emulsion is formed. When thoroughly mixed this emulsion should be as white as milk and of the consistency of cream and when cold will form a gelatinous mass. This will keep indefinitely and may be used at any time by diluting with warm water. The quantity of the mixture above given will dilute with 20 gallons of warm water.

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Just because you can't work outdoors, the day need not be wasted. Use it for the job that keeps glanders, foot-and-mouth, anthrax and other fatal diseases out of your herd. It may be the most profitable day in the year. Disease, once started, may wipe out a lifetime's work.

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Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Pigs Coughing

What is the cause of pigs coughing? They have been weaned and are fed skimmed milk, alfalfa hay and pumpkins. It seems to bother most in winter time and they are very slow coming out of their stunted condition in the summer.—Subscriber, Turlock.

Coughing is one of the prominent symptoms of cholera. If they have not been vaccinated you had better have it done. Write State Veterinarian, Sacramento, and he will advise you about the vaccinating. Your pigs should have a clean, dry and warm place to sleep during the cold, wet months or they may contract colds that would set them back very much.

Feed For Sow

How should a sow be fed that is carrying pigs?—Subscriber, Turlock.

Sows with pig should be fed plenty of sloppy feed. There is nothing better than skimmed milk. Some grain and plenty of bran in it will help to give the pigs a good constitution to start with. The alfalfa is good also. You seem to have the proper feed. See that the sow gets plenty of exercise.

Barley Beards or Sharp Teeth

I have two horses that slobber or have a sticky, stringy saliva continually dripping from their mouths. They are fed on barley and oat hay. What is the cause and what is the remedy? —Subscriber, Clovis.

It may be due to sharp teeth or barley beards lodged under the tongue or about the gums. Get a veterinarian to fix the teeth, and he will probably also find some barley beards sticking around somewhere in the mouth. Sometimes the beards work through the tongue and come out through the skin below. That makes a very hard abscess to heal.

Sweeny

What is the treatment for sweeney? —Subscriber, Clovis.

We have answered the question for treatment of sweeny several times; the last in the Cultivator of January 27 on page 107. Can not do better than to refer you to that.

Cow Drops Food from Mouth

I would like to know what to do for a cow that drops her food after chewing it, not all the time, but is getting worse and will eat but very little dry food. Consequently is getting very poor. Can not get her with calf. Please answer soon.—Subscriber, Wildomar.

Probably the trouble is all in the mouth. She may have a loose tooth or it may be that some barley beards have found a lodging place in the tongue or about the gums. If you are not able to examine the mouth yourself get a veterinarian to do it and he will probably regulate the trouble very quickly.

Mange

Have a mare that is bothered with mange. It is mostly on her mane and tail. Have used sheep dip and sulphur on it but it only relieves her temporarily.—Subscriber, Mecca.

Try mixing the sheep dip with ten times as much heavy engine oil and rub it in well. Repeat every few days for a month.

LIVE STOCK SALES

California Breeders Sales & Pedigree Co., Holstein cows, heifers and herd bulls, Lakeside, San Diego County, Thursday, March 15.

California Breeders' Sales and Pedigree Company, Dispersal sale, Modesto, April 19, 1917.

Stephenson Holstein Herd, Lake Mills, Wisconsin, May 1, 2, 1917.

D. O. Lively Stock Farm Sale, Hereford Cattle, Mayfield, May 3.

Lake Mills Holstein Breeders' Consignment Sale Co., Lake Mills, Wisconsin, April 6, 7, 1917.

California Breeders Sales and Pedigree Co.—20 registered Holstein bulls, Chico, May 24, 1917.

California Breeders Sales and Pedigree Co.—180 registered Holsteins, University Farm, Davis, first week in June. Date to be announced later.

Ground has just been broken at Galt for the erection of a $200,000 milk condensary, with a capacity of 100,000 pounds of milk daily. It is reported that about 5000 cows have been signed up. The Utah Milk Condensary is the owner of the new plant.

FIELD NOTES

The N. H. Locke Company reports recent sales: To A. J. and Nellie A. Morse five heifers carrying the blood of King's Valet, Grace's Fox and Gertie's Son and a young son of King's Valet and Sara Joaquin's Lottie, a cow of great capacity and large production, a foundation herd. To R. R. Smith six young Jersey cows of good production, carrying the lines of the N. H. Locke Company producing sires. To E. C. Rand of Brae Bourne Ranch King's Gordon Fox of L, a great grandson of King's Valet, Empress Lass and Champion Flying Fox.

J. N. Hagler, Visalia, recently purchased from McAlister & Sons, Chino, the splendid young bull, King Korndyke Sadie Vale 23rd. He is 22 months old and as his name indicates is a son of the sensational King Korndyke Sadie Vale, whose first nine daughters to freshen have averaged over 25 pounds butter in seven days. Four of these heifers as three-year-olds made 31, 32, 33 and 34 pounds butter in seven days. The son Mr. Hagler bought is rich in the blood of high testing and high producing lines. His dam, Elzeveer Barnum De Kol 2nd, is a 19-pound two-year-old daughter of Sir Sadie Cornucopia, the sire of the former California state record Baldwin cow, Alba Sadie Cornucopia Creetia, 34.13 pounds butter in seven days, and a son of the first 30 pound cow of the breed. Mr. Hagler has a number of high class females in his herd and is constantly improving.

F. A. Doerfler of the Mellow Lawn Farms of Oregon writes that official test of his Jerseys shows an average for the month of January of 58 pounds, every cow in the herd excepting one two-year-old making above 50 pounds of butterfat. The cows were fed, milked and cared for by Twinkle Starr, the same herdsman who showed and fitted the C. P. Hembree herd which showed at the California state fair in 1914.

BLACK AND WHITE CALENDAR

E. J. Weldon and Fred W. Kiesel breeders of the Blacks and Whites at Sacramento, have issued a most attractive calendar, which carries illustrations of King Korndyke Sadie Vale Ezeveer and Prince Gelsche Walker Korndyke heads of great dairy herds.

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PEACH GROWERS DECLARE PRINCIPLES

RESOLUTIONS apopted by the board of directors of the California Peach Growers, Inc., at Fresno, February 19, 1917.

Whereas it has come to the attention of the trustees and directors of the California Peach Growers, Incorporated, that criticisms and strictures on this association, emanating from a very high authority, to wit: State Senator Brown of Los Angeles, have had wide publicity, and

Whereas, we know that the organizers of this association were actuated by a sincere desire for the public good as well as for the protection of a very useful industry which was threatened with extermination, we deem it our duty to put ourselves on record, in answer to Senator Brown's criticism, as follows:

Senator Brown objects to the California market director directing his activities to the formation of growers' cooperative associations, assuming that these associations are organized wholly for the benefit of the producer with the inevitable result of raising the prices of commodities to the consumer. Were this entirely true it might be argued that inasmuch as nine-tenths of the products referred to are consumed outside of the state of California it would be profitable from a California standpoint to pay a salary of $5000 a year, for the purpose of securing many millions in increased prices of our commodities, sold outside of the state. But as a matter of fact with the raisin and peach associations while the producers' prices were increased it is also true that the consumers' costs were not made higher. The only parties injured were speculating middlemen who operated to depress the price to the producer and enhance it to the consumer. The records in regard to raisins, dried peaches and other commodities incontestably prove that with an average increase of from 33 1-3 per cent to 50 per cent to the producer the consumer actually gets the goods at as low, if not a lower, price than formerly.

Senator Brown speaks of these cooperative selling companies as interfering with the free operation of the laws of supply and demand. As a matter of fact we know that the laws of supply and demand in California products, as well as in the marketing of most commodities, have not been in free and unhampered operation for several decades. In the matter of marketing peaches, with which particular subject this company is most familiar, the laws of supply and demand were not in free operation prior to the time of our organization. On the contrary, a combination of buyers, who control the only channels by which the commodities could reach the market in large quantities artificially depressed by various methods the buying from the producer to such an extent that thousands of acres of very valuable peach orchards were being rooted up and destroyed or abandoned to the incalculable loss of the industry and the state. The organization of the California Peach Growers, Inc., simply gives the grower a selling combination with which to deal with the buying combination so that as far as the laws of supply and demand are concerned they are rather restored and made operative by the organization of this company, than otherwise.

Nearly all commodities are controlled as to price by some combination at some point along the line from the producer to the retailer, and in this age of combinations (labor, capitalistic and trade) the laws of supply and demand are only so far operative as that when the trust advances the price to a prohibitive figure purchasing ceases. But in any other respect than this (that the buyer will not pay more than the traffic will bear) the laws of supply and demand have long since ceased to operate. If manufacturers, financiers, transportation companies, working men and all other factors in the industrial world combine, it is time that the agricultural producers of the country should combine too, so that while paying combination prices for everything they consume they will be able to get reasonable prices for commodities they produce.

Society cannot return to the era of unrestricted competition without foregoing the advantages that steam, electricity and organization have conferred upon it, so that the demand should be rather that each organization should be able to vindicate its own right to existence and the righteousness of its course rather than to attempt the impossible in denying organization entirely.

That the California Peach Growers, Inc., are justified in organizing we confidently affirm, and for proof of our affirmation we appeal to the record which shows that for three years previous to the existence of the company the prices for peaches were so low as to be entirely unremunerative, with the result that the industry was being ruined, while at the same time the retail prices in the large cities of the East for peaches were so high as to place the fruit beyond the reach of the poorer or even the middle class people. On the other hand the record of one year of the existence of the company shows that the farmers have received a price sufficient to encourage them to continue in the business while the average price to the consumer is no higher than formerly. With this record we believe that the organizers of the company are amply vindicated, and Senator Brown will find enlightenment and instruction in the study of the record and experiences of California farmers' cooperative selling companies.

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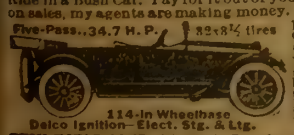

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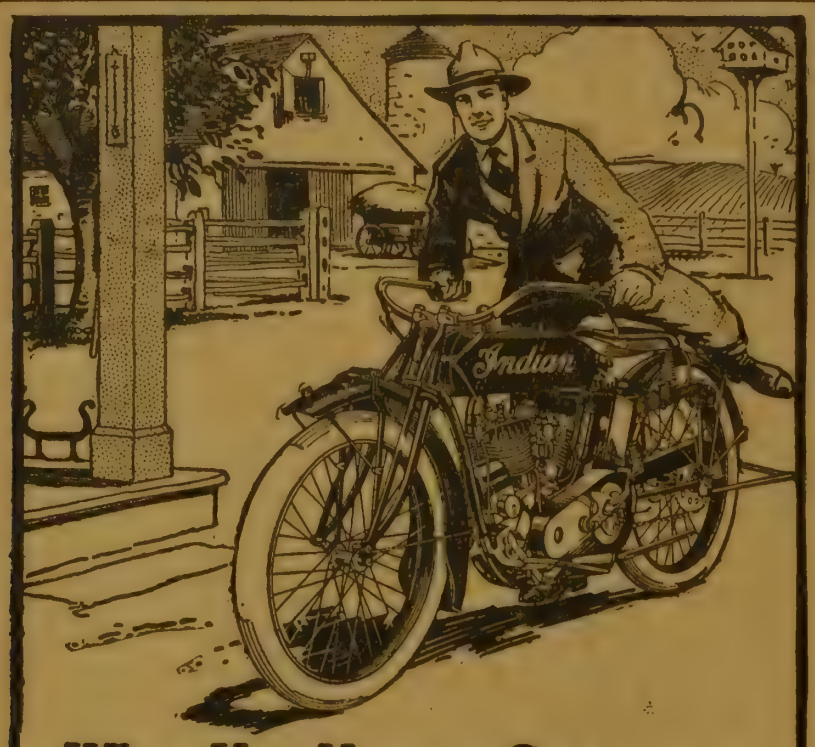

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Letters to a Beginner

Written for California Cultivator By Jean A. Koethen

THE POULTRYMAN'S FIGHT

DEAR George:—You are finding out by this time that there is more to the poultry business than just raising chickens. The successful poultryman must be a thorough-going farmer. He must also be a scientist and versed in the art of salesmanship. This, one would think, is enough for any one man, but it is only the beginning. The poultryman of your generation has before him the task of elevating the great poultry industry, a billion-dollar industry it is now, to its rightful place among the other industries of the world.

A few years ago there was no such thing as a poultry industry. Folks kept chickens, good or bad made no difference. In 25 years this keeping chickens has grown to be one of our great national industries, but it has grown so fast that it has no standing. The poultryman, because he has never insisted on a margin of profit that would enable him to properly take care of overhead and other expenses, is expected to sell his produce at a loss when the dear public demands it. The public, because it is accustomed to buying eggs in the spring for 25 cents or less, refuses to pay more, and the poultryman, because his product is perishable and cannot conveniently be kept, lets it go for what it will bring regardless of the cost of production.

I bought some baby chicks the other day and paid for them exactly what I paid for the first chicks I ever bought. The price of feed is nearly double what it was then. Kerosene has gone up. Feeding and hatching cost considerably more than they ever have before, but the price of chicks has not changed, neither has the price of eggs nor that of table poultry.

Organization is the solution of the problem. Poultrymen must stand together and refuse to sell their product for what it costs to produce it. If they do not stand together this refusal will be absolutely ineffective. And standing together costs something.

It is the same problem that confronted the orange growers 25 years ago. They had to organize to bring the middlemen to terms, but there were always some who wouldn't organize. When better prices could be had by staying out of the organization they stayed out. That better prices were finally wrested from an unwilling public is due, not to the men who stayed out to put a few more dollars in their own pockets, but to those who stayed in right along, year after year, and sacrificed some of their profits for the sake of the cause.

The poultry industry is going to be a bigger industry some day than orange growing. Maybe it is already. Folks can do without oranges, but they have to have eggs. Why, the egg is the most perfect of all foods. Children must have eggs. Invalids must have eggs. Cooks and bakers must have eggs. A smart college student ate two dozen, to win a wager the other day. The 24 eggs would have made him 24 sufficient meals with the addition of a little bread and lettuce. There's everything you need in an egg, and the dear public knows it. It is an absolute necessity, and the poultryman is bound to win out if only he stands firm.

"The fight is on," said Association Secretary Smith the other night at the meeting of the Scrub Hollow Poultrymen, "and it will be on as long as the association lasts." The middlemen are doing all they can to kill it, but we've got to win." It just made a thrill go down my spine to hear him say that. Fighting is awful when it's just for the fun of fighting, but fighting for a just cause is glorious.

I've been through every stage of the poultry fever. First the enthusiasm and exhilaration at the thought of all the money there was to be made by keeping hens and letting them lay eggs "for gentlemen". Then the period of depression when I concluded there was nothing in it, and never would be. Then gradually, a dawning conception of the greatness of the poultry industry. Not a business in which great fortunes are amassed without effort, but an industry which, at the cost of great effort, often in the face of tremendous discouragements, provides the world with something the world must have and which it will sooner or later be willing to pay for. It is for this industry poultrymen are fighting, George, that it may be put on a firm foundation and be known, not as "the chicken business" a business any down-and-outer may turn to as a last resort, but as an industry for which only the best trained men are fit.

I don't think I need suggest that you get into this fight, George. Any man that believes in good poultry will want to get into it,—that is, he will if he has red blood in his veins. I'm not counting those thin-blooded folks who are afraid to move for fear they'll get hurt.

Affectionately,

Aunt Jenny

The Truth About Poultry

MR. W. H. Macy, one of our subscribers, makes reference to an article written by Francis F. Lincoln, which appeared in the Rural New Yorker some months ago. It is a common sense business man's view of the poultry business. It contains some warnings and suggestions which make it well worth repeating. Here it is:

A Changing Business

The poultry business has a more shifting personnel than any other I know of. People are constantly starting, and after a few years many of them are stopping. They may have but a dozen hens, they may have a hundred or they really make it their business and have several hundred or thousands; the establishments vary from a mother hen on a dozen eggs in a little A coop to a large-scale plant complete, costing several thousand dollars. Almost all expect to find big profits. Generally there comes a grand awakening, and many give it up.

Claims and Realities

The causes for this state of affairs are several. It is a peculiar thing that a few hens will do very much better than a large flock. People do not fully realize this for many reasons; at poul-

try shows hen fever runs high, and many malignant cases of "chickenpox" are contracted. In their conversation and in their advertising some breeders make all sorts of extravagant claims for their birds. Equipment makers reinforce these claims with unnumbered testimonials telling of 85-95 per cent hatches, rearing with practically no loss, and flock after flock averaging from 175 eggs per hen up. These letters may be geunine, but they are misleading and mischievous in that they lead people to expect far more than they are likely to receive—yields of 175 eggs are doubtless possible, but, with a sizable flock, highly improbable. Beginners may not expect to get 180 eggs per hen per year, but after reading a few dozen letters they are likely to think that if these people can get those yields they surely can get 160 or so. Just realize that in the Connecticut egg-laying contests the average has been around 150, and the 1000 birds there do not represent the run of flocks, but the very cream of many flocks. I do not think that the average output on a great many of the plants where egg production is the central feature reaches 120 eggs per hen per year.

Sales of Surplus Stock

Furthermore, many beginners expect to dispose of any surplus stock at the same price that they paid for their foundation stock. A moment's thought will show that this is not to be. The demand for stock is limited and will naturally go to those who have been working over their hens for years. In fact anything over their value as food that breeding stock commands is paid in recognition of the work and pains behind the stock. New men are constantly entering the ranks of the established breeders, but beginners cannot expect to be considered as such or receive more than market prices for their products. Let us see what a person of some slight experience making his first start with poultry on a considerable scale may expect.

Hatching

If he keeps Leghorns he will do most of his hatching after the cold weather, and is likely to average 60 per cent of the total eggs set; he may average 66 per cent. With heavy breeds the average will be lower. Hatching should be done earlier; fertility is then lower and many fertile eggs do not hatch; 50 per cent is not bad at all for a season's average, and often it will be below this.

Rearing

This varies greatly with different men and with different flocks with the same man. A beginner should not count on rearing more than 50-60 per cent. He may do better, but if the brooder burns up, if the lamp or coal fire goes out, if an unexpected hail or thunderstorm catches young stock outside, if rats, cats, hawks, foxes, etc., are troublesome—and all such things happen—the results may be very disappointing.

Culling

Throughout the summer, or, if it has not been done before, when the pullets are put into the laying houses, they should be looked over carefully. Probably ten per cent of most flocks could be profitably buried on October 1; robber hens are as bad as robber crows, and a bird that is backward about growing is likely to be backward about laying. As dangerous as mathematical calculations are when introduced into the poultry business it may be well to summarize probable results roughly: 1000 eggs set; 600 chicks hatched; 330 chicks reared; pullets 50 per cent; 150 pullets after culling about ten per cent. These figures can be beaten, but they represent about what a person with some, but not a great deal, of experience can expect; it is easy to come out much worse.

Profits Per Hen

These vary, beginning quite a bit below zero. It should be remembered that most of the very profitable flocks draw income from some other source than the egg and poultry market. I was talking recently about what might be expected per hen per year, with an incubator expert who travels constantly, visiting plant after plant everywhere, and who stays long enough in a place to find out about things. He said, "They talk about two dollars, five dollars and seven dollar hens; well, perhaps, but I think that most men make between 90 cents and a dollar." This can give a man who has kept a few hens a fair idea of what he can expect if he decides to make egg production his business. He can obtain the above by steady, careful work, and, after a few years' experience has taught him some things he can learn in no other way, he can expect to do a little better. Few there are who will ever get rich on producing market eggs, but for a man who likes to work, is willing to think, and likes hens, there is an opportunity to make a living out in the open where there is real air to breathe and all nature to look upon."

Judging Productivity

Without question one may form fairly close estimate of the productivity of a hen from the color of the comb, from the general look of health and the activity of the bird and from conformation and other factors form something of an opinion as to the ability of a hen to produce eggs. How much of worth there is in any one system is not so certain. However, we wish information on any topic which will aid the poultryman in selecting the best of producing stock. On this point we have from Mr. W. H. Macy of Macy's Poultry Farm, Glenn County:

Many up this way have been led to believe in the "Hogan" system of culling and judging their flocks. Some claim the system has been proved to be true by the results obtained by the continued use of the trap nest. Not long ago I saw the statement that the Washington state contest birds were all examined by Mr. Hogan this year and their future egg record predicted. If this is true can you not get at the facts and let us all know them. My brother and I have trapnested a few birds the past two years, five one year and 35 last year, and it is a big job, but possibly worth while for what we learned by it. Our experience has not tallied with this Hogan system. One of our very best hens scores low by his method and one of the poorest producers scores high. In judging a hen for productivity the one word activity comes nearest telling the story of any short definition we have come to know.

It is planned to hold a meeting of the California State Poultry Breeders' Association at the university farm during the short course, May 28, 29, 30, 1917. This will enable several hundred breeders to get thoroughly acquainted with the work of the poultry division.

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Eureka Lemons—Healthy, nearly 5000 two years old. Buds from known heavy bearers of fancy fruit. Trees grown between young orchard and must be sold this year. Information cheerfully given. E. J. Vander Sluis, Glendora, Cal.

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For Sale 6000 Valencia Trees—One year old this spring. Buds from Performance Record trees in one of the best groves in the state. Write today. L. V. W. Brown, Riverside, Cal.

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Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

POULTRY

Baby Chicks, hatched from my own carefully selected and Hoganized flock of S. C. White Leghorns, $10 per 100, $95 per 1000, hatch eggs $5 per 100, $45 per 1000. I have built up a very good, purebred and vigorous flock of S. C. White Leghorns during the last 12 years, and as I use hatch eggs from my own flock exclusively and only from hens that are two and three years old, I can furnish a good, vigorous, thoroughbred chick at a reasonable price. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

White Leghorn and Brown Leghorn day-old chicks from healthy, vigorous breeders. Per 100, March, $10, April and May, $9.00. Reduction in larger lots. "Chicks well hatched are half raised". San Jose Hatchery, 371 Meridian Road, San Jose, Cal.

East Side Poultry Yards, established 1904. Our object, egg type and size for ideal utility stock, thoroughly Hoganized, baby chicks, correctly hatched, dozen or thousand. White Leghorn 10c, R. I. Reds 13c in February. After that cheaper. Satisfaction guaranteed. 255 S. 18th St., San Jose, Cal.

200-290-Egg Exhibition Rocks, Reds, Anconas, Barron Leghorns, Wyandottes; breeders, eggs, chicks, surprisingly reasonable considering quality. Every breeder kept $3-$10 yearly profit. Hundreds satisfied customers. C. Beeson, Pasadena, Cal.

Penn's Quality Rocks and Reds—Specializing in strongly vitalized hatching eggs from a selected few of our well known Barred Plymouth Rocks and S. C. Rhode Island Reds. Eggs $7.00 per 100, $1.50 per setting. Golden Rule Poultry Farm, St. Helena, Cal.

Baby Chicks, reasonable prices—White Leghorns, R. I. Reds, settings, 100's-1000's. Hatched right in our $60,000.00 brick and concrete hatchery from our quality heavy layers. Stock, hatching eggs. Pebbleside Poultry Farm & Hatchery, Sunnyvale, Cal.

White Plymouth Rock, White Leghorn incubator chicks, breeding stock, eggs high class. Scientifically bred. Awarded all first prizes California State Fair 1916. Make your arrangements for 1917 delivery of chicks. Mahajo Farm, P. O. Box 597, Sacramento, Cal.

Baby Chicks from mothers with 180 to 240 eggs each per year. S. C. White Leghorns, the best ever, $10.00 per 100, $90 per 1000; also Mammoth kale plants for sale 35c a hundred—$2.50 a thousand. Delivered free. A. P. Ward & Son, Box 100, Calistoga, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

Baby White Leghorns—Hatched from high producing utility and ribbon winning matings. Booking orders for baby chicks, pullets, cockerels and hatching eggs. A. D. Roberts Poultry Yards, Box 566, Ceres, Cal.

Lynnhurst Leghorn Layers Guaranteed pure bred S. C. White Leghorn chicks $12 for 100, $100 for 1000. Hatching eggs $1.00 for 15, $6.00 for 100. Send postal for booklet. Lynnhurst Poultry Ranch, 631 Penna Ave., Riverside, Cal.

Model Poultry Farm, White Leghorn specialists. Baby chix and hatching eggs from heavy laying stock, bred by us for thirteen years. Our prices are right. W. C. Smith, Prop., Corning, Cal.

Mrs. R. E. Allen's beautiful prize Columbian Wyandottes, winners at Boston, San Diego, Los Angeles shows. Unexcelled for eggs, broilers and table use. Stock and eggs for sale. Fullerton, Cal.

"Blue Orpingtons", "Blue Andalusian" and "Anconas". Sheppard's strain. Stock and eggs for sale. Write for circulars. J. R. Huddleston, 342 Edgeware Road, Los Angeles, Cal.

Quality Single Comb White Leghorn Chicks and eggs for hatching. Utility strain. Bred to pay. Write for prices. Quality Egg Ranch, Artesia, Cal. Phone Artesia 7027.

P. P. I. E. prize winning stock English Penciled Indian Runner ducks. Eggs per setting $1.50, Scranton Strain Rhode Island Reds. Sturgean Bros., Lemoore, Cal.

Black Minorcas—Largest egg, whitest flesh. Eggs $1.00 per 13, $5.50 per 100. Edward A. Hall, R. F. D. No. 1, Watsonville, Cal.

Baby Chicks—White Leghorns, Brown Leghorns, Reds, Barred Rocks, Black Minorcas, Anconas. Prices on application. Orland Hatchery, Orland, Glenn Co., Cal.

Petaluma Hatchery, Established 1902, Capacity 16,000 chicks a week—the kind the hen hatches. Five varieties. Send for free circular. L. W. Clark, Petaluma, Cal.

Rainescourt Reds—Eggs from prolific laying strain and exhibition winners from $1.50 up. Day old chicks $15 per 100. Rainescourt Poultry Ranch, Zel ah, Cal.

"Eastman's Bred-to-Lay" Barred Plymouth Rocks. Chicks and eggs. We Hoganize and trapnest. Fairmead Poultry Farm, Fairmead, Cal.

Day Old Chix—Barred Rock, R. I. Reds, White Leghorns, Black Minorcas, Light Brahmas, Buff and White Orpingtons. Enoch Crews, Seabright, Cal.

Baby Chicks, White Leghorns, from healthy, vigorous, heavy laying, two-year-old hens. Satisfaction guaranteed. John F. Forney, Kingsburg, Cal.

Baby Chicks—Now booking orders for spring delivery. White Leghorn and Anconas, also custom hatching. Wilmar Hatchery, San Gabriel, Cal.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Rural 1, Sonoma, Cal.

Wedgewood Poultry Plant. No better White Leghorn mountain baby chicks, as my hens are bred for vitality and productiveness. Dutch Flat, Cal.

Buff Minorca Eggs for hatching $1.25 for 15. Mrs. N. Schilling, Alpaugh, Cal.

POULTRY

Extra Quality White Leghorn Chicks 12c each until March 1, then 10c. Carefully line bred from MacFarlane, Young, Cyphers and Martin strains of foundation stock. Eggs $1.50 per 15, $2.50 per 30, $5.00 per 100, $50 per 1000. Acres of free range connected with our breeding pens, 20,000 feet under roof. Only Jubilee incubators used, disinfected every hatch. Don't save 2c per chick in buying and lose a dollar per pullet in raising, get the best and succeed. Newton Poultry Farm, Dept. 3, Los Gatos, Cal. Catalogue free.

Roofden Ranch Chicks are well hatched from first class utility breeding stock; money making egg producers our aim, and the prices are right. 7 to 14c, depending on breed, month, quantity (dozen to thousands). White, Buff, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks. For Dollars and Sense. Send card for circular. Roofden Poultry Ranch and Hatchery, Campbell, Cal.

The J. K. Bigelow Poultry Ranch and Hatchery, 300 acres devoted to superb vigorous selected White Leghorns. The greatest egg farm in the West. Bigelow chix are incomparably superior to the product of commercial hatcheries. Price same as former seasons, 10c each till April 1, 9c during April and May, 8c thereafter. Shipped on approval; examination before paying. The Bigelow Poultry Ranch, R. R, No. 2, Sonoma, Sonoma Co., Cal.

Farmers, sell your scrub stock and order some thoroughbred White Leghorn or Rhode Island Red Chicks from us. Leghorns $10 per 100, Rhode Island Reds $12.50 per 100, from March 20 to July 1. Brooke Farm (Rancho Del Paso), Office 807 J Street, Sacramento.

Baby Chicks and Eggs for Hatching from pure bred McFarland strain of carefully culled and Hoganized stock; bred-to-lay S. C. White Leghorns. Write for folder of prices and terms. Sonoma Valley Hatchery and Poultry Ranch, R. F. D. 2, Sonoma, Cal. Box 48.

Baby Chicks and Eggs for Sale—Hoganized Cyphers strain of Barred Rocks and McFarland strain of White Leghorns. I. B. Williams, Route "B", Box 13, Kingsburg, Cal.

Baby Chicks from select free range White Leghorn stock. Place orders now for early delivery. Prices on application. Western Hatchery, Petaluma, Cal. W. S. Waldorf, Proprietor.

Black Leghorns—Eggs for hatching from prize winning stock; can supply in limited quantity only. Write for information. Otto Nielsen, Rt. E, Box 287, Fresno, Cal.

Selected S. C. White Leghorn and Barred Rock eggs for hatching, from hens typed to lay 200 to 260 eggs per year each. $6.00 per 100, $1.50 for 15. Jay Maxwell, Madera, Cal.

Hatched Chicks For Sale—Barred Rocks R. I. Reds and White Leghorns. Strong vigorous chicks. Send for circular. G. L. Hawley, Madera, Cal.

Baby Chicks—White Minorcas and Golden Buff Leghorn. Two popular breeds. Cockerels for sale. Sandridge Hatchery, Kerman, Cal.

Earl E. Sanders, Modesto, Cal., breeder of M. B. Turkeys, S. C. White Minorcas, S. C. Black Minorcas and S. C. Barred Plymouth Rocks. Nothing but the best.

Choice White Minorca Hatching Eggs—America's finest breed. Mating list free. Leech Poultry Yards, 1170 West 37th Place, Los Angeles, Cal.

Pure Bred White Rocks, White Leghorn chix, quackless White Muscovy ducklings, Embden goslings. White Star Hatchery, Kerman, Cal.

Incubators—Essex Model Incubators at factory prices. Write Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco. Poultry supplies.

Eggs for Hatching—Blue Orpingtons, Partridge Rocks, Rose Comb Rhode Island Reds and Silver Laced Wyandottes. Tribble Nurseries, Elk Grove, Cal.

For Sale—S. C. White Leghorn Chicks and hatching eggs. Monitor Egg Ranch, R. 1, Box 211, Inglewood, Cal.

Chicks For Sale at C. A. Gray's Hatchery, Lemoore, Cal. Brown, White Leghorns, 10c; Anconas, Rocks, Reds, 12½c.

Silver Campine Setting Eggs. Utility stock, $2.00 for 15. B. W. Taynton, 3022 Shattuck Ave., So. Berkeley, Cal.

WANTED

Wanted—Man in each California county to represent established California company. Should have rig or auto to get around. Good pay and several weeks' work to right parties. Address J. H. Yetter, Sales Department, 810 Santa Marina Building, 112 Market St., San Francisco, Cal.

Wanted to Lease by experienced American dairyman, equipped dairy ranch; 30 cows up, on shares. Prefer San Joaquin Valley. H. H. Webster & Sons, 4437 Cleveland Ave., San Diego.

Partnership—Advertiser with fine poultry ranch, stock and market, wants partner with capital. Give full particulars Box 208, St. Helena, Cal.

Wanted—Lowest price on 2000 to 3000 Citrus Trifoliata Seedbed Stock. Give size, age and condition. Address Box B, Cultivator office.

Wanted—Job on fruit or bean ranch. Married man. References. M., care Cultivator.

Wanted—Quotations from growers on damaged rice. P. F. McKinney, Box 60, Route "C", San Jose, Cal.

Thoroughly Competent Orchardist wants position as working manager; energetic, trustworthy. H., care Cultivator.

DUCKS

Indian Runner, Mammoth Pekins and White Muscovy ducks. Toulouse geese. Breeding stock and hatching eggs for sale. Also White Leghorns, Barred Rocks, R. I. Reds. Beaver Grove Poultry Farm, St. Helena, Cal.

AUTOMOBILE ACCESSORIES

Automobile Parts and Accessories, both new and second-hand, can be obtained from us for any make of car. We save you money and guarantee satisfaction. Standard Automobile Wrecking & Supply Co., 476 Golden Gate Ave., San Francisco.

FARM LANDS FOR SALE

10 Acres, irrigated, 4-room house and barn, chicken houses, 2 miles out, $2000. 80 acres, irrigated, checked, nearly new cottage, 40x52 barn and tankhouse, with concrete floors, other outbuildings, fenced hog tight, $6500. 80 acres, on Highway, 2 miles out, very level, for alfalfa, corn, rice, $10,000. 145 acres, on river front, nothing better anywhere for walnuts, prunes, etc., 55 acres alfalfa, complete dairy, electric light and power, subdivision 1 mile selling at $250. My price $125 per acre. 640 acres, level and rolling, house and barn, finest soil for almonds, lands nearby selling at $75 and $100. My price $30 per acre. 720 acres in foothills, 15 miles from R.R., easy auto and stage road, 150 acres has been plowed, 35 acres alfalfa, 3000 cords of wood in large trees, no brush, 7 room house, barn and other outbuildings, windmill, garden and some fruit. A pretty and very cheap place at $15 per acre. JOHN C. MOGK, Colusa, Cal.

For Sale—Orange County ranch, 167 acres with good improvements and in good state of cultivation. Water conditions excellent. Artesian wells and pumping plant both. Located ¾ mile from village of Westminster and ¼ mile from Orange County's fine highway running from Long Beach to Santa Ana. Property clear and title perfect, but on account of peculiar circumstances of ownership this land is for sale under value just now and never offered before. W. F. Marks, 226 S. Main St. Phone Main 1499, Los Angeles.

Attention, Mr. Dairyman—If you own a herd of good dairy cows and are now renting your land, we will sell you good alfalfa land, WITH NO PAYMENT DOWN, and with interest at 6 per cent payable annually. Water in abundance. Rental $1.00 an acre for season. Lands are U. S. Government Irrigated, at Orland, Glenn Co., Ca. A. B. Aitken, (Selling Agent). (A resident of the Valley since 1858), deals in Sacramento Lands. 1701 "J" St., Sacramento, Cal.

For Sale—320 acres fine sandy loam soil, 5 miles northeast of Modesto, 1¼ miles directly south of Riverbank in Modesto Irrigation District. Average yearly water costs less than $1.00 per acre. Land suitable for alfalfa, grapes, deciduous fruits or farm trucking. Will sell as whole or in 20-acre tracts. Average price $150 per acre. Special inducements to possible purchaser of entire tract. Will make suitable terms to parties buying for improvements. B. F. Kieruff, 757 S. Los Angeles St., Los Angeles.

BEANS—POTATOES—ONIONS

In the course of my business of making appraisements of farm land, I have inside information regarding a piece of reclaimed river bottom silt which can be bought right and on terms. No irrigation has ever been required to mature first class bean crops on this property. Government test. It produced as much as 35 sacks to the acre last season. For further information write APPRAISER, Box 25, California Cultivator, 112 Market Street, San Francisco.

Wanted—Farmers, orchardists, live stock men to use classified liner advertisements like this. Thousands of people read every ad, and the cost is only 3 cents per word per issue, minimum 35 cents. Extra lines of white space above and below cost only 16 cents per line!

For Sale—80-acre improved foothill ranch, 12 miles east of Porterville. 30 acres citrus land now in wheat; 15 acres alfalfa land; hog fencing; pasture; timber; river; railroad adjacent. Modern new house (furnished if desired), gas plant, furnace, etc. Five outbuildings; implements; live stock. Nothing delapidated. Ideal place for country life. Sacrifice $25,000. $17,000 will handle. Address New, Box 3, California Cultivator.

Oregon & California Railroad Co. grant lands. Title to same revested in United States by act of congress dated June 9, 1916. Two million three hundred thousand acres to be opened for settlement and sale. Power site, timber and agricultural lands. Containing some of best lands left in United States. Large sectional maps showing lands and description. Price $1.00. GRANT LANDS LOCATING CO., P. O. Box 610, Portland, Oregon.

Sonoma County, the home of the satisfied orchardist, chicken rancher and diversified farmer. Best markets, best climate, best land. Satisfactory terms. L. J. Lowry, Santa Rosa.

For Sale—12 acres rich bottom land near Corona. Suitable for gardening or alfalfa. Small pumping plant. 100 inches water. Easy terms. Box 106, Arlington, Cal.

Up-to-Date Poultry Plant—Near Laveaga Park. Write owner for particulars. No agents. Address Box 595, Santa Cruz, Cal.

Placer Co., 20 acres fine fruit and poultry land. Cost $1500. Sell cheap on terms or exchange for small improved place or poultry. Box 203, St. Helena, Cal.

Free New Blue Booklet—State, government and Indian lands. Bargains overlooked. Joseph Clark, Sacramento.

LUMBER

AAA—Lumber, New and Second-Hand; rough, $10 M; finished, $15 *A*R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St., San Francisco, Cal.

TURKEYS

GIANT BRONZE TURKEYS

Let me tell you how to make more money on turkeys. Large turkeys can be raised at practically the same cost as small ones. It is in the strain. By scientific cross-breeding I have developed a strain of turkeys which mature rapidly, and attain unusually large size by holiday time. You can introduce some of this blood into your flock and make money by it the very first year. Gold Nugget strain wins again! At Pacific Coast largest shows, 1916, the California and Arizona State Fairs and San Diego, also the great Los Angeles Show 1917, eleven prizes eleven entries. Stock and eggs from my flock should put you in the Giant Bronze Turkey lead in your locality. Toms for sale, also eggs. Write for circular. Raised on 320-acre farm. Address J. Will Blackman, 607 East Third St., Los Angeles, Cal.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit". It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

Paying Grocery and Restaurant, 9 years same owner and location; also improved or unimproved city property. Will exchange for cheap mountain land, with water, or improved relinquishment. Bellamy, Owner, 722 W. Jefferson, Los Angeles.

Second Hand Pipe For Sale—All sizes standard water pipe and screw casing, half inch to ten inches. Also valve and fittings. Guaranteed good as new. Cheap for cash. Write for our prices. Weissbaum Pipe Works, 169 Eleventh Street, San Francisco.

For Sale—Good used automobiles, all makes, all prices. Write for our complete list and details of the fairest selling plan in the state. Butler-Veitch., 425 19th St., Oakland, Cal.

Study Telegraphy, Stenography, Bookkeeping, Law, English. Board, room and tuition may be earned. Catalogue free. Mackay Business College, 911 Main St., Los Angeles.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St. San Francisco.

Selected Cloth Bound Books by popular authors at popular prices. Catalogue free. C. L. Gardner, 1717 Lyon St., San Francisco, Cal.

Flood Control—Plans and estimates. Consult Geo. Ian Maxwell. Phone Sunland 82, R. R. 11, Box 463, Los Angeles.

MACHINERY

FOR SALE—USED RANCH TOOLS

Material guaranteed. Save half. Why buy new? It's second-hand after used few times, but not necessarily worn out.

WINDMILLS, TANKS, WINDMILLS

8-ft. windmills, $21.50; 10-ft., $29.50; 12-ft., $45 to $55; 16-ft., cost $250, for $125; 1000-gal. new galv. tanks, $29.50; 2000, $39.50. Big stock used galv. and redwood tanks, all sizes; 100,000-gal. fine redwood, $400.

ENGINES, PUMPS, PIPE

Most all sizes—in good shape.

CENTRIFUGAL PUMPS—2-in. $24; 3-in., $35; 4-in., $45; 5-in., double runner, $95; all size plunger pumps, $5 up; new pump jacks, $12.50; double-acting No. 2 Ames deep well pump, $125; No. 3 Ames pumps, 30-in., $175 cost $660; Means double-acting deep well pump, $350, pumps 50 inches; fine heavy duty Stearns straight lift jack, $95, cost $215.

BRASS CYLINDERS—ALL SIZES

Plunger rods, pipe, pipe fittings.

RANCH MACHINERY SUNDRIES

Walking, riding plows, $15 to $22.50; fine 2-gang large mouldboard plow, $45; 3 or 4-gang disc tractor plow, $55; alfalfa renovator, $28; manure spreader; fine BULL TRACTOR, $350; steel cable, 5c; cement mixer, $35; sprayer, $19.50; mowers; buck rake, $25; fine horsepower baler, $75; 250 feet 7-in. irrigating pipe, 16½c; bone grinder, feed cutter, 1000 feet 4-in. riveted pipe, 9¾c, corn sheller; 12 ft. grain drill, $75.

Want to buy first class material. No junk wanted. Pioneers in our line. Trade us your machinery and little cash for what you need. DEMMITT CO., UPSTAIRS, 120 N. MAIN, LOS ANGELES.

WE HAVE purchased the entire plant of the Carnegie Brick & Pottery Co. and have for sale:

1 million fire brick
2 million common brick
500,000 ft. lumber, assorted sizes
1 wet pan
8 steam engines, large and small
Otto gas engine
4 compressors, various sizes
1 Sturtevant fan, large
6 galvanized iron oil tanks 40 ft. diam. 13 feet 6 inches high
6 smaller galvanized iron tanks
1 20-hp. Westinghouse motor generator, D.C.
4 Fairbanks Morse pumps, 6x4x6
500 ft. of 24-in. terra cotta sewer pipe 2 ft. and 2½ ft. lengths
About 40 tons band iron 6x3-16
Some shafting, pulleys, boxes, hangers and belting

We have for sale a complete pumping plant just like new, as follows:

About 2000 ft. 6-in. casing
About 2000 ft. of 6-in. standard pipe
1 Otto gas engine, 10½ in. bore, 18 in. stroke
1 Smith-Vale triplex Boosting Pump, belt driven,, 7 ft.x8 in.; 6 in. suction, 4-in. discharge.
1 Giant air compressor, horizontal, 10x10 in. belt driven.

We also have some smaller lines of pipe. If you can use any of the above items, let us know and we will quote you reasonable prices.

UNITED WRECKING CO.
748 Brannan St., S. F., or Tracy, Cal.

Several new and slightly used engines at a bargain. Best makes. 1 to 35 h.p. Arnott & Company, Wholesale Machinery and Implements, 112 South Los Angeles St., Los Angeles, Cal.

New 1916 Samson 10-25 Sieve Grip Tractor with extensions. Little used. Selling out. Same guarantee given as manufacturer. $900. H. M. Page, Puente, Cal.

AGRICULTURAL IMPLEMENTS

Large Assortment slightly used and agents' sample plows, harrows, cultivators, wagons. Call and see them before buying. Save 50 per cent on some. Four floors. Largest stock. Arnott & Company, Ranchers' Supply House, 112 to 118 South Los Angeles St., Los Angeles.

PATENT ATTORNEYS

Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS".

SEEDS AND PLANTS

Free 1917 Planting Guide and Pure Seed Book! 96 pages. Handsomely illustrated in many colors. Describes latest, best varieties vegetables, flowers, field crops, fruits, shrubbery, etc. A dictionary on gardening! Flower lover's delight! Field crop guide! An orchardist's manual! Berry grower's book! A postal gets it. Don't buy seeds until you read it. Galloway Bros. & Co., Pure Seed Specialists, Waterloo, Iowa.

• • SEEDS • •

Don't You Want pure home grown seeds? Of course you do. Ours are all tested and are good enough for anybody. Prices, information, samples, etc., upon application. Write, wire or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

• • MAKE OUR SEED YOUR SEED • •

• • ALFALFA SEED • •

As has been our custom in the past, we are offering alfalfa seed both retail and wholesale. This is tested stock and up to our usual high standards. Samples, prices, etc., on application. Wire, write or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

• ALFALFA SEED OUR SPECIALTY •

Alfalfa Seed — Common variety and smooth Peruvian, good quality, excellent color, high germination test, grown in Arizona under ideal conditions. Do not buy until you have compared my samples and prices with seed others offer. E. F. Sanguinetti, Yuma, Arizona.

Giant Winter Rhubarb Plants. Big profits. From ⅝ acre first season after planting I sold 675 boxes rhubarb, receiving $673.70. Grand prize San Diego Exposition. Big discount on plants for prompt orders. Booklet Free. W. A. Lee, Covina, Cal.

Alfalfa Seed—There is a great difference in the different strains of Common Alfalfa seed. Send us your address for sample and our low price and we will tell you just how our seed is selected and why. Bomberger Seed Co., Modesto, Cal.

ALFALFA SEED
Leo Turner, Yuma, Arizona

Strawberry Plants, Brandywine, Klondyke and Winner. The Winner plants the finest for home markets. Plants best I ever offered. 12 years in business. E. H. Learned, Route 1, Burbank, Cal.

Alfalfa Seed—Tested, good as the best grown at the Garrison Sub-irrigated Seed Ranch. None proven better, $14 per 100 by ton. $16 in 100-lb. lots or over. H. S. Garrison, Murietta, Cal.

Cory's Mammoth Thornless Blackberries. Orders are being booked now for February delivery. Prices and other information upon application. Ekstein Nursery Co., Sole Distributors, Modesto, Cal.

Roses 50 cents per dozen. Apple trees $6.00 per 100, Olives $4.00 per 100. Big stock fruit and ornamental trees and roses. Write for catalogue. Kavan Nurseries, San Bernardino, Cal.

Florida Sour and California sweet seedling orange seed from cultivated Florida and California groves. Order early. Milo Hunt, Whittier, Cal.

Mr. Alfalfa Grower—Permit me to send you samples and prices of alfalfa seed; common and Peruvian. Best seed at lowest prices. O. C. Nordahl, Bard, Cal.

The "Himalaya", best blackberry; enormous bearer. Splendid shipper. Strong plants 50c dozen, postpaid, $20.00 per 1000. Louis Bahrs, Loomis, Cal.

Alfalfa Seed—The very best, guaranteed 16c. Wm. Stuthman, 1239 West Pico St., Los Angeles, Cal.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

Wagner's Giant Crimson rhubarb roots, $2.00 per 100, 5c each, small lots. Curtler Bulb Co., Seabright, Cal.

Strawberry Plants—Everbearing. Northern grown, strongly rooted. Price list free. F. I. Moffet, Ellensburg, Wash.

For Sale—Ettersburg Strawberry plants $2.25 per 1000; guaranteed to reach you in good shape. Parker Bros., Hemet, Cal.

MONEY TO LOAN

Money on Hand at all times, for good loans, on Improved Farms, Land, City Property, Business Blocks, Bungalows, to pay off mortgages, or for building loans. I deal with the largest mortgage companies in the United States, who have loans from San Diego to Seattle, and as far east as New York, also with the best companies on the Pacific Coast. Inventions financed. Send full information and legal description. C. G. Paul, 407 Chamber of Commerce Bldg., Los Angeles, Cal.

IRRIGATION ENGINEERS

Contour Tree Staking, pumping plants, pipe lines, flood control and conservation. Bennett & Duling, Engineers, 1125 Central Bldg., Los Angeles, Cal.

EXPERIMENTING WITH AUSTRALIAN WHEAT

The Sperry Flour Company has just finished unloading Australian wheat at their mills in Stockton. It has been many years since a cargo of Australian wheat has been brought to California. In apperance it is much like the wheat formerly imported for seed purposes. Some of this seed will be sown on the Sperry experimental ranch at Farmington, which is a few miles out of Stockton. If it is found that the grain does well in California soil and retains its original properties, t is confidently expected that many farmers will put in a crop next fall.

The Lake Mills Holstein Breeders' Commission Sales Company has changed the date of its sale which was to have been held in Lake Mills, Wisconsin, May 1 and 2 to nearly a month in advance, or to be exact, to April 6 and 7, same place.

Household Department

THE MYSTERY

"Tain't me," said the farmer,
Who's getting the stuff.
"Tain't me," said the packer.
I get just enough
To pay a small profit,
As far as can be.
And all of them chorus
Together, "Tain't me."
"Tain't me," says the tanner,
Who gets the high price
For high shoes and low ones,
For slippers and ties.
"Tain't me," says the rancher,
I live and that's all.
"Tain't me," says the dealer,
My profits are small.
"Tain't me," says the canner,
My margin's the same.
"Tain't me," says the huckster,
Who's bracing the game.
"Tain't me," says the gardener,
I'm poor all the time.
"Tain't me," says the grocer,
I ain't seen a dime.
It's surely a puzzle
To know where it goes;
No maker or seller
Or any of those
Partake of high prices,
So they all agree;
And I'm a consumer,
I'm certain "Tain't me."
—J. W. Foley in N. Y. Times.

MY GARDEN

Written for California Cultivator
By "The Lady of the Garden"

WHEN I heard the call to talk about our gardens I felt that for once I must speak up in meeting, for my garden is my very nearest and dearest hobby. To be sure my experience is very limited but I do not know anyone who gets more fun out of growing things than I do, and if I can pass on a wee bit of my enthusiasm to some other woman I shall have justified my right to a word.

Our professors used to tell us that there was nothing like the joy of self-expression and nothing so necessary for growth. Now I know few more satisfactory forms of expressing oneself than in growing rows of crisp green lettuce or tomato plants laden with their crimson burden.

My council to every woman is to have a garden if it is only a box in the kitchen window. It will mean pleasure and health to your family throughout all the spring and summer, and to you the joy of accomplishment than which there is none greater.

My garden plot is about one-eighth of an acre of sandy land, irrigated from a reservoir. The main irrigating ditch runs the long way of the garden, and from it smaller ditches (depth according to the size of plants) are dug between the rows of vegetables. Last year I took all the care of my garden except the initial plowing and the applying of a heavy dressing of rotted manure, placed on ground in fall and plowed under in January.

I raised in a very simple cold frame, with a light canvas for cover, my tomato and lettuce plants. This season I intend extending my cold frame space to take in sweet potato, cabbage and pepper plants. It is so much more satisfactory to have your own plants, then you can transplant them immediately before they have time to wilt.

Before planting my seed in the garden plot I made my ground as fine as silt with hoe and rake and kept it this way by cultivation after each weekly irrigation.

From my little garden spot I furnished my family of five with delicious radishes, onions and lettuce throughout the spring months. I have not yet learned the secret of carrying these into the summer with success. Later we had carrots, turnips and beets in season, also an abundance of "stringless" string beans and cucumbers. From four dozen tomato plants we had all the most delicious tomatoes we could use, besides selling several dollars worth and giving away a good many. I put out 100 sweet potato plants, saved 90 and harvested over 200 pounds of fine large potatoes.

Here in Antelope Valley we have to shift the season for planting laid down for us by the Cultivator experts, as our spring is much later than nearer Los Angeles; but aside from that I find their advice most helpful. Before I became interested in gardening such articles had scant attraction for me, but now they and the new seed catalogues are more thrilling than the latest fiction.

Blessed be the good natured, for they bless everyone around them.

DELCO-LIGHT

For the first time electric light and power are available to anyone—anywhere.

Heretofore, the benefits of electricity have been confined to those who live in the larger towns and cities.

Now Delco-Light makes electric current universally available.

Delco-Light is today furnishing thousands of farm-houses with brilliant, convenient, safe and economical light.

It is furnishing power to operate pumps, washing machines, churns, cream separators, milking machines, vacuum cleaners, etc.

It is lighting country churches, stores and public halls.

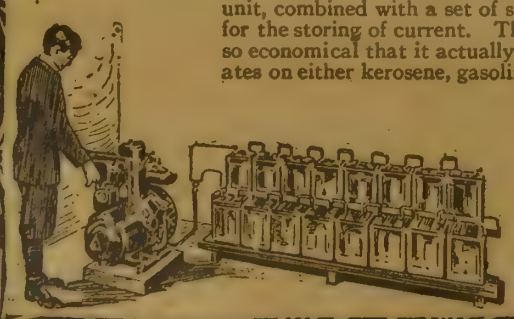
It is furnishing light and power to summer homes and camps, to houseboats and yachts, etc.

It is lighting rural railway stations and construction camps.

It is lighting the camps of United States troops on the Mexican border, and it is disclosing heretofore undreamed-of beauties in the depths of Mammoth Cave, Kentucky.

Altogether, over 15,000 Delco-Light plants are in operation, and Delco-Light offices and service stations are to be found in almost every part of the world.

Delco-Light is a complete electric plant—the engine and dynamo in one compact unit, combined with a set of specially built and wonderfully efficient batteries for the storing of current. The plant is so simple a child can care for it, and so economical that it actually pays for itself in time and labor saved. It operates on either kerosene, gasoline or natural gas.



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MT. GEORGE FARM CENTER

Written for California Cultivator
By M. E. Beresford

DIRECTLY to the east of the city of Napa lies a very enterprising community which for the last two years has been united as members of the Mt. George farm center in the Napa County farm bureau. The officers of this club have held their positions ever since its organization and through their strict and unselfish devotion to duty deserve a large share of the credit for its fine achievements. They are Mr. G. W. Elicker, director, and Mrs. J. W. Dumbrell, secretary-treasurer.

During the short time that has elapsed since its founding the center has accomplished many things that make for direct community benefit and social improvement. In July, 1915, they erected blue and white enamelled road signs in the neighborhood, paying for these by a very successful old-fashioned box social. Their banner achievement was the building of the first farm center hall in the state. Plans for this were first discussed at a meeting held in January, 1916. A site was purchased on the Hagen road and on February 13 ground was broken. September 3 the hall was dedicated with impressive ceremonies. The work was all donated with the exception of a small amount of skilled labor from outside the center membership. The ladies of the center furnished excellent meals during these work days and people came from far and wide to assist.

CELEBRATE ORANGE DAY MARCH 10

March 10 has been named Orange Day, when every loyal Californian should eat at least one orange. Here are a few ways for the cook to tempt her family:

Orange Shortcake

Sift two level cups flour, four level teaspoons baking powder and one half teaspoon salt twice. Mix in lard the size of a small egg, then moisten with milk to form a soft dough. Roll into two sheets to fit pans of same size and bake until nicely browned. Take from oven and spread while warm with butter. Have ready some thinly sliced oranges, put between layers and on top and sprinkle thickly with powdered sugar. Serve slightly warm.

Marmalade Sandwiches

Cut thin slices of bread and toast, then butter and spread with orange marmalade. Tiny baking powder biscuits may be used in place of the toast for variety.

Orange Bread

One cup scalded milk, three tablespoons molasses; one teaspoon salt, one yeast cake, one-third cup lukewarm water, one and a half cups bread flour, one and a half cups Graham flour, half cup candied orange peel, half cup nut meats.

Mix milk, molasses and salt; when lukewarm add yeast cake dissolved in lukewarm water, and flour; then add orange peel and nuts, cut in small pieces. When thoroughly mixed, let rise until double its bulk; cut down and fill small buttered moulds one-third full; let rise to double its bulk, and bake in a moderate oven.

Orange Sweet Pickle

Four oranges, two cups sugar, one and a third cups vinegar, one teaspoon cloves, one teaspoon stick cinnamon.

Peel oranges, removing white membrane; cut into thick slices; steam

The Cultivator Patterns

8185—Ladies' Waist. Cut in sizes 36 to 42 inches bust measure. Long or short sleeves may be used.

7823—Girls' Dress. Cut in sizes 6 14 years. The dress has a plain guimpe and a two-gored plaited skirt.

8031—Ladies' Dress. Cut in sizes 36 to 42 inches bust measure. This dress is cut in one piece.

7660—Ladies' Waist. Cut in sizes 36 to 42 inches bust measure. Fine lawn, China silk, madras or crepe de Chine can be used for this pretty waist.

8224—Boys' Russian Suit. Cut in sizes 2, 4 and 6 years. The blouse slips on over the head, has a shield and separate pair of knickerbockers.

7577—Ladies' Apron. Cut in sizes 34 to 44 inches bust measure. Linen, gingham or calico can be used for this apron.

8186—Ladies' Skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in three gores and has a slightly raised waist line.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH.

HOW TO ORDER PATTERNS

Write your name and address plainly in full, give correct number and size of each pattern you want, and send ten cents in coin or (1 or 2c) stamps for each number. In order to furnish our readers with the very latest New York City styles, all pattern orders are filled in New York City. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

Pattern Department

California Cultivator

Los Angeles

until tender. Boil sugar, vinegar and spices, tied in cloth, for 25 minutes. Add fruit and simmer slowly for one hour. Let stand a week or two before using.

Orange Cream Candy

Two cups sugar, half cup orange juice, yellow rind one orange.

Put sugar, orange juice and a few pieces of yellow orange rind in saucepan, and boil until syrup spins a long thread. Pour on platter and leave until cool. Remove orange rind and work syrup with a broad spatula until white and creamy; then knead until smooth. Keep covered in a glass jar until wanted. Mould into shapes, adding fruit or nuts as desired.

CARE OF THE HANDS

Written for California Cultivator
By A. M. H.

THERE is something wrong with the woman who does not care to have nice looking hands, and just a little daily care will generally keep the hands in good condition. To clean the hands after doing the morning and dinner work, have ready a bowl of warm water, a cake of good soap and a dish of corn meal. First dip the hands in the water then rub on a little soap, and, taking about a teaspoon of corn meal, rub the hands thoroughly with it inside and outside. The soap and meal form a good lather and take off every bit of the dirt. Dry and take another spoonful of meal and rub well into the hands. This will absorb all moisture and leave the skin soft and white. While the hands are still moist, push back the hard skin that grows at the base of the nail with a dry soft towel and this will prevent hang nails from putting in an appearance and improve the shape of the nails. The tips of the fingers should be pressed between the thumb and finger upwards to give them a good shape.

I find it a good plan to keep a bottle of borax solution on the wash stand and use a little in the water each time the hands are washed to soften the water and it helps to keep the skin soft and white. The solution is easily prepared by adding a heaping tablespoon of powdered borax to a quart of hot water. This is especially good to use if the hands are sore or rough.

One of the best lotions for the hands to use at night is made with ten cents worth of glycerine, the juice of two lemons and one tablespoon of powdered borax. This must be stirred until thoroughly mixed.

A splendid remedy for chapped or sore hands is made with one teaspoon of the borax in a teacup of melted mutton tallow. When this becomes hard it can easily be warmed and rubbed over the hands. When gloves are used for sleeping in it is better to slit down the center of the palm, as the gloves should be very soft and loose.

Ink stains on fingers can be quickly removed by wetting and rubbing them with the head of a common match, then washing. Smooth pumice stone is one of the best things to use in removing other kinds of stains from the hands.

It is not always easy to put on gloves when one is in a hurry, but it pays to form the habit if one wants nice looking hands. Have gloves for sweeping, hanging out clothes, for gardening and blacking stoves, and keep these where you can get them at once when needed.

The life that has a motive, something definite to live and work for, is never dreary.

"Hurry, children—I've got a real treat for you."

Ghirardelli's Ground Chocolate

is a fortifying food beverage for all—from childhood to old age.

It comes PROTECTED—as all chocolate should—in ½-lb., 1-lb., and 3-lb. hermetically sealed cans.

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160 ACRE FARMS IN WESTERN CANADA FREE

Canadian Farmers Profit From Wheat

The war's devastation of European crops has caused an unusual demand for grain from the American Continent. The people of the world must be fed and wheat near $2 a bushel offers great profits to the farmer. Canada's invitation is therefore especially attractive. She wants settlers to make money and happy, prosperous homes for themselves by helping her raise immense wheat crops.

You can get a Homestead of 160 acres FREE and other lands at remarkably low prices. During many years Canadian wheat fields have averaged 20 bushels to the acre—many yields as high as 45 bushels to acre. Wonderful crops also of **Oats, Barley and Flax.**

Mixed farming as profitable an industry as grain raising. The excellent grasses full of nutrition are the only food required for beef or dairy purposes. Good schools, churches, markets convenient, climate excellent.

Military service is not compulsory in Canada, but there is an extra demand for farm labor to replace the many young men who have volunteered for the war. The Government is urging farmers to put extra acreage into grain. Write for literature and particulars as to reduced railway rates to Supt. of Immigration, Ottawa, Canada, or

Gilbert Roche, San Diego, Cal. Canadian Government Exhibit, Canadian Gov't Agt.

DITCHES!

Make the NEW and Clean the OLD with the MARTIN Ditcher, Dyker and Grader. Makes or cleans irrigation or drain ditches up to 4 feet deep—any width. Makes two to three foot dyke or levee; grades roads. Works in sand, rocks, gumbo or clay—wet or dry—on side hills or level ground.

Reversible, Adjustable, No Wheels, Cogs or levers. No breakable parts. All steel. 2, 4 and 6 horse sizes. Guaranteed to do more work than 50 men with shovels. Cost low, upkeep nothing. Over 10,000 satisfied customers everywhere. Write TODAY for catalog, full particulars and introductory offer on new 1917 models.

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You don't have to come to this great store in person for what you need—we will send our store to your very door through our Mail Order Dept. We maintain a Personal Service Shopping Bureau for your benefit, so that every order is given the same attention by our expert shoppers who buy for you, as though they were buying for themselves.

Write us for what you want in furniture and home furnishings. Our stock in every household line is wonderfully complete and varied. Our values are unusually attractive. Just address our MAIL ORDER DEPARTMENT.

We Pay the Freight 100 Miles and Part of the Freight for Greater Distances!

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ESTABLISHED 1880

Complete Home Furnishers

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SPECIAL PRICE ON

ROYAL APRICOTS PLUMS, PRUNES

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A complete line, all kinds of

Deciduous Trees

Orange, Lemon and Grapefruit

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Write for prices.

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GARDEN TOOLS

Answer the farmer's big questions: How can I have a good garden with least expense? How can the wife have plenty of fresh vegetables for the home table with least labor?

IRON AGE Combined Hill and Drill Seeder

No. 6 Drill and Wheel Hoe

solves the garden labor problem. Takes the place of many tools—stored in small space. Sows, covers, cultivates, weeds, ridges, etc., better than old-time tools. A woman, boy or girl can push it and do a day's hand-work in 60 minutes. 33 combinations, $3.25 to $15.00. Write for booklet.

Bateman M'f'g Co., Box 40C, Grenloch, N. J.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Unsigned communications receive no attention.

Title

In 1890 my ranch was deeded by its former owner, and as part of the description "the 110 north feet of Lot 17," were transferred in the deed. The same man also owned acreage south of this line. In 1893 he sold a further parcel and in that description included "the south 80 feet of Lot 17". The lots only contain 162½ feet, as per plat and survey. The man who bought the south 80 feet, immediately put a fence around his property and now claims ownership of the 80 feet and refuses to move back the fence. If this is conceded to him I lose 17½ feet of what I bought and instead of owning 110 feet of Lot 17, I only have 82½ feet. Have I not a recourse of some remedy from Title Insurance Company?—Subscriber.

Your grantor sold your property. He certainly could not convey title to anyone else of any portion of that property which he sold to you. Your remedy is, therefore, not against the title company, but by way of ejectment against the party who is unlawfully claiming and holding the property which was deeded to you.

Contract

How does one take back property sold on the installment plan where nothing has been paid for many months and the agreement reads if purchaser fails to fulfill terms it becomes null and void.

It depends very largely upon the attitude of the purchaser. You are entitled to bring action upon your contract either to compel him to perform and pay the money or to rescind the contract and regain the property, or, if the contract has not been recorded, you can convey the property to anyone else. In some instances, under some contracts, it is possible to take summary action as is taken against tenants who fail to pay their rent. It is frequently the case, however, that the arrangement is made with the contract holder whereby he retains the property in return for cancellation of his contract. The particular method which may be taken depends entirely upon the terms of your contract—whether or not it is recorded, and the purpose which you desire to accomplish, and the means and characteristics of the parties. You have several different means which can be adopted.

Chattel Mortgage on Cattle

I understand that in California a chattel mortgage is only effective in the county in which it is recorded. In the event that cattle are grazed in several counties at different intervals during the loan period, it would prove necessary to record the mortgage in each county. Again, at marketing time if the cattle were shipped to another part of the state, how would the mortgagee protect himself?

When personal property mortgaged is thereafter removed from the county in which it is situated, the lien of the mortgage shall not be affected thereby for 30 days after such removal, but after the expiration of such 30 days the property mortgaged is exempt from the operation of the mortgage unless the mortgagee causes the mortgage to be recorded in the county to which the property has been removed, or the mortgagee takes possession of the property. If the mortgagor voluntarily removes or permits the removal of mortgaged property from the county in which it was situated at the time it was mortgaged, the mortgagee may take possession and dispose of the property as a pledge for the payment of the debt though the debt is not due.

The above sections of the code answer all of the questions stated.

Walnuts Over Line

A owns walnut trees having branches which hang over B's fence and drop walnuts on B's property. Has A any right to go on B's land and gather them? What is the California law?

Under the decision of the supreme court of this state heretofore cited in these columns, it would appear that the owner of the tree would have no right whatsoever to trespass upon the property of the adjoining owner to pick up the nuts which it dropped, but he would have the right to gather such nuts, if it was possible so to do, from the tree alone, but when they had dropped upon the land of the adjoining owner, they apparently not only belong to the adjoining owner, but the adjoining owner can bring an action for trespass for allowing such nuts to drop upon his land if any injury was shown.—Subscriber, Los Angeles.

Soldiers' Exemption

Is an honorably discharged soldier of the Spanish-American war exempt from taxation? If so, to what extent? Also, to what extent is a veteran of the Civil War exempt?—Subscriber.

Property to the amount of $1000 of every resident in this state who has served in the army, navy, marine corps, or revenue marine service of the United States in time of war and received an honorable discharge therefrom, or, lacking such amount of property in his own name, so much of the property of the wife as shall be necessary to equal such amount, as well as property to the said amount of the widow resident in this state, or of the widowed mother resident in this state of every person who has so served and died, either during his term of service or after receiving honorable discharge, provided that the exemption shall not apply to any person owning property of the value of $5000 or more. Every honorably discharged soldier, sailor, or marine of the United States or Confederate states who has served in the Civil War, any Indian war, the Spanish-American war, any Philippine insurrection, or in the Chinese relief expedition, who is physically unable to obtain a livelihood by manual labor and who is a qualified elector of the state of California, has the right to hawk, peddle and vend any goods, wares and merchandise, except intoxicating liquors, without payment of any license tax or fee, either municipal, county or state, and is entitled to receive a license to peddle such goods, wares and merchandise from the legislative body of the county or city in which he desires to operate. In order to be entitled to the exemption it is necessary that the applicant therefor make affidavit to the assessor that he comes within the terms of such exemption between the first Monday in March and the first Monday in July. If no such affidavit is given then it is deemed that he waives such exemption, and may be assessed as non-exempt persons.

Enforcing Judgment

If B secures judgment against A in the superior court of Washington, and before an execution is taken A disposes of all his holdings and moves to California and there acquires property which may or may not be in his wife's name, will the judgment rendered in B's favor by the superior court of the state of Washington hold good in the state of California? If so how must B proceed to get an execution on the judgment? If the judgment secured against A out of the courts of the state of Washington will not hold good in California, how must B proceed to collect the debt, or has B no chance of having his claim satisfied? —Subscriber, Coeur d'Alene, Idaho.

In order to enforce a judgment in the state of California or in any state other than the state of Washington, it is necessary to bring an action in the courts of the state wherein the judgment is sought to be enforced, setting forth the judgment obtained and praying relief in the amount thereof. At the time of filing action a writ of attachment may be issued in the state of California upon any property which it is desired to hold to secure the payment of the judgment. No defense can be raised by the defendant to the judgment other than that of payment, satisfaction, release, or want of jurisdiction, the judgment being final and conclusive upon all the merits of the case.

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Square pulling, easily started, four wheels. 12 full h. p. on draw bar, with surplus of 4 h. p. by actual dynamometer test, 20 horse power on belt. Four cylinder, water cooled, long stroke, modern motor. Transmission a unit with motor. By actual test requires only 13.3 per cent of motor's power to propel itself, delivers at the draw bar 86.7 per cent of the motor's efficiency.

MOST POWERFUL FOR THEIR WEIGHT

Will do any portable engine job, sawing, silo filling, corn shelling, shredding; easily handle 28-in. grain separator; pulls easily three 14-in. bottoms 8 to 9 in. deep in clover or timothy sod. Unexcelled for road building. My new 1917 catalog is ready. Write for it today.

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Los Angeles Market

LOS ANGELES, Mar. 7, 1917.

BUTTER

Wholesale prices:
Rcts. wk. ending March 6, 310,575 lbs.
California extra creamery 33
Prime first 31
Extr. Cr'y Exch. past week.

Feb.	28	Mar. 1	2	3	5	6
'17	35	35	39	35	34	33

CHEESE

Brokers' prices:
California fresh, lb. .....24@25
Longhorn 28
Tillamook Triplets 25

EGGS

Exchange quotations:
Rcts. wk. ending Mar. 6, 3343 cases.
Fresh extras 26
Case count 26
Pullet 24½
Fresh Ranch Exch. past wk.

Feb.	28	Mar. 1	2	3	5	6
'17	23½	23½	23	25½	26	26

POULTRY

We quote from growers:
Broilers 32
Fryers 30
Hens 21
Roasters 23
Geese, Young 18
Ducklings, lb. 22
Roosters, old 13
Turkeys .....20@30

LIVE STOCK

CATTLE—We quote cwt. f.o.b. L. A.
Beef steers, av. 1000 to 1100 lbs. 9.00@9.50
Heifers, good 8.00
Cows, good .....7.00@7.50
Fair .....6.50@7.00
HOGS—
Heavy, av., 175 to 250 lbs. 12.00
Mixed, av., 150 to 175 lbs. .....10.50@11.00
Light, av. 125 to 150 lbs. .....10.50@10.75
Rough, docked 20 lbs.; piggy sows, 40 lbs.; stags, 40%.
We quote per cwt. f.o.b. L. A.
Prime wethers .....9.50@10.00
Ewes .....9.00@9.50
Lambs 13.00
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:
Northern 4.50
Local 4.00
Oregon Burbanks 4.00
Idaho Russets 4.50
Sweet, cwt. .....5.10@5.25
Seed: Early Rose, cwt. 4.75
White Rose 4.00

ONIONS

Wholesale selling price:
White Globe 11
Brown, lb. 9
Onion Sets, Brown 20
Garlic, lb. 8

VEGETABLES

Wholesale prices:
Artichokes, doz. .....85@1.15
Asparagus, lb. .....30@50
Brussels Sprouts, lb. 13
Beets, doz. bunches 60
Cabbage, lb. 4
Red, lb. 5
Carrots, doz. 50
Chicory, doz. .....40@50
Cauliflower, doz. 1.00
Celery, cr. 6.50
Cucumbers, Hothouse, doz. .....65@2.50
Horseradish, rt. lb. 12½
Lettuce, doz. 30
Leeks, doz. .....40@50
Mint 40
Onions, green, doz. 20
Oyster Plant, doz. 40
Peas, lb. .....9@10
Parsnips, lug 50
Radishes, doz. 25
Rhubarb—Crimson Winter .....1.35@1.50
Romaine 50
Spinach, doz. 25
Turnips, doz. 45
Tomatoes, cr. 2.50

FRUITS

Wholesale prices:
Apples—
Bellflower 1.50
W. W. Permain .....1.50@1.85
Newtown Pippin, Yellow .....1.40@1.85
Avocados, doz. .....5.00@10.00
Bananas, lb. 4½
Pears—Winter Nelis, lug 2.00
Pomegranates, ½ bx. 1.35

CITRUS

Navels .....2.25@2.75
Lemons .....2.00@2.50
Juice 1.50
Grapefruit .....2.50@2.75
Limes, basket 85
Tangerines, lug .....1.25@1.50

NUTS

Prices named by Cal. Walnut Growers' Assoc.

	1914	1915	1916
No. 1	16.50	13.60	15.50
No. 2	12.00	10.60	12.50
Pkgs., 16 oz. Net	.....	.....	16.50
Budded	20.00	17.00	19.00
Jumbos	18.50	16.00	17.50

HONEY

Wholesale prices:
Extr. lb. White 8½@9½c; A. 8½@9c; W.W. .....10@11
Comb., lb. W. 12½c; Lt.A. .....12½@14c
W.W. 14½
Beeswax, lb. 32

BEANS

Wholesale Prices:
Lady Washington .....13.00@13.50
Limas .....13.00@13.50
Pinks 9.50
Manchurian Reds 8.50
Baby Mex. 7.90
Small White .....13.00@13.50
Blackeyes .....6.75@7.00
Tepary 8.50
Lentils 18.00

HAY

We quote ton f.o.b. L. A. to producers:
Barley .....5.00@19.00
Oat, tame .....16.00@19.00
Alfalfa, local .....17.00@20.00
Northern .....15.00@17.50
Stock .....11.00@14.00
Straw .....9.00@11.00

GRAIN

Wholesale selling price f.o.b. L. A.
Wheat—No. 1 .....3.35@3.40
Corn—No. 2 yellow, 2.70; white 2.80
Oats—California feed 2.80
Standard 2.40
Texas Red 2.90
Cal. Seed Oats 2.60
Barley—No. 1 bright feed 2.50
No. 1 dark feed 2.45
Seed 2.60
Milo 2.70
Egyptian Corn 2.70
Rye 3.25

FEED STUFF

Wholesale, cwt. f.o.b. L. A.
Alfalfa Meal 1.45
Bran, heavy 1.90
Shorts and Middlings 2.35
Alfalfa Molasses 1.60
Meat Scraps, accd. to quan. .....3.20@3.30
Beet Pulp 1.60
Cracked Corn 2.75
Cracked Wheat 3.60
Cotton Seed Meal 2.40
Bone Meal 2.45
Feed Meal 2.75
Green Bone 2.25
Middlings 2.40
Oil Cake Meal 2.40
Fish Meal .....3.60@3.70
Rolled Oats 2.50
Hulled Oats 2.55
Feed Meal 2.80; Scratch Feed .....3.00@3.20
Oil Cake Meal 2.40
Pigeon Feed 3.70
Chick Feed 3.70
Blood Meal 4.20
Cocoa Meal 1.85

San Francisco Markets

SAN FRANCISCO, Mar. 6, 1917

BUTTER

Dairy Exchange quotations, lb.:
Rcts. wk. Mar. 5, 426,700 lbs.
Fresh extras 35
Prime firsts 34
Extr. Cr'y. Prod. Exch. past wk.

Feb.	27	28	Mar. 1	2	3	5
'17	36½	36½	36½	36½	36	35
'16	..	35	23	23	24	..

CHEESE

Dairy Exchange quotations:
Cal. Flats .....21½ Y. Am. ...20½@22½

EGGS

Rcts. wk. ending Mar. 5, 20,461 cases.
Dairy Exchange quotations:
Fresh extras 25½
Firsts 25
Select Pullets 23½
Fresh Extr. Prod. Exch. past wk.

Feb.	27	28	Mar. 1	2	3	5
'17	23½	24	24	25	24½	25½
'16	..	19	18½	18	18	..

POULTRY

We quote from producers, lb.
Hens, large .....23@25
Fryers, lb. .....27@35
Broilers .....29@35
Roosters, old..15@16; young .....26@27
Squabs, doz. .....3.00@3.50
Ducks .....21@23
Geese .....18@19
Turkeys, live, 22@24; dr. .....26@28
Belgian Hares, live 13@14; dr. .....17@18

LIVE STOCK

Prices gross weight:
Cattle:
Steers, lb., 7¾@9½, cows and heifers, 5¾@8; calves, 6½@9.
Sheep:
Wethers, 10@10½; shorn, 1½@2c less; ewes, 9@9½; lamb, lb., 11½@12½.
Hogs:
Hard grain fed, wt. 100 to 150 lbs., 12; 150 to 300 lbs., 12¾@13; 300 to 400 lbs., 12¼@12½; undesirable, 8.

POTATOES

Wholesale selling prices at wharf:
Delta .....3.75@4.00
Oregon Burbanks .....3.85@4.15
Yakima Gems .....4.00@4.15
Sweet, Cellar 5.00

ONIONS

Wholesale selling price on wharf:
Yellow, cwt., 7.50@9.00; off grade .....5@7
Garlic, lb. .....3@5

VEGETABLES

Wholesale selling price:
Artichokes, doz., large 60-75; small, 40-50
Celery, cr. .....3.50@4.50
Cucumbers, bx. hothouse .....1.75@3.00
Lettuce, cr. iced 1.50-1.75; uniced 1.00-1.50
Mushrooms, bx. .....25@1.00
Peas, small, 4@7; large .....8@12½
Rhubarb, box .....1.50@1.75
Squash—Hub., lb. .....2½@3½

FRESH FRUIT

Wholesale selling price:
Apples, bx.—Bellefleur .....60@75
Newtown Pippins .....90@1.25
Bananas, bunch .....1.00@1.50
Pineapples, doz. .....2.25@2.50

CITRUS FRUIT

Wholesale selling price:
Lemons .....1.75@3.50
Lemonettes .....1.00@2.00
Grapefruit .....1.75@3.00
Navels .....1.25@2.75
Tangerines, half orange box .....1.50@2.00

PEACH PRICES

Advance in prices, effective Saturday, February 24, 1917, at 6 p. m. All prices are f.o.b. factories, California common points. We reserve the right to refuse confirmation, at the following prices, unless f.o.b. factories where grades and varieties desired are available. All quotations are subject to our approval of variety and assortment, subject to our confirmation and subject to advance without notice; March and April shipment.

Price list No. 6 is hereby withdrawn and ineffective at 6 p. m., Saturday, February 24, after which time prices herein quoted shall apply.

	Yellows.	Muirs.
Standard Peaches	.06⅜	.06⅜
Choice Peaches	.06⅝	.06⅝
Fancy Peaches	.07¼	.08⅛
Extra Fancy Peaches	.08	.08⅝
Slab Peaches	.....	.05¾
Choice Peeled Peaches	.....	.09¾
Fancy Peeled Peaches	.....	.11

Above prices bulk basis
For 50-lb boxes, unfaced, add ..... ½c
For 50-lb. boxes, faced, add ..... ⅝c
For 25-lb. boxes, unfaced, add ..... ⅝c
For 25-lb. boxes, faced, add ..... ⅞c
For 10-lb. boxes, unfaced, add 1¼c
For 10-lb. boxes, faced, add 1½c

For prices on graded peaches, original, in bags, add ⅞c to the bulk basis prices above quoted.

	Per Lb.
Ungraded, orig. bags	.07⅜ .07⅜
Choice unpld. 1-lb. cart ...	.08½ .08⅝
Choice unpld. 5-lb. cart.	.08¼ .08⅜
Fancy unpld. 1-lb. cart. ...	.09¼ .09⅞
Fancy unpld. 5-lb. cart ...	.09 .09¾
Choice Peeled, 2-lb. cartons	.12
Choice Peeled, 5-lb. cartons	11¾
Fancy Peeled, 2-lb. cartons	13¾
Fancy Peeled, 5-lb. cartons	13¼

The above prices are guaranteed against our own decline to June 1, 1917, and apply only to sales and shipments made direct to the recognized jobbing trade. No goods will be confirmed at above prices to Coast or Eastern brokers, or to speculators, it being our object to eliminate speculation in dried peaches, we preferring to carry our stock in storage here on the Coast until actually required by the jobbing trade.

DRIED FRUITS

Wholesale quotations:
PRUNES—Bulk basis, per lb.: 30s and 40s, 6½c; 50s, 6⅞c; 60s, 7¼c; 70s, 7¼c; 80s, 7½c.
Other fruit, 50-lb. boxes:

	Standard	Choice	Extra Choice	Extra Fncy.
Apples	8¼c	8½c	9 c	....
Apricots.	16¼c	16⅜c	16½c	17½c
Peaches .	6¾c	7 c	7½c	8½c 9⅛c
Pears ...	6½c	8½c	9½c	11¾c ....

California Associated Raisin Company's prices on 1916 crop: Package Sun Maid Seeded, 36-16s, per case, $3; package Sun Maid Seeded, 48-16s, per case, $3.95; Bakers Sun Maid Seeded, 25-lb. boxes, per box, $1.75; fancy Seeded Muscats, 36-16s, per case, $3.05; fancy seeded Muscats, 45-12s, per case, $3.15; fancy bulk Seeded, 25-lb. boxes(per box, $1.75; choice Seeded Muscats, 36-16s, per case, $2.90; choice Seeded Muscats, 45-12s, per case, $2.95; choice bulk Seeded, 25-lb. boxes, per box, $1.75. (Wood cases if desired.)

Loose Raisins in 50-Lb. Boxes

One-crown loose Muscatels, floated, per box, $4; 2-crown loose Muscatels, per box, $3.25; 3-crown loose Muscatels, per box, $3.50; 4-crown loose Muscatels, per box, $3.75.

London Layers

Three-crown London Layers, 20-lb. boxes, per box, $1.50; 4-crown clusters, 20-boxes, per box, $1.75; 6-crown Imperial Clusters, 20-lb. boxes, per box, $2.60; 5-lb. boxes, 50c additional; 10-lb. boxes, 25c additional; fancy clusters, 1-lb. cartons, 20 to case, per case, $1.85; fancy clusters, 2-lb. cartons, 12 to case, per case, $2.20; fancy clusters, 5-lb. cardboard cartons, 4 to case, per case, $2.35. Bulk layers, in 50-lb. boxes, per box, $3.25; bulk layers, in 100-lb. boxes, per box, $6.25.

All f. o. b. common shipping points. Regular California dried fruit terms. Prices guaranteed to April 1, 1917. All raisins not shipped before January 1, 1917, to be paid for at that time. The company will carry the raisins free of expense to time of shipment, which must be before March 1, 1917, unless otherwise arranged.

No export rebate will be allowed.

Prices subject to change without notice.

NUTS

Jobbers' Prices:
Almonds.—Exchange opening prices: Nonpareil, 20½c; Ne Plus Ultra, 17c; IXL, 18c; Drake, 16c.
Peanuts .....5½@6½

BEANS

Jobbers' prices, cwt. recleaned:
Limas .....12.00@12.25
Bayous .....8.25@8.50
Garbanzos .....4.25@4.50
Small White .....11.75@12.00
Mexican Red .....8.00@8.25
Large White .....11.50@11.75
Pinks .....8.50@8.75
Horse Beans .....5.50@6.00
Black Eyes .....6.50@6.75
Red Kidneys .....11.75@12.00
Cranberry California .....9.50@10.00

HONEY

Jobbers' prices:
Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. .....11@12
Ex. Fy. lb. .....9c; Lt. A. .....6@8
Beeswax .....20@32

HOPS

Prices to growers at shipping points:
Sacramento .....7@9
Sonoma .....10@12
Mendocino .....8@9
Oregon and Wash., lb. .....6@10

HAY

Scott, Magner & Miller say under date of March 3:

Receipts past week 764 tons, last week 1376 tons, the week preceding 1617 tons. Receipts past week have been insufficient to furnish local demand. The market is higher on all grades.

Several lots held prior to the rains have been sold during the past week at prices in excess of anything heretofore realized. The usual amount has moved for export during the week. Alfalfa is in light supply with demand very good. Straw is scarce and commands full price.

We quote the average wholesale price of hay in carload lots on today's market as follows, viz:

Wheat, Fy., lt. bales .....23.00@24.00
Wheat or Wh. & Oat, No. 1 ...21.00@22.50
Wheat, or Wh. & Oat, No. 2 ..19.00@21.00
Oat, Choice Tame .....22.00@23.00
Other Tame .....19.00@21.00
Wild .....18.00@21.00
Barley .....18.00@21.00
Alfalfa .....17.00@21.00
Stock .....17.00@18.00

GRAIN

Grain Exchange prices, cwt.
Wheat, California Club .....2.65@2.75
Wheat, No. Bluestem .....2.97½@3.00
Corn, Eastern Yellow, sk. .....2.20@2.30
Corn, Egyptian White .....2.15@2.35
Oats, White Feed .....2.00@2.02½
Barley, feed .....2.20@2.25
Shipping .....2.32½@2.37½
Rye, cwt. .....2.65@2.75

FEEDSTUFFS

Wholesale prices per ton:
Bran .....30.00@31.00
Cornmeal feed .....48.50@49.50
Rolled Barley .....45.00@47.00
Cracked Corn .....48.50@49.50
Middlings .....39.50@42.00
Alfalfa Meal, carlots .....21.00@22.00
Shorts .....31.50@32.50

SEEDS

Prices in round lots, lb.:
Millet, recleaned .....3½@4
Alfalfa .....20@21
Rape .....2¼@2½
Flax .....5@6

Citrus Fruit Market

LOS ANGELES, March 7, 1917.

The storms in California at a time when shipments should have been made to give a big stock for Orange Day prevented as liberal supply as desired. One result is a slight stiffening of the market. Lemons are exceedingly strong. There are practically no foreigns coming and California is making as liberal delivery as possible.

Shipments

Shipments of oranges from Southern California since November 1, 1916, 9880 cars, lemons 2019, total 11,899; to same date last year, oranges 8079, lemons 1922, total 10,001. From Central California to date this year, oranges 4031, lemons 161, total 4190; to same date last year, oranges 4187, lemons 139, total 4326. From Northern California to date this year, oranges 842 cars, last year 609.

FROM THE AUCTION

February 28

New York: 19 cars Nav., 1 mixed, 4 lem. Nav., $1.30@3.60; bloods, halves, $1.80; tangerine halves, $2.15@2.25; lem., $3.30@3.90.

Boston: 12 cars., Nav., $2.40@3.50.

Philadelphia: 9 cars, Nav., $1.90@2.15; lem., $3.65@4.15.

St. Louis: 6 cars. Nav., $1.60@2.70; lem., $2.45@3.40.

March 1

New York: 14 Nav., 4 lem. Nav., $1.65@3.50; tang. halves, $2.20; lem., $2.90@3.90.

Boston: 11 cars. Nav., $1.85@3.20; lem., $3.40@3.50.

March 2

New York: Nav., $1.65@3.45.

Boston: 6 cars. Nav., $2.60@3.50.

Cleveland: 3 cars. Nav., $2.55@3.35; lem., $2.50@3.25.

St. Louis: 2 cars. Nav., $2.30@2.80.

March 6

Boston: 13 cars. Nav., $2.05@3.25; lem., $3.10@3.30.

NEW ATTACHMENT

Mr. E. E. Gerlinger of the Gerlinger Motor Car Company of Tacoma, Washington, and manufacturer of the "Universal" Tractor Attachment for motor cars, has just made a visit to Los Angeles and San Francisco, completing arrangements for the distribution of the attachments on a large scale in this state.

The "Universal" is the gearing, wheels and other machinery necessary to quickly change an automobile into a powerful tractor. Mr. Gerlinger's Universal is being made to attach to ten different models of autos, a feature that opens wide possibilities to anyone who wishes to farm and make his auto do a part of the work.

Letters from men who have seen demonstrations of the "Universal" in its home state, indicate an enthusiasm for the tractor that could come only from people entirely satisfied with the work done, the low price and serviceability.

Mr. Gerlinger is one of Washington state's big business men who has already achieved success as the manufacturer of motor trucks. As soon as a shipment from the factory arrives several demonstrations of the "Universal" will be announced.

The Los Angeles distributor is Mr. C. H. Mellen, a well known Los Angeles business man, formerly a bank official and with wide and successful sales experience.

WEATHER CONDITIONS

For the Week Ending March 3, 1917

	Rainfall Wk	Season	Norm	Temp. Max	Min.
Eureka	1.12	21 43	32 28	56	30
Red Bluff	.52	14 88	17 98	60	36
Sacramento	.54	11 48	14.22	58	36
San Francisco	.39	13 97	16 71	64	42
San Jose	.84	11 34	11 99	64	30
Fresno	.02	6 30	6 84	64	36
San Luis Obispo	1.08	21 99	14 48	66	36
Los Angeles	1.10	14.31	11 27	66	44
San Diego	.08	8 50	7.34	62	42

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10 Acres and Up.

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(63 miles from San Francisco)

Easy terms of payment. For prices, etc. address

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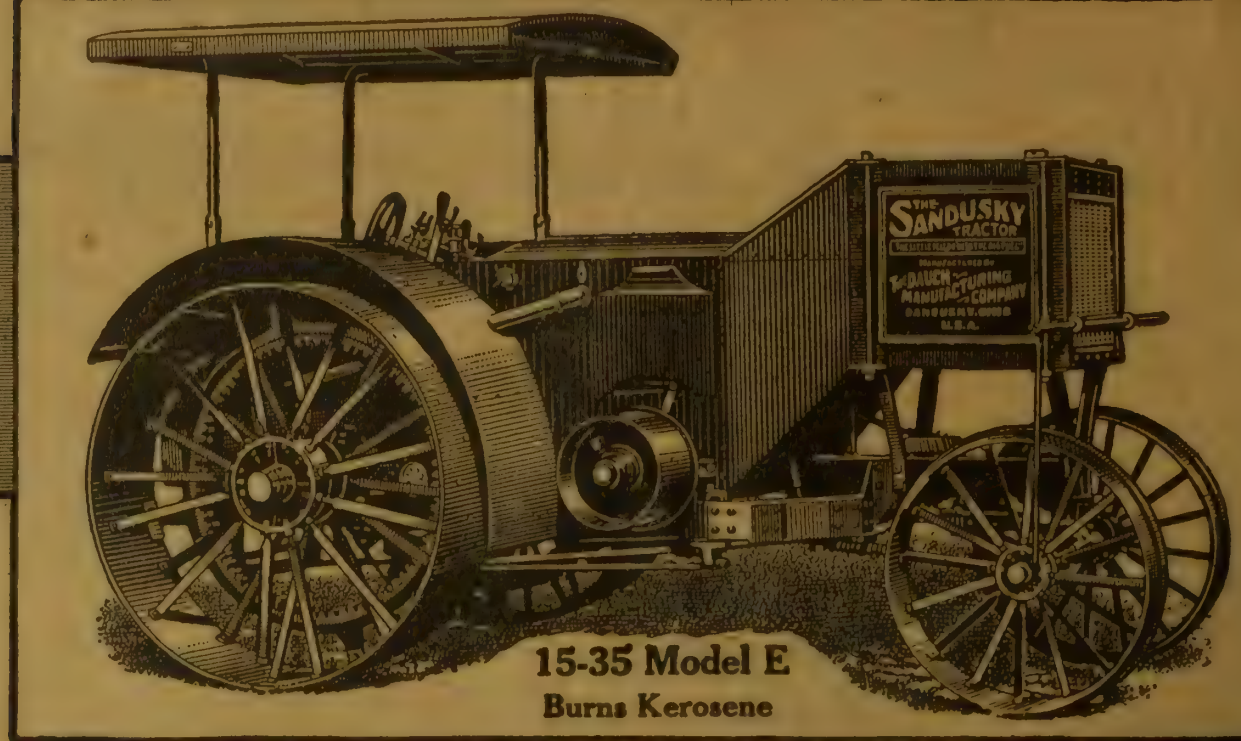

15-35 Model E
Burns Kerosene

THE SANDUSKY TRACTOR

"THE LITTLE FELLOW WITH THE BIG PULL"

WHEN you buy a tractor you buy so much metal fashioned into a certain shape, because you expect it to render valuable service. You know that you cannot get more out of any machine than was put into it when built. Paint and fancy fixings do not make a tractor; therefore, buy a tractor that is built right, not merely for looks nor because of unproved claims.

Every year sees a stronger indorsement of the actual service that owners get out of the 15-35 Model E Sandusky Tractor. Built upon thoroughly tried and most exacting specifications, using only the best n.aterials, on correct engineering principles, service and durability are put into it at the start.

The Sandusky Tractor has been thoroughly tested on hundreds of farms, and the universal verdict is that it is the standard by which tractor performance may be judged.

For great power, ease of handling, reliability and durability The Sandusky Tractor excels. Its direct drive on heavy duty work, its reserve power, and its scientific construction put it in a class by itself.

The Sandusky Tractor must demonstrate that it can do your work on your own farm before you can buy it. It will plow, harrow, disc, fill silos, shred fodder, saw wood, pump water, build roads, and do all kinds of belt work more economically, more satisfactorily and more easily than any other method. With it you can prepare a better seed-bed, and do it at the right season, or cut your grain at the right time. It never tires, is not affected by climatic conditions, never gets sick, and it doesn't eat when it's idle.

Farming with The Sandusky is farming certainty. Then why buy any other than the best—why depend on immature or freak designs, much paint and loud talk to do the work that is to make your farm more profitable?

Brief Specifications

Our own four-cylinder, four-cycle, 5 x 6½ heavy duty, slow speed vertical motor; positive combination force feed and splash self-contained oiling system; Bennett air cleaner; three-speed selective transmission, 2 to 5½ miles per hour with direct drive on low; ideal three-point spring suspension; all steel construction; small over-all dimensions and short turning brakes; easily handled; surplus cooling capacity.

A NEW PLAN—FREE SERVICE

We announce an entirely new departure in tractor selling. A coupon book good for 200 hours of service goes with every Model E. This means expert service and help without charge when you want it. See catalog for details.

Our Binding Guarantee

We guarantee The Sandusky Tractor full 15 horse power at the drawbar and 35 on the belt pulley; capable of handling at least four 14-inch moldboard plows eight inches deep where a big team can pull a 12-inch plow six inches deep; to run belt machinery up to a 32-inch separator; to have one-third reserve over its drawbar rating, and for one year against defective workmanship and material.

BOOK E14 FREE—A 40 page book which fully describes and illustrates the distinctive design, high grade construction and exceptional ability of the Sandusky Tractor. A copy will be mailed you upon request.

THE DAUCH MFG. CO., Sandusky, O.

If the Model E is too large for your requirements let us send you information covering our 10-20 Model J. Ask for booklet J-14

The Sandusky Tractors—both Models—are ready for inspection at and delivery from our principal Factory Branches and Service Stations at: Indianapolis, Ind.; Bloomington, Ill.; Milwaukee, Wis.; Lewistown, Mont.; Minot, N. Dak.; Fargo, N. Dak.; Sioux City, Iowa; Lincoln, Nebr.; Wichita, Kans.; Dallas, Texas; Leesburg, Fla.; Los Angeles, Cal.; Sacramento, Cal.

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MAR 1917

CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

LOS ANGELES March 17, 1917 SAN FRANCISCO

PUT THIS WONDER-WORKER ON YOUR FARM

IT WILL PAY FOR ITSELF IN ONE OR TWO SEASONS

Cuts the COST and the TIME and the LABOR of leveling land down to a minimum

"As far ahead of the Fresno Scraper, as the Tractor is ahead of the Horse—in modern, successful farming."

THE SCHMEISER LAND LEVELER

Takes Most of the Toil Out of Leveling the Soil

—enables two men and a tractor to do the work of a crew of men, a band of horses and a number of Fresnos—with ease and comfort. (The air control on the larger machines is a wonder—makes operation very simple) —puts the high spots into the low spots; transforms ditches, gulches, knolls, ponds and pools into tillable acres of fertile soil. —works on ground too hard and rough and full of tough old knots for a Fresno and horses to touch. Gives the farmer who owns it a start on his neighbors who don't. Spells profit to the progressive contractor.

Made in Sizes Suitable for any Tractor or any Number of Horses

The "Giant"

CAPACITY 4.35 YARDS

$990.00 F. O. B. Davis, Cal.

DIMENSIONS:

Frame made of 5-inch, 9-pound channels, well braced and riveted with ⅝-inch boiler rivets.

Axle of 3½ x 3½-inch square steel with spindles turned down to 3¼ inches.

Rocker Shaft of 2¾-inch Cold Rolled Steel.

Wheels are 5 feet high with 12-inch treads.

Pull Bars of 4-inch channels.

Buckets of ⅜-inch Universal Steel Plates, 11 feet wide, 3 feet high and 4 feet sides with Plow Steel Blade. Bucket has center draw bar to take up strain on center of bucket.

Machine is operated by compressed air.

Weight 5,300 pounds.

The "Junior"

CAPACITY 2.43 YARDS

$715.00 F. O. B. Davis, Cal.

DIMENSIONS:

Frame of 4-inch channels, well braced and riveted with ⅝-inch boiler rivets.

Axle of 2½-inch steel with 2-inch spindles.

Wheels 4 feet high, 6-inch tires.

Pull Bars of 4-inch channels.

Rocker Shaft of 2-inch Cold Rolled Shaft in Cast Iron Bearings. Bucket 8 feet wide, 3 feet high, 3½-foot sides.

Machine operated with compressed air.

Weight 3,000 pounds.

The "Midget"

CAPACITY 1.45 YARDS

$385.00 F. O. B. Davis, Cal.

DIMENSIONS:

Frame of 3-inch channels, well braced and riveted with ⅝-inch boiler rivets.

Axle of 2-inch Steel.

Wheels 3 feet high, 6-inch tires.

Pull Bars of 3-inch channels.

Rocker Shaft of 2-inch Cold Rolled Steel.

Bucket 8 feet wide, 2½ feet high, 2½ feet sides, operated by hand wheel and worm and sector gear or lever.

Works very easily, especially when moving, as the pull on the machine has a tendency to turn the bucket over and release the load.

Weight 1,800 pounds.

In Wonderfully Successful Use Today on the Larger Ranches of California, Arizona, Washington and Nevada

Schmeiser Manufacturing Co.,
22 Mechanic St., Davis, California.

Gentlemen:—Without any obligation on my part, please send me your latest descriptive literature on Schmeiser Land Levelers; also the name of some one in my vicinity now using one of these machines.

Name .....

Address .....

Make and Horsepower of Tractor.....

Number of Acres to Level.....

Send today for further interesting information regarding Schmeiser Land Levelers; also list of names of those now using them in California, Arizona, Washington and Nevada. In writing state acreage you have to level and the make and horsepower of your tractor.

"THE SCHMEISER WAY MAKES FARMING PAY"

Schmeiser Manufacturing Co.

22 Mechanic Street DAVIS, CALIFORNIA

California Cultivator

Vol. XLVIII No. II LOS ANGELES: March 17, 1917 One Dollar Yearly

Possibilities in North and Central California

The Sacramento and San Joaquin Valleys and the North Coast Counties Rich in Opportunities. Development Already Great, Must be Still Greater, Especially Along Agricultural Lines.

Written for California Cultivator
By W. D. Egilbert, Secretary California Development Board

IN the space that has been placed at the disposal of the writer for the purpose of presenting a composite review of new developments in the territory from the central San Joaquin Valley to the Oregon line it is only possible to touch, as it were, the high lights of the potential activities that are apparent in the agricultural, water and manufacturing industries of the section indicated.

While it is true that more pronounced systematic utilization of the peculiar natural resources of the state had been developed through publicity and extensive commercial contacts throughout the world by trade relations established through the initiative of Southern California interests, the influx of capital, which makes the necessary entering wedge for commercial advancements, has been tremendously increased in the great interior valleys of California—the San Joaquin and Sacramento with their contiguous sections.

During the last five years pronounced developments of the basic industries, of water and soil, vastly supplemented by the good roads era, have become almost a habit in the interior of California especially referred to in this article. But the years 1915 and 1916 have far surpassed any previous years in the history of the state in the aggregate of potential results as indicated by the unimpeachable statement of bank clearings. The present year, due in some measure to the disturbed trade conditions throughout the civilized world, promises for California the greatest year of money turnover in the history of the commonwealth. Nevertheless, while the upheaval in Europe has played its part in bringing opportunities unthought of to Californians, the expositions of 1915 are immeasurably responsible for California's foremost position on the world's map of achievement.

It is a deplorable but easily demonstrable fact that this Western state has, like numbers of the sisterhood of states, been sadly neglected by the paternal government. Gladly, we are now able to point with distinctive pride as the leading state, looking to the development of the fundamental resources by taking care of foundations. Hence, within two or three years the California state highway system, with its main arteries and laterals connecting every section of this great state, will be pointed to as the most comprehensive system of government built highways in the world; the reclamation, drainage, river and irrigation problems now being masterfully elucidated by state commissions will present to the present and future generations untold advantages of soil and water wealth undreamed of by the pioneers of the western hemisphere. Hardly an activity that tends to the fostering and upbuilding of a community in its most economic sense has been overlooked by the government with which this state has been blessed in the last few years. Educationally, socially, industrially, California is farther advanced than any state in the Union, and with the exception possibly of two foreign countries the most improved community on the sphere.

A great deal of controversial expression has been in a measure inspired regarding the value of the tourist—as to whether the tourist is an asset or a liability. In my opinion the question is not debatable. As a matter of fact, in the first analysis every person who comes to California is a tourist; if he likes the country he stays and becomes one of our producing units or he goes hence, leaving, even in that instance, a few dollars by the wayside. The tourist is a very necessary addition to our community and supplies the most attractive crop that this state can grow and garner. It is a perennial harvest which Southern California is reaping and has reaped for two decades, and in March, the current month, there are more tourists, i.e., traveling inspectors of our state, present in our midst than at any similar time in the past, and this is significant because the tourist season as we have known it does not begin thus early. Approximately the coming of the yearly tourist pilgrimage means, very conservatively estimated, the added circulation in coin of the realm of upwards of $30,000,000. The actual returns from the 1917 crop it is just as conservatively stated will show an increase of at least 25 per cent, and by the end of 1918 California can with perfect assurance rely on the new money advantage of the tourist to the extent of $75,000,000 and upwards per annum.

Southern California, which has so long and so effectively encouraged the coming of the very desirable tourist from every quarter of the globe, reaps at least 75 per cent of the direct benefit from this harvest. It will always be for what we know as Southern California, her wonderful beaches and somnolent climate, to obtain the larger share of the traveling asset of the tourist pilgrimage. More and more, however, is this field being opened up to the sections north of Tehachapi wherein lies the wonders of the Yosemite, the several national forests, delightful beaches of Santa Cruz and Monterey; the "Valley of Heart's Delight" which designates the imperial Santa Clara Valley; the peculiarly attractive environments of San Francisco, the metropolis; the wondrous bay region with its artistic and educational centers; the Marin and North of Bay Counties with their resorts and indigenous redwood forests, "The Cathedrals of Time"; the superb Shasta region, embracing such hoary monarchs as Shasta and Lassen, the sole living volcano in the United States; the peerless Sierra Nevada in which nestle beautiful Tahoe and other lakes; the vast mining section extending from the northern boundary of Siskiyou on either side of the great Sacramento waterway and embracing the Mother Lode and Placer regions, responsible for California's first publicity, and dear to the memory of the pioneer.

A California Redwood Forest
A scene in the timber lands of the Redwood Manufacturers Company.

The development of the watersheds in the interior valleys has added in the last two years upwards of 1,000,000 acres of irrigable land in that territory, and this brings me to a reiteration of the statement that our first thought in California should be the development of the water possibilities. Until the last three years we have been selling our lands to the incoming homeseeker in most cases in a conscientious manner. The question of natural rainfall entered, of course, into the conversation during the negotiations for sale of small or large tracts, but serious thought was not given to the possibility of a dry season now and then and sometimes several seasons in succession. Unfortunately the minds of our legislators and those in authority worked slowly and as a consequence numbers of settlers were placed in a position that made them at least poor boosters for California. Yet, at their very doors was running to waste the purest mountain waters from a thousand streams which only needed harnessing or diverting to make the difference between a poor ranching investment and a competency. Especially so was this position accentuated on the floors of the valleys. And, on the other hand, by the same thoughtless oversight the ravaging rivers and torrential mountain streams were not curbed in the rainy season and ruthlessly carried to destruction millions of dollars of flourishing produce and the means of production. All this, as previously indicated, is being overcome by the care that the state government is giving in recent years to the foundations of our commonwealth, and the potential influence is apparent as has also been stated in the final checking up in the banks' clearing houses.

California has ever been a state of big things and surprises. In 1849 gold was the inspiring word sent round the globe. Thereafter for decades this El Dorado led the world in the production of the yellow metal of commerce. In natural sequence came transportation, the cultivation of great grain ranches, the stocking of ranges and the laying out of orchards; in rapid succession the apple, the peach, the prune, held sway. Orchard, grain field and dairy, lumber mill and factory were interlaced throughout California. Water in the southern arid sections turned the deserts into a paradise. California became the greatest citrus section in the known world. She grows in the valleys of her far southern region dates and tropical fruits superior to those imported from their native soils.

Recently there have been developed industries unthought of 15 years ago. The sugar beet has become again a factor in agricultural communities. With a tariff disturbance the sugar beet industry was impaired for two or three years, but significant, and pointing to a new era, are these observations: In Hamilton, in the northern Sacramento Valley, preparations are being made for the resumption of the sugar beet industry and possibly 5000 acres will be farmed this year. In San Joaquin County the biggest agricultural development of the year was the decision of three different sugar companies to establish factories in that county; each has announced that it will erect plants costing $2,000,000; two will be ready for the 1917 season and the third for 1918. One factory will be located near Tracy, another at Manteca and the other in Stockton.

As cotton has become a large manufacturing influence in the extreme southern part of California, so has its semitropical compeer, rice, developed unusual strength in the San Joaquin and Sacramento Valleys.

In 1912 the experiment in rice which was made in the Butte County section of the Sacramento Valley produced about $100,000 worth of the cereal. In 1916, 60,000 acres, 90 per cent of which area was planted in the Sacramento Valley, produced upwards of $3,000,000 in market value of the tropical water plant. There is no question that in the next few years at least 125,000 acres will be planted to rice in California. It is roughly calculated that there are 150,000, probably 200,000, acres that may be made available for rice culture. The industry has passed the experimental stage notwithstanding the pessimistic reports of United States government in-

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Farm, Garden and Orchard Tools

Answer the farmers' big questions. How can I grow crops with less expense? How can I save in planting potatoes? How make high priced seed go farthest? The IRON AGE Potato Planter solves the labor problem and makes the best use of high priced seed. Means $5 to $50 extra profit per acre. Every seed piece in its place and only one. Saves 1 to 2 bushels seed per acre. Uniform depth; even spacing. We make a full line of potato machinery. Send for booklet today.

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It's the combination of the highest-grade petroleum grease and powdered mica—special process. Better lubrication—cooler bearings—and the grease lasts twice as long.
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Six Years Old
Five Acre Date Garden

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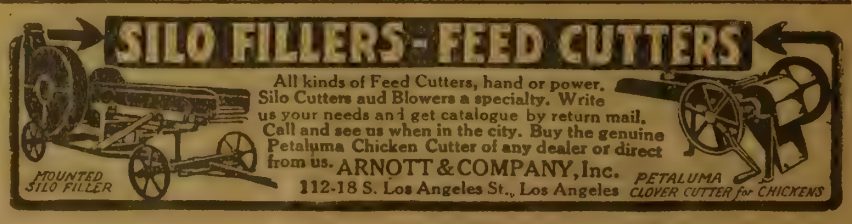
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vestigators. Product in warehouses should be sufficient evidence of the practicability of rice growing and the profits derived from this form of agriculture is comparable to that obtained from other grains, possibly to the advantage of rice. Water is the essential accompaniment for successful rice growing, and utilization has been made not only of water waste but of land waste in the rice growing regions. Of the 40,000 acres of rice land now being successfully tilled in the Sacramento Valley at least 25,000 acres had been relegated to sheep and cattle grazing. Some of this land has patches of alkali, and rice grown there is firmer and has better marketable properties than rice from other and what were considered more favorable sections. Here then is a use being made of land on a very profitable scale that was for the moment passed into the discard by its owners.

The expansion of farming and industrial interests has been remarkable in the country briefly covered by this article, and naturally the populous centers, such for instance as Fresno, Stockton, Sacramento and other county seats which were advantageously situated for such developments as are now occurring by the prophetic foresight of the founders, show the largest percentage of increase. Oakland and San Francisco together with other Bay communities have surpassed in the last year all previous years as to the number of new factories and industries begun. The investments as to dollars and cents have too in remote cases shown a substantial increase, but the small producing plant is considered attractive and has been encouraged by progressive commercial organizations in greater ratio than in previous times.

In tune with the increased manufacturers' output follows the added equipment and operation of the transportation companies, but specially noticeable is the tremendous advance in river traffic on the San Joaquin and Sacramento Rivers. In 1915 products carried on the San Joaquin River totaled nearly 900,000 tons with a valuation of $37,000,000. Also 215,000 passengers were carried on the river boats. Reliable estimates made for the current period give an increase on these figures of over 20 per cent, and nearly the same situation is shown in a perusal of the statistics gathered over the Sacramento River routes.

Reverting again to the matter of the fostering of industries by our state government, a word here might be said of the extremely practical results being obtained by the operation of the Chico plant station, conducted under the auspices of the United States department of agriculture. No area of 80 acres in the entire United States is producing such fundamental results as this highly cultivated government farm. Men acting as the representatives of the secretary of agriculture, working in the interior of China, Japan, India, Australasia and elsewhere, the pioneers of future fruit and plant industries, are being ably seconded in their courageous efforts to find new fruits and grains applicable to the varying conditions of the climate throughout the United States, and splendid success is following primary efforts. The Chico plant station is one of the show places of California, and will become, as it is better known and its work better understood, an incentive for propagation and development of new horticultural and agricultural products, peculiar at this time to other countries.

There are a number of irrigation projects in this nation that are being operated under more or less successful circumstances, but California is providing some object lessons in irrigation as she has in so many other branches of human endeavor. In Orland, Glenn County, is what is regarded as among one of the most successful irrigation projects undertaken by the United States government. By a beneficial law passed through the California state legislature irrigation districts are being promoted in several sections of California. They are in all stages of development, but some are far enough along to indicate what may be expected in the majority of installations.

In the extreme northern part of the Sacramento Valley what is known as the Anderson-Cottonwood irrigation district, is preparing to provide the

necessary water for at least 60,000 acres of fine land that has thirsted for artificial help in its cultivation. This project, if present estimates are a criterion, should finally cost not more than $30 per acre, which is below the average of cost for similar construction and equipment. There is further irrigation development in Lassen, Modoc, Siskiyou and Trinity Counties, superinduced by the object lesson that the Anderson-Cottonwood district is giving.

It may be generally said that there is not a county in the district touched upon by this article that has not some water problems, looking to future uses of waste water under consideration or actively working out some project. In fact, the state as a general proposition has awakened to the economic loss that has been occasioned by this lack of water usage. Hydroelectric development in the mountain counties, more especially those bordering on the Sierra Nevada, has stimulated thought in regard to water possibilities, and when the statement is made that possibly not more than six per cent of the water coming from the mountains of California is being artificially or profitably utilized, some reason is advanced for the necessity for activity along the lines indicated.

The dairying industry shows a very active advance especially in the coast counties of Humboldt and Monterey, and also in San Benito and Stanislaus. There is a general tendency to the planting of alfalfa in a number of counties that have not developed that industry to any extent and this is another indication of the use of water. A great deal of interest is being shown by the state authorities in the movement among stockmen to increase the herds in this state by the addition of better stock. Cattle, hogs and sheep holdings were largely depleted in 1916. The state university farm at Davis, which is practically an extension course of the university at Berkeley and which was a laughing matter among farmer a few years gone by, is now recognized as the leading institution of its class in the United States, if not in the world. Much public notice was focused on this substantial institution by its winning recently at the Chicago National Cattle Show of two grand champion prizes, the highest awards for cattle in exhibition. Within close proximity to the Davis farm is also the home of the champion Holstein herd of California.

With the extension of the Northwestern Pacific through Mendocino and Humboldt sections and the improvement that has taken place recently in the land transportation service into what were three or four years ago quite remote sections, those wonderful coast counties may look forward with increasing assurance to an attainment of their legitimate goal. The lumber industries of these sections alone would make them potential, but the inspiration that comes from contact with the giant redwoods is certain to bring to those communities an influx of desirable visitors and finally settlers that will well repay the exploitation of that country. The Grand Canyon of the Colorado is viewed by thousands of sightseers as a great wonder of the past; what of the Giant Redwoods? These monarch of the mighty forest, living things before the Christian era, speak with a warmth to the man who gazes upon the marvels that the Grand Canyon cannot express. Here may be the Mecca of the tourist in the near future.

A matter that appeals constantly to interested observers in close association with developments throughout California is the whole-souled interest that is plainly manifested whether in municipal, county or state government in the paternal care of the state's undeveloped resources. In consonance with these thoughts material, practical, systematic operation of water and highway facilities under the fostering influence of the state government is reflected in a more prosperous country side than it was possible to find but a short decade ago.

Imperial Valley melon growers have been informed by the state insectary that the supply of lady birds will be somewhat short this year and that very careful distribution will have to be made in order to handle the aphis pest.

Mr. GRAPE-GROWER

It is almost time for MILDEW

Are you PREPARED for this EMERGENCY which is sure to arise? Have you a GOOD, EFFICIENT, SULPHUR MACHINE? Or are you "putting off" getting one until it is TOO LATE?

Send for the AMERICAN BEAUTY, NOW, and when the time to sulphur comes, YOU will be READY, and YOUR CROPS will be SAFE.

When the rush is on, and every hour counts

THE AMERICAN BEAUTY SULPHUR MACHINE

will do twice the work of any other. GET DONE ON TIME and SAVE YOUR CROPS

REMEMBER: "A puff in time saves the vine."

The AMERICAN BEAUTY works evenly and continuously, and will not choke, clog, or stop feeding for any reason. It delivers the finest screened sulphur you ever put upon a vine, with the least labor. You will hear no "BIRD SHOT" rattling on the leaves with this machine. Our screen has over 400 perforations to the square inch, and this is the finest screen ever used.

Our machine takes the sulphur right from the sack, crushes the lumps, passes it through the extra fine screen, and delivers it in a perfect cloud of fine, clinging, sulphur—without waste. One rancher ran sixteen sacks of sulphur through an AMERICAN BEAUTY last season without trouble of any sort. He will use no other now. It can be filled and mounted in less than three minutes, and has a greater sulphur capacity than any other machine of its size made.

The AMERICAN BEAUTY SULPHUR MACHINE was awarded the BLUE RIBBON and DIPLOMA at the 10TH ANNUAL DISTRICT FAIR at FRESNO—1916. In the HEART of the grape-growing district, where they have every known machine! Doesn't that mean something!

The AMERICAN BEAUTY is not an experiment, not an imitation of any foreign device. It is a California product, designed and built in California by PRACTICAL EXPERTS, to meet the needs of California and West Coast growers. It is the result of two years of work and study, in field and factory, and has been tried and tested under the personal supervision of one of the leading grape-growers of Fresno County. Many models were made, and submitted to the most rigid vineyard tests, weak spots were sought out and corrected, changes were made, till we had obtained the perfectly working machine we are offering you today.

REMEMBER, YOUR CROPS MEAN MONEY. A few hours lost at a critical time may cost you all your profits. DON'T WAIT. Insure a good yield by being prepared. Here is our proposition. Send us $11, and we will send you a complete machine, ALL CHARGES PAID, and guaranteed to be all we claim. Try it for a week. If you are not entirely satisfied, return it, in good condition, AT OUR EXPENSE and we will cheerfully refund your money.

REMEMBER, WE FULLY GUARANTEE EVERY MACHINE

THE CALIFORNIA SPRAYER COMPANY

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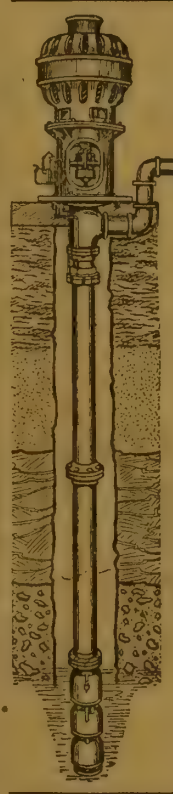

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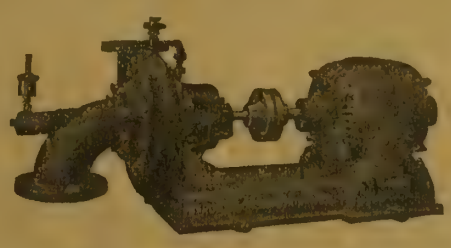
No valves to pack or plunger rods to get out of order. For use in any well ten inches in diameter or over.

A complete line of irrigating pumps of all descriptions, horizontal and vertical for belt drive or direct connection to electric motor.

Prices as low as are consistent with good quality and workmanship.



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NORWALK TIRES

The difference between the best medium-priced tire and Norwalks cannot be put into words. Only Norwalk owners can realize or appreciate the extraordinary service Norwalks render exclusively. Try them on your car — they'll save you money. ASK FOR PRICE LIST.

7500 Miles Guaranteed
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Holstein Bulls

Well bred, vigorous, registered Holstein bulls of good type for sale. Steady sales have moved all our bulls of service age, but we have a few unusually good calves to offer at moderate prices

The McCloud River Lumber Company
McCloud, California

A Large Stock of One and Two Year Citrus Nursery Stock

15,000 One Year Eureka Lemons
15,000 One Year Valencia Late
5,000 Two Year Valencia Late
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Prices consistent with quality of trees.

Phone Whittier Exchange 4721 CHAS. STORY, Rivera, Cal.

The Rose Crest special offer at this time consists of a select lot of

Berkshire

gilts bred to Ames Rival 118th. Also three extra good boars of serviceable age, grandsons of Rival's Champion Best. One of these was first prize under-six-months boar at Riverside County Fair 1916.

F. L. HALL
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IRON WAGON WHEELS

We supply any height wheel to fit any kind of an axle. Guaranteed to fit or money back. Put a set on that old gear. Write today for list and measurement blank.

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Founded in 1889 by R. M. Teague

The R. M. TEAGUE CITRUS NURSERIES

Successors to

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Teague Trees are Quality Productive Trees

Because properly grown and budded from selected trees producing abundantly only quality fruit. Buds cut from carefully selected fruiting bud-wood only. In addition we give quality service in the way of digging, packing and delivery that insures success to the planter. Correspondence and inspection invited; our treatise on "Citrus Culture" and annual Price List sent on application.

R. M. TEAGUE, Manager
San Dimas, California

Legumes are plants that bear their seeds in pods. They take nitrogen from the air and store it in the soil, thus increasing the fertility and available plant food of all soils in which legumes grow. Field grains are not legumes.

Seed inoculation means putting on legume seed the pure culture bacteria such as "Nitragin." Inoculation strengthens the tiny legume plant from the moment the seed sprouts, and under proper soil conditions insures a "catch" which you otherwise could not get.

YOUR HOUSE ROBBED AND BURNED

Inoculated **Not inoculated**
Two soy beans. The large one showing growth because of inoculation of seed with "Nitragin." The smaller without inoculation. Both grown under same conditions.

Inoculated **Not Inoculated**
Two alfalfa plants of the same age started in the same soil, under the same conditions—one inoculated with "Nitragin," the other no inoculation whatever.

Inoculated **Not Inoculated**
Two clover plants. The larger grown from seed inoculated with "Nitragin"—the smaller without inoculation. Both grown under same soil conditions.

IF YOU were away from home and picked up a newspaper and the first thing you saw was the headline like that above, you would be interested right away because your home is the closest to your heart.

What we want to talk to you about is the robbery and destruction that is going on right on your farm every year, absolutely and positively, no matter where you live—not to the extent of a few silver spoons, knives, forks, jewelry and silver dollars—but to the extent of thousands upon thousands of dollars that **justly belong to you now.** You are not getting them, no matter where you live or how rich you think your soil is. This is just as true as you are reading this advertisement, and we can prove every word of it if you will give us a chance.

Look Here!

Statistics show that the cost of crops annually is getting higher—that the annual production in bushels to the acre is getting lower.

What's the reason?

There is only one reason. You yourself and your tenants have gone out like masked men with dark lanterns and deliberately robbed the soil. Will you be serious enough to read all this advertisement? If you will, and will put into execution the information we are giving you, you can get thousands of dollars that you have not been getting, and that you never will get if you don't follow the course we have outlined here.

Talk About Fortunes!

Combine the wealth of all the railroads, the steel mills and the other industries and these figures would look small compared to the value of the increased crops that could be produced in the United States if all the farmers of the country would properly rotate their crops with legumes properly inoculated with "Nitragin" which has been proven, tried out and tested as the best legume inoculator.

What Is Nitragin?

"Nitragin" is a bacteria product originally discovered by Nobbe & Hiltner, famous German scientists, for the purpose of properly inoculating legumes, intensifying the growth and collection of free nitrogen at the roots of the legume plants, which makes the legume crop itself more productive, and intensifies and makes greater any crop that follows.

Everybody Knows

That a good clover field when turned under and followed with corn means, with proper cultivation and good seed, a bigger corn crop.

It was Nobbe & Hiltner who found out why this is the case!

They found out that on the roots of clover there were naturally small lumps or nodules which contained nitrogen, and it was through the clover plant and other legumes that this nitrogen-gathering process took place. Then they immediately went to work and produced an improved bacteria culture, the use of which caused the growth of more and larger nodules on the roots of the legume plants. These nodules bring the free nitrogen from the air into the soil for plant food.

Now to the man who is not familiar with these facts this story may sound peculiar, but it is no more of a mystery when you understand it than milking a cow and using it for food purposes.

Every acre of land in the corn belt if properly rotated with inoculated legume crops is worth $300 to $600 an acre and will pay crop dividends on this valuation, but you can't do it by cropping it to corn and grain every year, nor by putting in uninoculated legume seeds. You must inoculate if you want to get the nitrogen back into your soil. "Nitragin" inoculated legumes are the solution!

INSURES LEGUME CROPS

NOBBE-HILTNER PROCESS

NITRAGIN

PURE CULTURE

Reg. Dec. 6, 1898 No. 32212

FAMOUS LEGUME SEED INOCULATOR

Dr. Cyril Hopkins

the soil scientist of Urbana, Illinois, says there is over $1,000,000 worth of free nitrogen in the air over every acre of soil in the United States! Now the question with you is, "How can you get your share of it?"

The answer is—through "Nitragin" inoculated legume crops. Legume crops are such crops as alfalfa, clover, soy beans, cowpeas, vetch, etc.

Now sit right down and calmly figure out what this means to you in dollars and cents, and you have the answer, and the reason why we say that you and your neighbors are the biggest robbers and do more injury to your own pocketbook than a band of robbers that break into your house, steal your valuables, set it on fire and get away uncaught!

An Extract From Soil Science

which gives you the facts regarding "Nitragin" compared to other bacteria cultures:

"It is clear, therefore, that soy bean plants devoid of inoculation, not only fail to produce a large yield of dry matter when the soil is deficient in available nitrogen, but also contain a much smaller proportion of nitrogen in the plant substance that is usually found in plants that are properly inoculated. **It may be pointed out, also, that there were marked differences in the effectiveness of the different cultures as well as the different soils employed as inoculating material. Among the commercial cultures used, "NITRAGIN" was evidently the most effective inoculating material."**

"NITRAGIN" IS NOT AN EXPENSE

but it is called by many who have used it, "legume crop insurance." Many a farmer wonders why he doesn't get a "catch" of clover, alfalfa, and other legumes, blaming the weather or climatic conditions, when as a matter of fact, the trouble is he has mined out every natural trace of nitrogen from the soil, so that when the clover, a natural bacteria-gathering crop, is put in, the soil does not have enough bacteria to start the nodules growing. The farmer foolishly places the blame on the weather when it is his own fault by neglecting to put in properly inoculated legume crops. In this way he loses his valuable clover and other legume seed, foolishly trying year after year to get a "catch" when it is not the weather nor the seed, nor anything else, except lack of inoculation.

If you want to know more about "Nitragin" before you order we will gladly send you our booklet "Legume Growing" and other literature. **Ask for it today!**

REDUCED PRICES FOR 1917

When Ordering Name Crop Wanted For.	
Gardee size (Shipping weight 4 oz.) (For peas, beans and sweet peas).	$ .50
½ acre size (Shipping weight 8 oz.)	.90
1 acre size (Shipping weight 14 oz.)	1.50
5 acre size (Shipping weight 4 lbs.)	4.00
100 acres (Shipping weight 80 lbs.)	75.00

Postage, express or freight charges extra.

Order your "Nitragin" today! Don't wait! Don't delay! Don't lay this paper down until you have either ordered from your favorite seed concern or from this ad direct.

Medal Awarded "Nitragin" at St. Louis, 1904

FIVE ACRE SIZE
NITRAGIN
PURE CULTURE
THE NITRAGIN COMPANY
WATERLOO, IOWA
GUARANTEE
THE BACTERIA CONTAINED IN THIS PACKAGE ARE GUARANTEED TO RETAIN THEIR VITALITY AND VIRULANCE FOR SIX MONTHS FROM DATE OF SHIPMENT

"NITRAGIN" is for All Legumes

A specially prepared bacteria is now furnished for the following: Clover, all varieties, Alfalfa, Soy Beans, Field Beans, Garden Beans, Cowpeas, Garden Peas, Field Peas, Sweet Clover, white blossom, Lupines, Serradella, Vetch, all varieties.

Tear This Ad Out!

It may not appear again this season because at the new low prices we are selling "Nitragin" we cannot afford to run full page ads continually. It is not too late, yet it is not a minute too soon to get your order in. Order from your favorite seed house or from this ad.

Special note: Price reduced on account of volume and advanced manufacturing facilities in our new factories.

THESE SEEDSMEN WILL SUPPLY YOU

AND THEY ALL ENDORSE "NITRAGIN"

Wing Seed Co., Mechanicsburg, Ohio.
Vaughan Seed Store, Chicago, Illinois.
W. W. Barnard Seed Co., Chicago, Ill.
Galloway Bros. & Co., Waterloo, Iowa.
Ratekin's Seed House, Shenandoah, Iowa.
Northup, King & Co., Minneapolis, Minn.
Barteldes Seed Co., Lawrence, Kansas.
Barteldes Seed Co., Oklahoma City, Okla.
Lou. S. Darling Seed Co., Petoskey, Mich.
Ross Bros. Seed Co., Wichita, Kansas.
Nebraska Seed Co., Omaha, Nebraska.
James Vick's Sons, Rochester, N. Y.
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A. Currie & Co., Milwaukee, Wis.
Alneer Bros., Rockford, Illinois.
Frank M. Slagle, Pullman, Wash.
Thos. Wood, Jr., Glendale, Cal.
Barteldes Seed Co., Denver, Colo.
Colorado Packing & Provision Co., Denver, Colo.
Aabling-Boyce Seed Co., Seattle, Wash.

IF YOUR SEEDSMEN CANNOT SUPPLY YOU SEND DIRECT TO US

THE "NITRAGIN" COMPANY

WATERLOO Box 3017 IOWA

Some of the Big Institutions of Northern California

Written for California Cultivator By M. C. Holman, Manager of Our Northern Office at San Francisco.

GREAT centers have grown up in Northern California, where were once mere trading stations, and the accumulation of industries has given a tremendous impetus to the immediate vicinity. Railroad conditions are most excellent and transportation by water is almost universal. It is through the facility of transportation that we have seen the great industries come into our midst and grow with exceeding strength until today they rank with the largest in the world and their products are sought from every quarter. This is particularly true in the machinery line, for California machinery is now humming all over the world. The giant tractors are doing every kind of work from pulling plows in China to transporting the huge artillery pieces of the European armies.

And the opportunities have by no means been exhausted. So long as we enjoy the invigorating climate, just that long will our industries continue to grow and just that long will new enterprises continue to become established. The future for Northern California is most promising. Recently some of the very largest institutions of the East have established large branch factories, particularly in the line of automobiles and accessories. New lines of railroads are being constantly laid and branch tracks are making available the broad stretches of land adjacent to the main lines, while wharves and docks are being constructed on rivers and bays, giving to the commercial interests that communication with the outside world which is absolutely essential to a successful manufacturing business. To accommodate its enormous increase in business the Southern Pacific Company is now constructing on Market Street, near the Ferry Building, in San Francisco, one of the largest buildings west of Chicago.

In this article we want to call the attention of our readers to some of the big things that thrive in Northern California. We want you to know and see what is being done in this end of the state. We want to encourage a friendly communication between all parts of this great state. The story of Northern California is a story of broad minded principles in business and social actions.

There is perhaps no single company that has larger holdings and business than the Redwood Manufacturers Company of San Francisco and Pittsburg, California. But it is not alone to these two cities that the business is confined, for, far to the north in the giant redwood forests this company owns vast tracts of the priceless timber from which it draws its supply of redwood for the manufacture of its products.

The company has designed, manufactured and installed redwood pipe and redwood tanks continuously since 1889. In the 28 years elapsing since this company began business it has installed thousands of tanks, hundreds of miles of redwood pipe, and in recent years has placed on the market a silo that will meet every requirement, that is good from the start and that will last many years after the so-called "cheaper" silos have fallen apart and been discarded. Their trade name "Remco" is known all over the United States, the East Indies, the Hawaiian Islands, Central America, South America and Mexico as a synonym for "perfection of design and quality". As is natural where such perfection is adhered to by a manufacturing institution, their business has grown to enormous proportions. For many years their main business lay with the municipal pipe lines and big mining installations, and it is only in recent years that they have devoted special attention to installations on farms. The Redwood Manufacturers Company's installations are designed, the construction superintended by, and the installations made by trained engineers. This is of immense benefit to the buyer, especially the small buyer who does not care to go to the expense of hiring engineers to look after such matters. It is also a great benefit to the small buyer to do business direct with manufacturers who have a vital interest in the products they sell. It is a matter of pride with the Redwood Manufacturers Company, dating back to their first installation, that no product bearing the name "Remco" shall be of inferior quality, but must measure up to the fine standard that has made the word "Remco" a specification of all that is perfect in pipe, tank and silo construction.

In the city of Stockton are assembled some of the greatest institutions to be found on the entire coast. Their products reach every part of the world. The largest flour mills in the state, those of Sperry Flour Company, are situated there. In giant buildings, several stories in height, are manufactured a complete line of various kinds of flour and other foods. It is safe to say that there is not a family in the West but has enjoyed a breakfast dish, or delightful bread from the products of this great mill. The view here presented shows to very good advantage the office, the cereal mill and the flour mill buildings of the Sperry Company, located in the center of the manufacturing district of Stockton. The overhead conveyor illustrates the manner in which products are transported from or to the cereal mill in loading or unloading boats docked at the wharf.

Sperry Flour Co., Stockton

The cereal mill in 1916 produced 16,240,000 pounds. During the same period the flour mills turned out 97,295,600 pounds of flour. At the Crown mills, not shown in this picture, stock and poultry foods are manufactured, the output last year amounting to 64,032,000 pounds. All these mills have been running to their maximum capacity the past year, their total production of 177,367,600 pounds making Stockton the milling center of California.

No story of the industries of Northern California would be complete without a considerable mention of the great tractor interests, and two of the largest factories are situated in Stockton. The broad expanse of territory occupied by the Holt Company is evidence of the great volume of its output, and when we consider that new buildings are constantly being erected for the increased business of the plant, we can realize that the business, large as it is, is still growing and that the tractor is coming more and more to be the great working unit in the development of California. An account of the activities of this concern is given on another page of this issue.

We have watched with a great deal of pleasure the hum of wheels and the rapid cutting of the big lathes at the factory of the Samson Iron Works where the justly famous Sieve Grip tractors are made. It is not to be wondered at that the company is several months behind in its orders, for the Samson tractor has met a big

TALKS ON

Nitrogenous Fertilization

Number 11

WHAT do you pay for in a ton of fertilizer? Plant-food, of course! But your fertilizer is not all plant-food, by any means. It contains other substances which necessarily enter into the chemicals and mixtures. Actual plant-food is indicated by the guaranteed analysis, and the fertilizer that carries more of the plant-food your soil needs is the best one for you to use.

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In buying Sulphate of Ammonia you pay for nitrogen, about the most essential plant-food in California soils, true enough; *but*, in a ton of Sulphate of Ammonia you buy *more* nitrogen—*more* pounds of active, available, lasting plant-food—than you can buy in a ton of any other nitrogenous fertilizer.

That means that each pound of plant-food in Sulphate of Ammonia receives the *lowest* charge for cost of production, transportation, handling, storing, and distribution on the farm.

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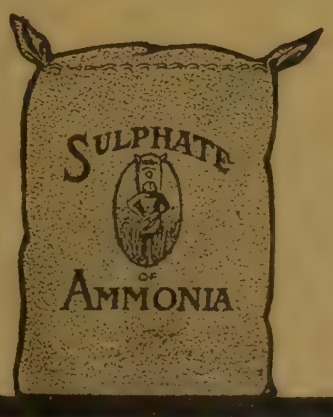

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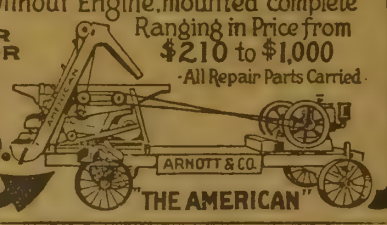

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Growers of the highest grade budded trees in commercial quantities. Thirty varieties. All field grown stock. Our years of experience will be of great value to those considering a spring planting. Come to our nurseries and see the wonderful growth of our trees.

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need in farming lines. See article on another page.

But it is not to Stockton that the great tractor industry is confined, for its immensity far outstrips the limits of any city or any community, and it seeks an opening wherever conditions are right. They are right at Marysville and Benicia. The Yuba Manufacturing Company has long been at Marysville and has recently leased a big factory at Benicia for the production of the famous Yuba Ball Tread tractor.

This company was formerly known as the Yuba Construction Company, but Yuba Manufacturing Company is the new name, the change being made on February 15, 1917, to cover its greatly widened activities. It reports that this plant could run the remainder of the year on tractor, plow and dredge orders already booked. However, to take care of this increased business the plant at Benicia was leased. The small tractor, called the Model 12-20 recently marketed by this company has attracted much interest among vineyardists, as it appears to have the power to disk between ten foot vines at one cut and yet is narrow enough to go in seven foot vines. This concern has also recently announced a new heavy four-disk plow with a wide clearance suitable for plowing in tule land.

One of the latest arrivals in the tractor business is the Joshua Hendy Company of San Francisco and Sunnyvale. This company has been a big factor in the mining industry of the state, and being desirous of further broadening its scope has taken up the manufacture of the tractor and now has on the market the Invincible and the Paragon. The Invincible is of the wheel type, while the Paragon is of the track laying type. Like the other tractor companies the Joshua Hendy Company is oversold and is working nights at its big Sunnyvale factory.

In general manufacture no company in Northern California has achieved greater success or done more for the farmer than the Schmeiser Manufacturing Company of Davis, the company with the phrase "The Schmeiser way makes farming pay". Having begun in a small way it has gradually increased its capacity until today the Schmeiser hay derrick and the Schmeiser scraper are synonymous with successful agriculture. The attention of this company has been centered upon the things of the farm that make farm life more enjoyable and at the same time more profitable. Its equalizing hitch has made the lazy mule do the same work as the energetic one, thus getting full value out of all the horse flesh or mule flesh that may be working at that particular pull. It also manufactures a wooden land leveler that is a wonder in simplicity of construction, effectiveness of operation and results obtained. It is 12 feet wide and 30 feet long. It will level from 20 to 50 acres per day and is guaranteed to be far superior to the old style Fresno scraper. There is also a very creditable checker made by this company. The standard size is 20 feet wide at the front and 24 feet long. It tapers from front to rear and will check from 40 to 80 acres per day at a cost of less than 50 cents per acre.

We may think of San Jose as being in the center of the great prune industry, but it is also true that the city harbors considerable activity along manufacturing lines, chief of which is the great factory of the Bean Spray Pump Company, which occupies several acres of ground with buildings, and employs over 200 men. It had its beginning in 1884 when Mr. John Bean, the founder, exhibited his home made high pressure spray pump which he had made to fight the San Jose scale that infested his orchard at Los Gatos. There was an instant demand for the pump and a factory was started, not on large proportions, but founded upon the principle that makes large institutions whether they start small or not. That principle was to make what was made better than any one else could make it. And that has been the policy of the company from its inception through the many successful years of its existence till its present great proportions as the biggest factory in San Jose.

The company has not confined its activities to the manufacture of spray pumps, for it also makes centrifugal pumps and stationary engines. The latest addition is the Bean Track Pull tractor. This tractor, which was two years in building, has sprung into popular favor, and the company has been forced to keep the tractor division running nights to keep within calling distance of the demands made upon it for the light running, economical and serviceable tractor.

Not far from the plant of the Bean Spray Pump Company in San Jose is the new mammoth factory of the Smith Manufacturing Company. This plant, like most successful enterprises, had a very small beginning in a little old building in San Jose. Mr. Smith has always been interested in the manufacture of fruit drying and grading machines, and it is upon these machines that he has made his great success. After some years the company moved into larger and more pretentious quarters, but it was only within the past six months that it has

KNOW YOUR SOIL

Many Soils That Look All Right Fail to Produce Good Crops

If you are not getting a full crop from your land—no matter whether it is set to alfalfa, fruit or grain—it is very probable that the principal fault is in the soil itself.

Looks don't count with soils, for many a fine-looking soil is deficient in some of the elements necessary to produce a good crop.

It costs just as much to cultivate a poor soil as it does one that is perfect. The difference in the crop obtained, however, often measures the difference between success and failure for the farmer.

Many ranchers who realize this fact have hesitated to have their soil analyzed on account of the knowledge that soil experts are expensive. All such will learn with interest, therefore, that a little machine has been devised, which will not only test soil accurately but will show just what is needed to bring it up to the maximum of bearing efficiency.

The initial cost of this little machine is very nominal, considering its earning ability in greatly increased crops. Once the device is obtained, the cost of each soil test is only a few cents.

No experience or technical knowledge is required to operate this soil tester; in fact, thousands of them are now in use by ordinary ranchers in all parts of the country.

These wonderful machines, which are fully guaranteed, are being placed upon the market under the name of the "Standard Soil Tester". They are being distributed on the Pacific Coast by Mr. Clement B. Stern, 612 Central Mortgage Building, San Diego, California, who will be glad to mail prices, testimonials and full information concerning them, to any reader of this paper who will simply drop him a line.

Government Lands

DO YOU KNOW that you may now apply for any of 600,000 acres of California School Land? Do you know there are 20,000,000 acres of Government Land in California, some in nearly every county that is vacant? Some of it was taken years ago and allowed to come back to Government; now supposed to belong to absent owners. It will pay you to send for our full service; $5 for lists, any 3 counties; $2.50 each for 3 county sectional maps; $2.50 for School Land State Map; total $15. While we will send you any part of this service, we know that those who send for complete service get best bargains, better satisfied, get the best results. We recommend their plan to you. Write now. New booklet. Joseph Clark, Manager, California State Land Information Bureau, 1511 K St., Sacramento.

FILL IT ONLY ONCE A WEEK

Clean it only once a year. No wick. No glass globe. No danger even if rolled around in straw. Can't explode. Can't spill. Use it around barns, cow sheds, chicken houses, cellars, etc. The

COLEMAN GAS LANTERN

Makes and burns its own gas. Gives 300 candlepower of strong steady light. Can't blow out or jar out. Made of heavy nickeled brass. Mica globe. Guaranteed for five years. Ask your dealer—if not on sale in your town yet, write for catalog of 20 different kinds Gas Lanterns, Table Lamps, etc. Dealers or agents wanted in every locality.

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made its great stride and moved into a commanding edifice that covers two acres and gives employment to more than 50 men. Mr. Smith has been a stickler for quality and has maintained it throughout his successful career.

To completely supply the dairy needs of the state the De Laval Dairy Supply Company was organized and incorporated in March, 1902. At that time the dairy industry of California, as compared with its present magnitude, was what might be termed in its infancy. The company pioneered the introduction of the cream separator in California and the company's growth has gone hand in hand with the dairy industry of the state.

It has been the policy and constant aim of the De Laval Company from its inception not merely to sell goods for profit, but to build its business by lending its energies and resources to the up-building of the dairy industry of the entire Pacific Coast. The company has endeavored to raise the business of dairying to a high plane; to make it a profitable business by the development and introduction of better dairy apparatus. It has been a constant advocate of better cattle, improved methods of feeding and proper housing under sanitary conditions. The advantages of the silo, and the saving of feed through the use of a feed cutter have been pioneered by this company and these, in conjunction with improved conditions, have not only made dairying a profitable business but have enabled the production of a cleaner and more wholesome product. The De Laval is now the most extensive line of up-to-date dairy equipment on the Pacific Coast.

The soil of Northern California, being fertile in the extreme, requires an abundance of seeds to meet its requirements and to fill the demands two great seed houses have grown from small beginnings to their present large proportions. We refer particularly to the Morse Seed Company of San Francisco and the Valley Seed Company of Sacramento. The Morse Company is the largest institution of its kind on the coast and its seeds are found in every domestic and foreign market. It grows its own seeds and specializes on sweet pea seeds, of which it grows a larger number than any other seed company in the United States. Its beautiful catalogue is a general guide to thousands of planters.

The Valley Seed Company of Sacramento began in most unpretentious surroundings, but the Ward Brothers, ambitious and energetic to the extreme, soon moved into a new building with quite pretentious accommodations. They have conducted their business upon the lines of giving the greatest possible value in reliable seeds, and the success of their endeavors is shown in their present mammoth business.

Of exceeding importance is the manufacture of pest destroying sprays. Without some means of eradicating pests California would be devoid of her luscious fruit and her quantities of vegetables. The California Rex Spray Company of Benicia meets the great need by supplying its famous Rex Brand of sprays in barrels, buckets and cans. This company conducts a tremendous business and its sprays are eagerly sought where perfection of fruit is desired.

We are pleased to have been able to mention some of the big industries of the northern part of the state, but we have been able to merely scratch the surface, as it were. Northern California is a veritable bee hive of work. Energy, activity and perseverance are the bone and sinews of this delightful section, and he who would seek to establish himself in any manufacturing enterprise should lay his plans looking toward the north where no man wilteth in the sun or freezeth in the cold.

It would be impossible to enumerate all of the big institutions that thrive in Northern California or to mention all of the sections where certain businesses are active. We could refer to the poultry business of Petaluma, San Jose, Sacramento, and Hayward; to the prune industry of the Santa Clara Valley, to the raisins of Fresno, to the oranges of Oroville, the olives of the upper Sacramento valley and dozens of other similar enterprises, all great in themselves. Further information touching any portion of Northern California may be had for the asking.

"I Would rather be Right than be President"
H. Clay

TO have the right standard and faithfully live up to it, this is the working motto of the Firestone Organization. Since Mr. Firestone founded the Company seventeen years ago, there has been no swerving from this quality rule. Success has come because Firestone standard is "right" and every member of the Organization upholds it.

The standard means that you must get riding comfort in the highest degree with a safe hold and Most Miles per Dollar on any road, through the whole year. Mr. Firestone's name on the tire is your assurance of this.

Your dealer and the nearest branch cooperate to give you prompt, saving service.

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ESTABLISHED 1896
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A Product of Finely Divided Sulphur for the Control of Scab, Mildew and other Fungus Troubles. Also Red Spider and Other Insects.

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REX SPRAYS — The Standard for 20 Years

He'll Make You Poor — KILL HIM

What is the use of preparing a good seed bed and planting seed that cost good money if you let squirrels and gophers eat your profits. These pests are a constant danger to crops and a constant menace to the family's health.

Carbon Bisulphide

has for over 30 years proven to be the most effective—the only sure killer of squirrels, gophers, rats, prairie dogs, ants, moles, yellow jackets, moths, weevils, lice, etc. It is easy and safe to use.

Write today for interesting folder and learn how this profit saver works.

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The Right Power at the Right Time

THE Advance-Rumely "8-16" gives a man a chance to take advantage of weather conditions instead of being at their mercy. Whether it is plow quick, or harvest on time—the 8-16 is able and ready to do every farm operation at the time *best suited to bring maximum results.*

In the first place, it is a one-man all purpose outfit. Plowing is made a one-man job because tractor and plows are combined in one machine, and full control is from the driver's seat—with the Advance-Rumely you plow as with a horse gang, the work always in sight. You can back up with your plows, make short turns and cut square corners.

For handling other ground working equipment, hauling and belt work, the 8-16 is just as efficient and easy to handle, as you merely detach the plows and plow frame and it's ready for any drawbar or belt job you put up to it.

And it burns cheap kerosene with full efficiency—not only at full load but at variable loads or continuous light loads.

The catalog shows in detail the powerful four-cylinder motor and the other features that make the "8-16" a tractor that fits to perfection the small and medium size farm. Also built in three plow size—"12-24" H. P.

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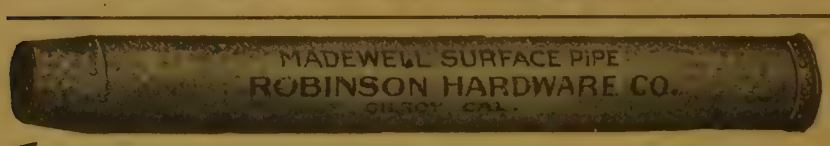

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is recognized in established surface pipe districts as having the strongest, smoothest, and most practical construction.

Our Long Lock Seam is the best seam possible to make—and in addition is carefully soldered the entire length so that it stays water-tight. **Strength and Smooth Finish** are the big things to consider when you invest in surface pipe.

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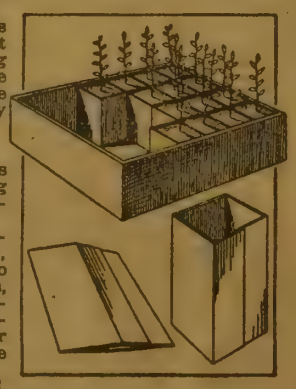
that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour.

For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus and Conifers. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.



THE EXPAN CO., 935 E. Central Ave., Redlands, Cal.

Samson Sieve-Grip Tractor Co.

FIFTEEN years ago the Samson Sieve-Grip Tractor Company (then Samson Iron Works, Inc.) built its first Samson tractor. This powerful, medium sized tractor was placed on a farm near Stockton where its operation could be closely observed by the company's engineers. Several more Samsons were built during the next ten years and many improvements made as each model was tested.

From the first it had been the actuating idea to have a small tractor that would meet the power demands of the average size farm. In 1902 the great majority of farm tractors were large machines of from 80 to 100 horsepower. Lately the same companies that manufacture these mechanical monsters have begun to build medium and small tractors, but the Samson Sieve-Grip Tractor Company has always built small tractors!

As a pioneer in the small tractor field it is little wonder that the Samson Sieve-Grip tractor of today is giving the splendid service that it is to farmers all over the world. For five years Samson Sieve-Grips have been manufactured and sold in ever increasing numbers. Now the large Stockton plant of the company is devoted exclusively to the production of Samson Sieve-Grips, whose sale is limited only by the Samson plant's capacity for producing them.

The Samson Iron Works was started in 1898 by J. M. Kroyer as a small machine shop in Stockton. In the first ten years of 1900 it manufactured more stationary engines and pumps than any other company on the Pacific Coast. With his usual foresight Mr. Kroyer selected the small tractor business as a line for the company. The remarkable growth of the tractor industry in the last few years has proved the wisdom of this choice.

In four years the sales of the Samson Sieve-Grips grew to such proportions that in the fall of 1916 it was decided to build only these tractors.

Samson Sieve-Grip Tractor So., Stockton

letting the pump and engine business have a secondary consideration.

The distribution of Samson Sieve-Grips covers the territory west of the Rockies and a Samson plant will soon be in operation in the Middle West. Connections have been made with many foreign countries, and the exportation of Samson Sieve-Grips is only limited by the transportation and manufacturing facilities.

The Samson Sieve-Grip Tractor Company through adhering to a policy of fair dealing and quality construction has developed in less than 20 years into a company of international standing. It is a concern of which every Californian can be proud, for it is Californian all the way through and embodies the live, robust spirt of the West.

Soil Bacteria---Its History and Uses

IN the days of ancient Rome and during the following centuries those men engaged in tilling the soil and raising crops for the sustenance of themselves and their fellow mortals, noticed that cereal crops planted in fields where peas, beans, vetches or clovers had grown yielded more bounteously, but until the latter part of the nineteenth century the reason for such improvement was not understood.

Early investigators observed that tubercles or nodules formed upon the roots of those plants, and were of the opinion that they were harmful and should be eliminated from the plants if possible, but about the year 1880 it was discovered through soil analysis that the nitrogen content of fields was increased by the growth of such plants, and seven or eight years later a German scientist, Hellriegel, after long experiment announced to the world that those plants, the legumes, made use of nitrogen taken from the air, not directly, however, but through the tubercles or nodules which formed on their roots, and that the nitrogen was absorbed or gathered from the air between the soil particles by infinitely small living things called bacteria, which had their homes in the tubercles.

It has since been established beyond question that the members of the family of bacteria known as Bacillus Radicicola, which live in the nodules on the roots of legumes, have the ability of taking from the air that chemical element which is the most necessary to vegetation, nitrogen, and of supplying it to the host plant on whose roots they live in such quantities and at such times as it is needed, generally leaving a surplus in the soil for the benefit of succeeding crops. Further, it has been definitely proved that each one of the family of leguminous plants has a bacterium peculiar to itself and that those bacteria which form nodules on the roots of clover, for instance, will not colonize and form nodules on the roots of peas and will not supply pea plants with nitrogen.

These bacteria are so small as to be visible only under a microscope of the highest power. Legumes grown in soil which does not contain the bacteria peculiar and necessary to them, no matter what other bacteria are in the soil, do not have nodules on their roots and therefore are unable to use atmospheric nitrogen, being dependent solely on such nitrogen as may be in the soil in available form, and it is well known that soil nitrogen is not available to plant use until converted into nitrates by the nitrifying bacteria.

One of the most important things observed from the use of legume crops is that they are fertilizers and restorers of worn out soil. If a crop of vetch, peas or clover be plowed under there is returned to the soil not only the chemical elements which enter into the composition of the roots, stems and leaves of the plants, but also the nitrogen which has been gathered by the bacteria and stored up in the tubercles or nodules. These nodules are about eight per cent nitrogen in available form, and the value of such nitrogen per acre added to the soil by a crop of vetch or clover plowed under as a green manure has been established by the University of California experiment station at Riverside as the equivalent of 108 pounds of nitrate of soda.

Following the discovery of nitrogen fixing bacteria experiments were made in transferring them from places where they were abundant to places where legumes would not grow for lack of them. There are many parts of the United States where legume crops will not grow and many more parts where they will not thrive for the same reason. By inoculation a successful stand of alfalfa or other clover and a good crop of beans, peas or other legume is assured.

The transfer of inoculated soil from one field to another is known as the soil transfer method. Another practice known as the soil suspension

method consists of placing the roots of leguminous plants with the adhering soil in water and later sprinkling the seed to be planted with this water.

Both of these methods of inoculation were largely practiced but both are rapidly going out of favor.

1. Taking soil from fields and transporting it to other fields is not only expensive and laborious but dangerous, as moulds, fungus diseases, weeds and denitrifying bacteria may be transported with it. The soil suspension method is laborious and dangerous for the same reason.

2. The beneficial bacteria are most numerous in the uppermost foot or eighteen inches of soil and no one having a good soil, well filled with humus and bacteria, would care to give the best portion of his field to his neighbor.

3. Pure cultures are readily obtainable, easily applied and comparatively cheap.

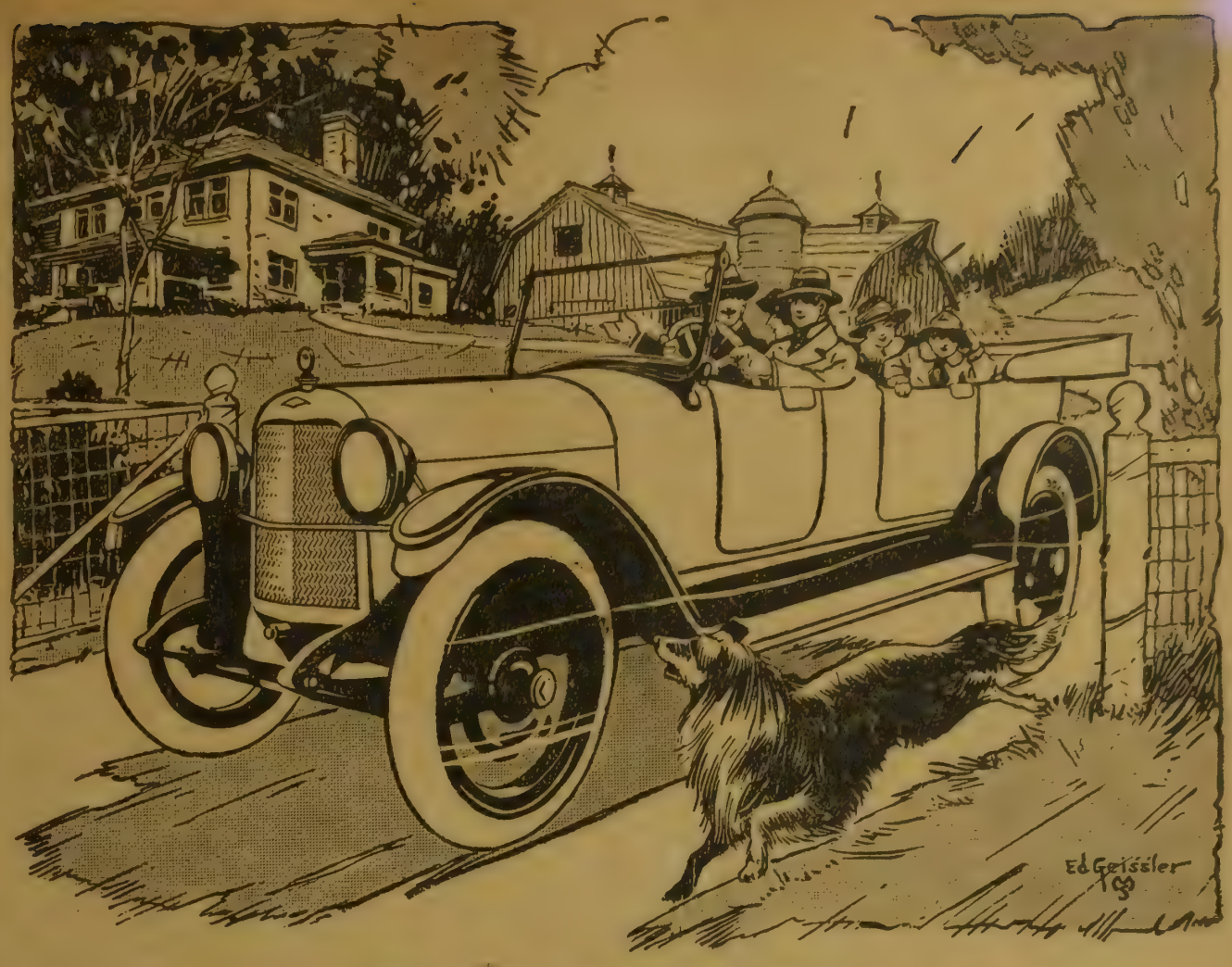
The difficulty of inoculation by soil transfer led to attempts to breed and use pure cultures of bacteria taken directly from the nodules. To obtain and breed them in quantities sufficient for shipment and use was easy, but to find a proper medium in which they could be shipped, wherein during their travels, their life and strength could be preserved, was very difficult and the subject of long and anxious experiment. The first trial made was by placing the bacteria on absorbent cotton, but it failed because the cotton dried during shipment, and the bacteria died for lack of moisture. Other substances were used, liquid, gelatinous and solid, and after much patient research work a composite substance has been found in which the bacteria will live and thrive for many months.

A World-Famous Factory and Its Products

NOT only is the Holt factory at Stockton the largest one devoted to the manufacture of farm machinery west of the Mississippi River, but The Holt Company also bears the distinction of being the first and probably the only company that had its beginnings in the West and later reached out with branch offices and a factory into the territory east of the Rockies. This factory was established in 1883 by Benjamin Holt, who conceived the idea of the Holt Combined Harvester, which in one operation cuts, threshes, cleans and sacks the grain ready for market. Holt Combined Harvesters now cut and thresh 90 per cent of the grain harvested on the Pacific Coast.

The first combined harvesters were pulled by horses, then Benjamin Holt saw the possibilities of using the power of steam, which was only beginning to be used for tractive power on the farm. Steam engines of from 60 to 100 horsepower were produced in the Holt plant and these giant engines were used not only for harvesting but also for plowing and freighting for the mines and lumber mills in the high Sierra. An early improvement in the harvester drawn by the steam engine was the mounting of an auxiliary engine on the harvester for operating the threshing mechanism, this engine receiving its steam from the tractor's boiler. Auxiliary engines were also mounted on ore and freighting wagons for use in mountain climbing. These improvements made it possible to haul loads over very steep mountain roads and to raise and harvest crops on hillsides that had been fit only for grazing purposes before.

But although these outfits were the best of their day, they were not perfection in the eyes of Benjamin Holt. He dreamed of a tractor that would be but little wider than a team of horses, as powerful as 30 or 40 and yet be able to go over the softest land fitted for agricultural uses. To make this dream come true he discarded wheels altogether and equipped his tractors with the endless belt track which was laid down, rolled over upon and picked up again as the engine moved forward. This wonderful invention, the Caterpillar track, which has carried Benjamin Holt's fame to every part of the world, proved a complete success. Exhaustive shop and field tests costing this company years of time and many thousands of dollars have developed it and brought it to its present stage of perfection. The name



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But every man wants Power in his automobile—and particularly the farmer.

It is good to sit behind a motor which responds eagerly—buoyantly—to the slightest touch of the throttle.

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It is good to know that your automobile is a staunch, sturdy, dependable help-mate—not a treacherous weakling that will lay down when the real work begins.

In a word, it is good to own just such a car as the five-passenger Paige Linwood "Six-39." This car is a thoroughbred—every inch of it.

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Let him prove his case. Let him introduce you to men who have invested their money in Paige cars. Listen to their experiences—ask for their honest opinions.

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"Caterpillar", which is so aptly descriptive of the appearance and motion of the track, was adopted as the Holt trade mark and registered in every civilized country.

The early Caterpillars were propelled by steam; then later it was Holt experience that designed, developed, and built the Caterpillar gasoline motor, thus producing a tractor incorporating a new traction principle and a combination of economical power and light weight. Soft, wet roads and soils, deep sand, and other difficult conditions could be traveled over without handicap, and the Caterpillar thus proved to be the correct solution of the problem which Benjamin Holt had set about to solve. Since then many thousands of these tractors have been built and put into service throughout this and many foreign countries; the name Caterpillar is familiar to farmers, contractors, and engineers everywhere.

The Caterpillar has played an important part in some of the biggest tractive jobs the world over. The Ashokan Reservoir in the Catskill Mountains is built on land that was cleared of trees and stumps by the Caterpillar. The famous Los Angeles Aqueduct was completed well within the estimated cost largely because 27 Caterpillars cut the cost of hauling material to one-third. Caterpillars are being used for freighting in Alaska at 40 degrees below zero and for hauling mahogany logs from the forests of South Africa. Millions of dollars worth of tungsten and copper ore are hauled from the mines by Caterpillar power. In the Pacific Northwest Caterpillars are removing the stumps from logged-off land that was considered practically worthless and making out of the land fruitful farms. Thousands of acres of swamp land in Florida and Louisiana have been reclaimed by means of the Caterpillar.

A recent addition to the Holt line is the Caterpillar Harvester, which requires no horses or tractor to propel it, traveling over the grain fields and cutting, threshing, cleaning and sacking the grain with the aid of only four or five men. This wonderful machine, Benjamin Holt's latest triumph, threshes and prepares for market as much grain as 600 men with scythes and flails could handle in the days of our grandfathers.

The Holt Manufacturing Company employs approximately 2000 men in its Stockton plant at the present time and in most of its departments runs three eight-hour shifts. It also has a big Eastern factory at Peoria, Illinois, and offices and warehouses in Spokane, Washington. Other offices are located at San Francisco, Los Angeles, New York City, Wichita, Kansas, and the company has representatives in other cities of the United States and all the principal foreign countries. Through the company's whole existence and to the fullest extent today, the dominating force of Benjamin Holt's personality has been the greatest single factor in the success of this great institution.

THE SOIL FACTOR IN FERTILIZATION

Written for California Cultivator
By H. C. Brewer

IN a recent issue of the Cultivator Mr. Kenneth MacRae disagrees with Dr. W. P. Kelly's warning "against the use of nitrate of soda for fertilizing purposes." He mentions his own success with nitrate in supporting his position and with no further justification, apparently, than that given by some time-worn statistics, he proceeds to an indictment of the work of the Riverside station. Mr. MacRae's sincerity in these matters is not questioned; he states, however, that as a consequence, "the orange grower is at a loss what to do or which to follow." The writer takes the opportunity to offer one or two suggestions in the hope that they will aid the grower not only in the judicious use of experimental results but also in the proper interpretation of statements made by the investigators in pointing out what he believes to be the important facts revealed by those results.

The exception proves the rule! Quite possible it is that Mr. MacRae can use nitrate with some degree of success on his orange groves, while for the large majority of farmers, it would be inadvisable to do so. A state-

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New and Second-hand Water Pipe and Casing

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600 ft. 11¾ inch Casing.
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Part Played in Problem by Transporation — National Treament for a National Enterprise.

IN every part of the country the farmers are turning their attention to questions relating to the handling of their products after they leave the farm. Transportation is a part of this problem. The cost of reaching their markets and the ability to reach them promptly at the right time are important factors in determining the returns from their crops.

Low Freight Rates

Fortunately the American farmer has at his command the lowest freight rates in the world. It costs no more to move a load of wheat 500 miles by rail than it does to haul it five miles from farm to station by team. A ton of farm produce of any kind can travel almost twice as far for the same charge on American railroads as on the government-owned roads of other lands.

The cheapness of transportation is not the whole issue. To meet the needs of the farmer transportation facilities must be ample. There must be plenty of tracks and cars and locomotives and sufficient terminals.

Billion a Year Needed

The railroads are anxious to provide means to take care of all the business they can obtain. But a vast outlay of money is required. A billion and a quarter dollars a year for the next ten years or more must go into railroads to provide the necessary transportation facilities.

During the past few years it has become more and more difficult to obtain even in part, the money required for this purpose. This has been due partly to the poor promise of a satisfactory return on the investment; partly to the uncertainty created by numerous and conflicting regulations.

Regulate For All the People

Nobody seriously proposes that the public regulation of railroads shall be weakened. Certainly the railroads themselves do not. But it is a reasonable proposal that the regulation of this great national business should be handled by national agencies, on national lines, in the interest of all the people, and not by local agencies to serve local or sectional ends.

Regulation at cross purposes by 49 masters—48 states and the federal government—now imposes upon the railroads an annual burden of many millions of dollars of wasteful expense, from which the public derives no benefit. It is of primary importance to the farmer to cut down this waste in order that his products may be moved to market at the least expense and with the greatest possible expedition.

The farmer's interest demands free trade among the states.

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ment like Dr. Kelly's would not be intended for so literal an application as to exclude occasional exceptions. Still, even in such cases it would seem better form to look beyond the practice of a single method before deciding that its results are the most desirable. Did Mr. MacRae ever use sulphate of ammonia, as suggested by Dr. Kelly, and can he assert that it would not have produced as good or better results?

Generally speaking, a neutral soil (one in which the bases and acids balance) provides the most favorable medium for plant growth, as in the cases of corn, oats, wheat, vetch, cowpea, cabbage, apple, orange, etc. Sometimes, plants accustomed by long years of propagation under somewhat unneutral conditions, seem to make their best efforts only under those conditions as instanced by some of the berries in acid soil and alfalfa in alkaline soil.

Many of the soils of this state, however, are quite basic in character, our "black alkali" sections being an extreme example. In them we find carbonate of soda concentrated to such a degree as to constitute an active antagonist to plant life. On the other hand, alkaline soils ordinarily are best adapted to the growth and multiplication of many organisms essential to the fundamental soil processes of good agriculture, i.e., the desirable organisms of decay; nitrifying bacteria and those organisms which aid in the fixation of amospheric nitrogen.

These facts should be taken into consideration in planning fertilization, for it would seem evident that if we avoid practices we know to be inadvisable in California, natural conditions will go far in helping us to raise larger and better crops. It is just at this point that Wagner's table of fertilizer values is apt to be most misleading. It is impossible to state a figure representing the ratio of effectiveness between, say, nitrate of soda and sulphate of ammonia on the heavy, often acid soils of Germany or of upper New York state, and expect it to hold true in California. Such an expression of comparative value does not hold true over a single state, and that is why few progressive farmers today accept it as being of any practical worth.

We lament with Mr. MacRae that "there is no absolutely proven fertilizing method." We never expect to see a method that will fit that bill of particulars. But, allowing for individual exceptions, which are readily recognized as such, Dr. Kelly points out a pretty definite road for Mr. MacRae's perplexed grower to follow.

Nitrate of soda increases the aklalinity of our soils and therefore their inability to produce crops. Do not use it! Check unhealthy soil conditions instead of developing them. Indeed, is it not possible to turn them to our advantage by a little study of the question? Consider the possibilities in the use of sulphate of ammonia. Test for test it constantly gives results of the highest character, but is not so widely known because heretofore it has been produced in limited quantities. The Berkeley station after an exhaustive series of tests states that it is the only quickly-available source of nitrogen readily nitrified by California soils, ranking with the highest in this regard. This is probably due to the fact mentioned previously that our soil conditions afford the means of easy and complete nitrification of sulphate of ammonia so that its plant food is made available about as fast as the plant can use it. The reactions which occur tend to produce a healthier balance of soil compounds which, under an efficient system of tillage, leads to the possibility of better yields and a larger variety of profitable crops.

The men of the experiment station are blazing the way for growers to follow. It is for us to apply the results of their investigations to local conditions just as far as common sense leads us to do so. We cannot expect them to shoulder the whole responsibility of determining the best methods for each of us to follow. We can accomplish a great deal more through a cheerful spirit of cooperation than by a weakness for indiscriminate knocking. Let us drop the spirit of "what was good enough for grandfather is good enough for me" and realize that Dr. Kelly and his coworkers are laboring only in the broadest interests of California agriculture.

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Alfalfa
Melilotus Clover
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Peas
Beans
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and all other legume plants

The Western Soil Bacteria Company of 442 Sansome Street, San Francisco, is now completing its third year in breeding and supplying bacteria to the ranchers, and is now supplying several thousand ranchers in California, Oregon, Washington, Nevada and Utah with pure culture bacteria for improving their land and increasing their crops.

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Courtesy of I. H. C., Chicago

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Drop us a postal telling us what crop you are going to plant and we will send you our literature pertaining to that crop.

Get our prices and samples of alfalfa and sweet clover seed.

Western Soil Bacteria Co.

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Mr. Brown proved that blasting pays

This shows part of the 18-year-old orchard of George W. Brown of Mount Cory. Trees in row at left were planted in ordinary dug holes; those at right were planted in blasted beds.

The trees in blasted beds now average 25 feet high with trunk girths of 42 inches. Those not in blasted soil average 18 feet high with trunk girths of 27 inches.

Plant your fruit trees in beds blasted with

GIANT FARM POWDERS
STUMPING — AGRICULTURAL

and *you* will find, as Experiment Stations have found, that "trees planted in blasted holes develop deeper and stronger root systems than trees planted in spade-dug holes," and will bear earlier and yield larger crops.

The two Giant Farm Powders are made especially to suit *western* farm and orchard conditions. They pulverize the soil instead of packing it. Ask your dealer for either of them—Giant Stumping or Eureka Stumping Powder—and for other Giant blasting supplies. Be sure to get the genuine, bearing the Giant brand. If your dealer has only ordinary dynamites, we will see that you are supplied with the real Giant Powders.

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Every fruit grower will find valuable information in our illustrated book, "Better Orchard Tillage." We send you a copy free—mark and mail the coupon. Other books, on stump blasting, bloulder blasting, subsoiling and ditching, also free on request.

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90 per cent of all Avocados now planted in California will have to be either re-budded or dug out within the next ten years. Make as few mistakes as possible. Write for booklet or call.

When writing advertisers, mention The Cultivator.

Frost Protection in Citrus Groves

By Prof. R. S. Vaile

Continued from Last Week

Effect of Average Yield

The average yield of the orchard affects this problem in a marked degree as brought out in Table VI.

TABLE VI.

Relation between yield and risk, figured in per cent of total crop lost.

Field Boxes Lost	Total Crop in Field Boxes 300	400	500	600	700	800	900	1000
30	10.	7.5	6.	5.	4.3	3.7	3.3	3.
35	11.7	8.7	7.	5.8	5.	4.4	3.9	3.5
45	15.	10.1	9.	7.5	6.4	5.6	5.	4.5
55	18.3	13.7	11.	9.1	7.8	6.7	6.1	5.5
65	21.7	16.2	13.	10.9	9.3	8.1	7.2	6.5

In other words, if the crop averages 900 field boxes per acre, losses equalling one total crop in 20 years will justify equipping and firing an average of ten hours lightly and five hours moderately, every season, while if the average crop is only 300 boxes, a saving of one crop in every seven will be necessary to justify the same expenditure. Whenever the average yield is high and the average risk also rather large, then certainly protection is amply justified. For instance, if the average yield is 900 field boxes per acre and the average annual loss is ten per cent of the crop or a full crop every ten years, that average loss will be 90 field boxes per acre. At one dollar per field box that would mean $90 per acre per year. Ninety dollars per acre per year would justify a great deal of smudging as may be seen by referring again to Table III. Or if only a moderate firing is required to save that ten per cent of the crop, say, for instance, the ten hours light firing and five hours moderate firing each season referred to above, one would be making 100 per cent on the investment, while if the risk was increased to one crop every five years, and still the average yield was held at 900 field boxes, the profit from protection against frost would again be doubled.

Handling the Equipment

Some, of course, will say that this discussion of the economics of the situation has been entirely theoretical, and that it is impossible with the present equipment to accomplish the results claimed. The writer is convinced from his experience and observation that it is entirely possible to handle the frost situation in orange groves of all parts of Southern California with the equipment outlined and at the expenses suggested, provided proper judgment and thoroughness are used. Smudging is one thing that can not be half way done with half way results. It must be done thoroughly or not done at all. This year the cold weather coming November 13 caught many unprepared. One large orchardist told the writer that it has always been his experience that there are three consecutive cold nights, the first of which is not the worst. At the time of the November cold he had oil enough for only two nights so the first night he did not light. It so happened that the first night was the one cold one of the series and he lost considerable fruit even though he saved his oil.

In the first place, in considering the matter of how to handle a frost protection equipment one must have some idea of the temperature at which to light. This question is influenced very largely by conditions. It is of interest, however, to note that oranges—and remember that this discussion applies to oranges entirely, not to lemons—oranges will not freeze until they reach at least 28 degrees Fahrenheit. In other words, the temperature of the orange itself must drop to 28 degrees, or possibly an extreme minimum of about 27½ degrees. This would possibly indicate a very simple rule for lighting, namely whenever the air temperature reaches 28 degrees the fires should be lighted sufficiently to keep the air temperature from going lower. As a matter of fact, such a practice would be wasteful of considerable oil, so that it would be necessary in such cases to have the temperature readings of the fruit hanging on typical trees in the cold parts of the grove, in addition to having the air temperature readings, because the orange temperature may vary in relation to the air temperature through rather wide margins because of several factors. Some of the factors which enter into a comparison of the temperature of the orange and the present air temperature are first the temperature during the preceding day, which in a large measure will govern the amount of fall that must be experienced before the orange reaches 28 degrees, and second the relative humidity. The humidity is of importance because if it is high there is a certain amount of moisture collecting on the outside of the fruit which immediately changes over to ice, and in the process a certain amount of heat is liberated. The liberation of this heat tends to retard the radiation of the stored up heat of the orange and thus prevents as rapid a drop of the temperature of the orange as might otherwise be expected. The Ontario Protective Association has come to adopt a rather general policy with oranges, of never lighting until either the temperature has fallen below 28 degrees or else has held at 28 degrees for at least three hours. This seems to be a fairly safe rule. Of course, there are occasions when a very rapid dropping occurs in the outside temperature, and if the orange temperature has already reached the danger mark when one of these drops commences, it might take a fairly large force of men to light heaters rapidly enough to prevent damage. However, with the present organization of most of our communities, it would seem safe to take this small amount of risk.

The experience of growers generally seems to indicate that two men are required for each ten acres of a grove to be protected during the time of actual operation. There are a few groves where a large amount of labor is kept on hand just because of the possibility of a very rapid drop in the temperature, and there are also a few where a larger acreage is handled by one man. However, the answers to inquiries sent out indicate that by far the commonest system is two men to ten acres.

During the nights of December 25 and 26 the writer made certain observations in the Pomona and Ontario districts regarding the methods used in the burning of heaters. Numerous instances were found where merely the outside rows of heaters along the north and east sides of the groves were lighted. Temperatures taken at intervals throughout the nights in such groves indicate that the actual temperature effect of such lighting was practically negligible for the orchard as a whole. That was certainly true of those groves in the extreme northern part of the district where other groves were unprotected. The smoke from the heaters seems to carry with it no active heat units and seems also to be of low efficiency in preventing radiation. For instance, on the night of December 25 a drift of air carried a heavy smudge from the Pomona-La Verne section over towards San Dimas. This smudge became so thick just east of San Dimas that one could hardly see to travel in an automobile. During the time that the smudge held over that portion of San Dimas no change could be noticed in the temperature as effected by the smudge.

Continued Next Week

Care should be taken to handle alfalfa hay so as not to lose leaves, as these contain considerably more than 50 per cent of the feeding value of the hay.

Associated Growers First Season Assured of Success

THE California Associated Olive Growers, Incorporated, are now marketing their first crop of olives under the growers' brand "SERRA".

A more favorable year than 1916 could not have been selected by the growers in launching the association. The condition of the market is such that the demand for California Ripe Olives is greater than the supply and the association therefore finds itself in this admirable position in marketing its pack. Under such conditions the chief advantages to the grower lie in the fact that he is assured of moving expeditiously and at satisfactory prices all of his pack.

The grower in this association is really in business for himself, standing his profits and losses as they may be; his money goes into the pickling, processing, canning and selling of the olives. It is very satisfying indeed to know that after making such investment good and substantial returns are in sight.

The short market of 1916-1917, as it were, has the added advantage of permitting the management of this business to select its outlets this year with a view of proper distribution of of this season's pack and particularly in such a manner that it will provide adequate outlets for the greatly increased pack of the growers in 1917, for all indications at the present time, from growers constantly becoming members of this association, point to the fact that the 1917 pack of the association will be at least three times as large as the present season of 1916, barring weather conditions beyond our control. However, provisions are now being made by the management to provide facilities accordingly.

The association pack of 1916-1917 is approximately 250 tons.

It is desired particularly to point out at this time that notwithstanding the market conditions of California ripe olives no undue advantage has been taken by the association of such conditions in raising prices. The association desires to increase the demand for California ripe olives and prohibitive prices tend to curtail consumption by the great masses whom it is particularly desired to reach in this business.

Taken as a whole the business of the California Associated Olive Growers for the season of 1916-1917 will be a success, and the old adage applies here that "nothing succeeds like success," and the growers are very keen to take note whether or not an institution is successful and be governed accordingly in casting their lot.

STANISLAUS FIG GROWERS PERFECT ASSOCIATION

The fig growers of Stanislaus County met at Ceres Hall on March 2. The committee appointed at the former meeting reported in favor of a permanent organization of all fig growers of Stanislaus County and vicinity. Amos Hiatt was elected president, Charles Sanders vice president, J. W. Buck secretary-treasurer, and George Cross and A. D. Green members of the executive committee. A constitution was submitted and accepted. The association voted that we advise fig growers not to sell for less than five cents for culls and 12½ cents for good figs. The association also voted to advise growers not to contract before the regular meeting of this association to be held in Ceres Hall Saturday, April 7, at 2 p. m. At that meeting the marketing and selling price of figs 1917 will be discussed.—Amos Hiatt, president; J. W. Buck, secretary.

Patronize reliable seed firms, those that have a reputation for honest dealing. Look over the list mentioned in the advertising columns of this paper. Send and get catalogues and compare prices and secure samples of seeds. Examine samples for impurities and, make a germination test to see if they will grow.

Select the tried and tested varieties of seed, those known to be adapted to your locality. It is well to experiment with the new things but for the main crop dependence should be placed on the varieties that have been proven by years of experience.

JOHN DEERE IMPLEMENTS

BETTER FARM IMPLEMENTS AND HOW TO USE THEM

BOOK FREE 156 page reference book—tells all about a complete line of farm implements and how to adjust and use many of them. A practical encyclopedia of farm implements. Worth dollars.

Describes and illustrates Plows for Tractors; Walking and Riding Plows; Disc Plows; Cultivators; Spring Tooth and Spike Tooth Harrows; Disc Harrows; Alfalfa and Beet Tools; Farm and Mountain Wagons; Manure Spreaders; Inside Cup and Portable Grain Elevators; Corn Shellers; Hay Loaders; Stackers; Rakes; Mowers and Side Delivery Rakes; Hay Presses; Kaffir Headers; Grain Drills; Seeders; Grain and Corn Binders.

This book will be sent free to everyone stating what implements he is interested in and asking for Package No. X-111.

JOHN DEERE, MOLINE, ILL.

John Deere Spreader

The Spreader with the Beater on the Axle

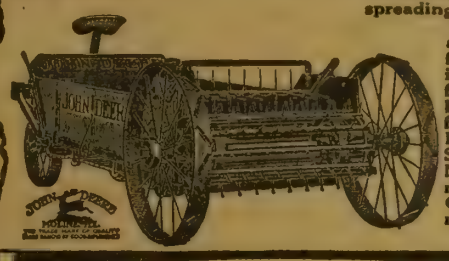
Mounting the beater on the axle simplified the construction, eliminated troublesome parts and made possible a successful low-down spreader with big drive wheels. There are no shafts to get out of line, no chains to cause trouble, and no clutches to adjust. The only spreader with beater and beater drive mounted on axle.

Low down, with big drive wheels out of the way. Easy to load.

Revolving rake, driven by manure moving toward the beater—no bunching of manure. Ball bearing eccentric apron-drive—a new and exclusive driving device.

Makes uniform spreading certain.

Wide spread attachment for spreading seven feet wide can be furnished for the John Deere Spreader. No chains nor gears. Quickly removed.



John Deere Plows for Light Tractors

So far as quality of John Deere Plows for Light Tractors is concerned, they are built for the farmer who realizes that it is business judgment to buy a high grade tractor plow. Don't forget that a tractor plow is not an everyday purchase.

John Deere Plows for Light Tractors are noted for their high grade work in the field—the real test of tractor plow value.

Before you make your purchase, be sure to see John Deere Plows for Light Tractors. A careful purchase means a permanent saving.

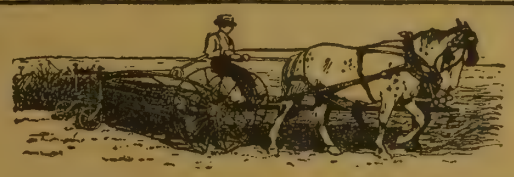
The John Deere Light Tractor Disc Plow works with any standard tractor—the hitch is adjustable.

Three or four discs.

Discs have a double setting. Taking care of all conditions where a disc plow can be expected to operate.

Adjustable scrapers keep discs clean and lighten the draft.

No choking in trashy ground—frame is high, beams are dropped, which gives good clearance under the frame, and there is plenty of room between the discs for trash to pass through.



The John Deere-Dain System Rake

Here is what you do with the Dain System Rake:

Follow the mower closely, rake while leaves are still active and place hay upon clean stubble.

Make straight windrows, and no dumping of rake is required. There is no bunching of hay in turning corners.

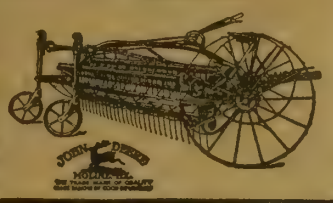
Put the hay in medium size windrows, with the bulk of the leaves inside and the majority of stems outside.

The windrows will be loose in the center for the free circulation of air. The hay retains its color and nutrition.

The John Deere-Dain System is the rake employed with the Dain System of Air-Curing Hay.

Reel raised or lowered, rake thrown in or out of gear and angle of teeth changed by means of convenient levers.

Ample capacity. The inclined frame grows higher where the windrow becomes larger—an exclusive Dain feature.



John Deere Syracuse Plows

Syracuse Plows have an enviable field record among farmers in chilled or combination plow territory

Here is a feature that is appreciated by the man who buys a Syracuse Plow. Extras ordered will be duplicates of the original parts. Bolt holes will be in the right place. Every part will fit. In fact all necessary parts that go into a Syracuse Plow could be ordered as repairs and when received built into a complete plow. Extra parts are exact duplicates—no trouble results.

Remember, Syracuse quality is uniform.

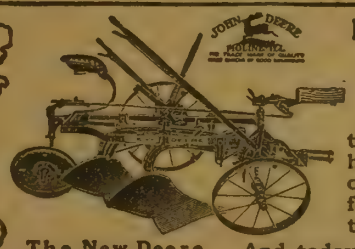
John Deere-Syracuse Sloping Landside Chilled Plows are unsurpassed for general purpose work in light soils. They leave a clean, open furrow bottom.

Share and shin piece combined—a fresh, clean cutting edge obtained with each new share.

Index or set-over style of beam—easily shifted to give the plow more or less land.

Equipped with Syracuse Chilled Moldboards—noted for satisfactory scouring qualities, strength and uniformity. Right and left hand styles.

John Deere-Syracuse Sloping Landside Chilled Plow



New Deere Light Draft Gang Plow

The New Deere Gang is the most widely used plow of its type.

It is light draft, durable and is equipped with John Deere bottoms, known all over the world for superior work, easy scouring and light pulling qualities. It cuts and turns full width of furrow.

A simple, practical foot lift and auxiliary hand lift lever—easy to raise bottoms out of the ground.

John Deere Quick Detachable Shares—great labor and time savers. Share can be taken off easily, only one nut to remove.

For twenty years the New Deere Gang has had the good opinion of enough farmers to make it the one best seller—

And, today, it is the same plow it was twenty years ago, with the usual minor refinements added.

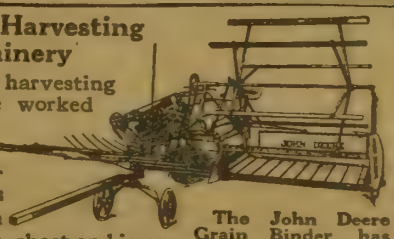
Correct in design, always representing the highest development of the plow-maker's art, the New Deere Gang is a leader, and has been every single year for twenty years.

Go to your John Deere dealer's and look this plow over—you will readily see why it is such a popular plow.

John Deere Harvesting Machinery

John Deere harvesting machines have worked under every possible condition—severe droughts that resulted in much light grain, short and irregular straw—extremely wet seasons, heavy grain, down and tangled.

However, the John Deere, "The Better Binder", has throughout maintained an unbroken record of success in cutting, binding and tying grain.



The John Deere Grain Binder has wide and high bull wheel—great power.

Main frame riveted—unusually strong.

Three packers instead of two, make better shaped bundles and save grain.

Accurate tying mechanism.

Quick turn tongue truck saves time, relieves horses and makes square corners and full swaths possible.

JOHN DEERE, MOLINE, ILLINOIS

Montelena Herd
OF
Large Yorkshires

We have left some choice service boars, a few fall pigs of both sexes, and future prize winners in spring pigs for your inspection.

We solicit your correspondence.

A. L. TUBBS CO.

Calistoga - - - California

Santa Anita Rancho
Anoakia Breeding Farm

ARABIAN-THOROUGHBREDS: Two-year-olds, sired by imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent **Santa Anita, Cal.**

BILLIKEN HERD OF
Chester Whites

The individuals in this herd possess the best blood and type the breed produces. Headed by Billiken, who's sire, Wm. A., was grand champion at the 1916 National Swine Show at Omaha. Assisted by Missouri Lad, the 1916 California State Fair grand champion and by Ventura, a son of Missouri Lad and Chief Modeler, from the famous Lenora family. All the brood sows are the very best it is possible to produce. Open and bred gilts and sows. Service boars, pigs of both sexes and all ages. Everything cholera immune and registered free. Whether you want Show or Utility type I can supply you at very reasonable prices. Write for circular, booklet and special description.

C. B. Cunningham, - Mills, California

Statement of Condition of the

FIRST NATIONAL BANK of LOS ANGELES

At the Close of Business, March 5, 1917

RESOURCES

Loans and Discounts	$21,478,946.10
Bonds, Securities, etc.	1,223,574.47
U. S. Bonds to Secure Circulation	1,250,000.00
Premium on U. S. Bonds	NONE
Furniture and Fixtures	175,000.00
Real Estate Owned	26,950.00
Customers' Liability under Letters of Credit	213,703.17
Other Assets	3,338.87
Cash and Sight Exchange	10,077,814.06
Total	$34,449,326.67

LIABILITIES

Capital Stock	$ 1,500,000.00
Surplus and Undivided Profits	2,668,481.88
Circulation	899,647.50
Reserved for Taxes, Etc.	31,858.47
Letters of Credit	240,794.12
Deposits	29,108,544.70
Total	$34,449,326.67

INTEREST PAID ON TIME DEPOSITS
COMPLETELY EQUIPPED SAFE DEPOSIT DEPARTMENT

I, W. T. S. Hammond, Cashier of the above named Bank, do solemnly swear that the above statement is true to the best of my knowledge and belief.

J. M. Elliott	J. C. Drake	J. O. Koepfli
Stoddard Jess	Frank P. Flint	E. J. Marshall
E. D. Roberts	M. H. Flint	John B. Miller
John P. Burke	C. W. Gates	Dan Murphy
John S. Cravens	H. Jevne	F. Q. Story - Directors

Queries

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Dark Yolks

I have a flock of 400 White Leghorns. A few of them are laying eggs with a very dark yelk, some slightly tinged with green. The hens are running at large on an alfalfa field and have liberty to scratch in manure from barn; have clean water from automatic fountains. Their daily feed is two-thirds wheat, one-third gyp corn twice a day, all they will eat up clean in ten minutes. Mash: 60 pounds bran, 20 pounds ground barley, three pounds meat scrap, three pounds charcoal, two pounds oil cake meal, kept by them all the time. Five gallons of sour milk daily. Hens are laying well.—Subscriber, Tancred.

Your ration is excellent, and the fact that the hens are healthy and laying well shows that there is nothing seriously wrong anywhere. It is the alfalfa that makes the yolk that dark color. Perhaps they are not getting quite enough grit or sufficient exercise to digest all they eat. A dose of Epsom salts all round is a good thing in the spring when the hens' livers are apt to be clogged from heavy feeding or confinement. Mix half a teaspoon of salts for each hen you wish to dose in a little wet mash, and give this once a week for three or four weeks. I think you will find that with this little cleaning out of the digestive tract and the coming of sunnier weather the green tinge in the yolks will soon disappear.—J. A. K.

Reviving Apple Orchard

Please give instructions for pruning an old neglected apple orchard and what to apply to bodies and limbs where they are sunburned and wormeaten. Would it be advisable to cut off all the water sprouts or leave some of them? Would you recommend cutting the ends of the limbs or do most of the cutting near the bodies? How may the borers be kept away?—Subscriber, Porterville.

It is very difficult to prescribe treatment for an orchard in this condition. Once the borers have made their home within the trunk of the tree a wire inserted in the burrows is about the only means of destroying them. The best treatment is prevention, giving the trees sufficient protection to prevent them becoming sunburnt. Prevent further sunburn by whitewashing. We would cut the tree as severely as possible to induce young wood growth. Assuming there may be some San Jose scale on the trees it would be beneficial to spray with commercial lime sulphur solution, one part to nine of water, applied at once. Where the trunk has become decayed it will be well to chisel away all the decay and dead part and fill with cement, or rather a concrete of cement and sand. Where large cuts on the branches are made it will be well to protect with a paint of asphalt or grafting wax. The subscriber does not say how seriously these trees are affected, but we assume enough so that it may be a question as to the wisdom of trying to renew the orchard. Of course if the varieties of apples are adapted to the section and the trees are heavy bearers it may pay. Otherwise remove and plant new.

Powdery Mildew

Have a small apple orchard of about 50 trees which are affected with powdery mildew. Please advise what kind of spray to use and when.—Subscriber, Ono.

If the buds are not already opening spray at once, or before the end of March, with full strength Bordeaux, 5-5-50. Later when the trees are partially leafed out, use the weaker Bordeaux, 3-5-50. It is also well to remove the mildewed tips during the winter season. The lime-sulphur wash is also excellent and has the advantage of being an insecticide as well. If there are San Jose scale on the

SANITATION

IS THE RELIABLE METHOD FOR PREVENTING

FOOT AND MOUTH DISEASE

HOG CHOLERA

AND OTHER CONTAGIOUS DISEASES.

You can make all live-stock quarters sanitary by using

KRESO DIP No. 1

The Standardized, Reliable Dip and Disinfectant.

KRESO DIP No. 1 has been used at the large state fairs in the United States for the last ten years to prevent the spread of contagious disease. It has done it, and KRESO DIP No. 1 will do the same for you on the farm.

KRESO DIP No. 1 is reliable. It is easy to use. It is inexpensive.

FOR SALE BY ALL DRUGGISTS.

We will send you free a booklet on the treatment of mange, eczema or pitch mange, arthritis, sore mouth, etc.

We will send you free a booklet on how to build a hog wallow, which will keep hogs clean and healthy.

We will send you free a booklet on how to protect your hogs from lice and parasites and disease.

Write for them.

PARKE, DAVIS & CO.

Dept. Animal Industry DETROIT, MICH.

Dairy Cattle
and
Hogs

Bought and Sold on Commission

Advise us what you have for sale or what you want to buy.
Large stock ranches for sale.

Geo. P. Robinson Co.

Travelers Hotel Bldg.
Sacramento, Cal.

BLACK LEG

LOSSES SURELY PREVENTED by CUTTER'S BLACKLEG PILLS

Low-priced, fresh, reliable; preferred by western stockmen, because they protect where other vaccines fail.

Write for booklet and testimonials.
10-dose pkg. Blackleg Pills, $1.00
50-dose pkg. Blackleg Pills, $4.00
Use any injector, but Cutter's simplest and strongest. The superiority of Cutter products is due to over 15 years of specializing in VACCINES AND SERUMS ONLY. INSIST ON CUTTER'S. If unobtainable, order direct.
The Cutter Laboratory, Berkeley, California

AUCTIONEER

Will conduct sales anywhere in California. Pure bred live stock sales given special attention. For dates and terms address.

T. J. Gilkerson

Phone, Farmers 394 **Lemoore, Cal.**

Linnview Farm BIG TYPE **Poland Chinas**

We have a choice lot of young sows and boars ready for delivery, sired by champion Iowa boars and out of big boned, prolific sows. A Wonder, Iowa King and Big Orphan blood—none better.

O. L. LINN, Route A, Modesto, Cal.

Berkshire Hogs—Milking Shorthorns

Breeding Stock For Sale

G. A. Murphy - Perkins, Cal.

"ROUGH ON RATS" ends RATS, MICE, Bugs, Don't Die in the House. Unbeatable Exterminator. *Ends* Prairie Dogs, Gophers, Ground Hogs, Chipmunks, Weasels, Squirrels, Crows, Hawks, etc. The Recognized Standard Exterminator at Drug & Country Stores. Economy sizes 25c, 50c, $1.00. Small 15c. Used the World Over. Used by U. S. Gov't. Rough on Rats Never Fails. *Refuse ALL Substitutes.*

"Gee! But I Have an Appetite!"
A cow that eats poorly usually milks poorly, and any poor milker is a loss. Lost Appetite is only one of the common cow ailments that quickly disappear after judicious use of Kow-Kure, the great cow medicine.
Kow-Kure has a record of over twenty years' success in the prevention and cure of such diseases as Abortion, Barrenness, Retained Afterbirth, Milk Fever, Scouring, Bunches, etc. Most of these diseases spring from disordered digestive or genital organs, and Kow-Kure has strong medicinal qualities which tone up and permanently strengthen the entire system.
A trial is convincing. Kow-Kure is sold by feed dealers and druggists, in 50c and $1.00 packages. Write for free treatise, "The Home Cow Doctor."
DAIRY ASSOCIATION CO.
Lyndonville, Vt.
KOW-KURE
FOR COWS ONLY
KOW-KURE

GERMAIN SEED & PLANT CO., Los Angeles, Cal.
PORTLAND SEED CO., Portland, Ore.
SPOKANE SEED CO., Spokane, Wash.

Kill Lice This Way

With one hand stroke the hair the wrong way, with the other sift in Dr. Hess Instant Louse Killer. Rub well into the skin. Try it and see how easily you can rid your horses, cattle and calves of lice. You'll find

Dr. Hess Instant Louse Killer

an excellent thing in the poultry yard. Sprinkle freely in nests, on roosts, about pens, yards, houses, run-ways. Don't fail to put it into the dust bath. That's the easy way. Fowls and chicks will work it all through their feathers—no guilty louse escapes. It comes in handy sifting-top cans.

1 lb. 25c; 3 lbs. 60c (except in Canada)

Dr. HESS & CLARK
Ashland, Ohio

Foundation Herds
of any size our specialty. Best blood lines.
Write to
Butte City Ranch
The Home of Good Berkshires
Butte City, - - - Calif.

Bemmerly HEREFORDS

Perfection and Beau Donald breeding. Noted for their size, bone and quality.
Now booking orders for service bulls for future delivery.
Visitors always welcome.
W. J. BEMMERLY, Woodland, Cal.

branches one might well use lime-sulphur wash at the rate of one gallon commercial lime-sulphur solution to nine gallons of water. W. S. Ballard of the United States department of agriculture and Commissioner Volck of Santa Cruz County worked together on the powdery mildew problem for several years and recommended, where it was desired to control not only powdery mildew but various insects such as aphis, codling moth, etc., the following: Iron sulphide (commercial), 6 pounds, neutral lead arsenate, 20 pounds, "Black Leaf 40" one pound, water 200 gallons. A second spraying to be given a couple of weeks after the first and a third with the same solution about three weeks after the second. As to time of spraying the locality must determine. In the warmer valleys buds are already opening while near the coast they may not open for perhaps a month yet.

Cover Crop to Conserve Leaves

Will you or some of your subscribers assist me in deciding upon what cover crop would be the most efficient to plant so as to get enough growth on the ground by the end of this year to catch and hold the most of the leaf crop in my apricot and walnut orchard. The soil is a light sand, drifts very easily and does not naturally grow much of a crop of weeds, and, so far, with clean culture I have never been able to retain any leaf mould for the fall and winter winds have always blown most of the leaf crop away into the nearest creek. What I am planning to do is to thoroughly irrigate the orchard in August (after harvesting the apricot crop), and sow the irrigating furrows to barley, allowing of course any natural growth, such as burr clover, alfillaria, etc., to grow as they please. I am convinced that many orchardists do not attach sufficient importance to the retention of their crop of leaves, and therefore do not make any effort to save them, but I have for years. Notice that my biggest and most productive trees are those on the outside where against the fencing and weeds the drifting leaves have season after season accumulated when they have not been blown completely away. Any suggestions that you can offer me towards this end will be gratefully accepted. —Subscriber, Moorpark.

We will be glad to hear from subscribers on this point, but it hardly seems practicable to have cover crop growing in walnut orchard to catch the leaves which fall, as that is harvest period as well and growth under trees would interfere. With apricots it would be entirely practicable. Still more, the inquirer could get results with buckwheat of which he might grow several crops during the summer.

Crooked Breast Bones

What causes crooked breast in turgeys? Have had much of this trouble and want to eliminate it.—Subscriber, Ceres.

Crooked breast bones in both chickens and turkeys are apt to be congenital. That is, if you have a crooked-breasted bird among the breeders you will find crooked breasts among the offspring. Continued breeding from such birds will soon produce a crooked-breasted flock. The cause of the first crooked breast bone may have been lack of ground bone or other bone making material in the ration. Soft bones bend easily, and a little crowding in the nest before the poults begin to roost will easily bend a too-soft breast bone. This season see that every breeder has a straight breast bone even if you have to discard some otherwise perfect specimen, and then see that the poults have rolled oats from the first, ground bone as soon as they are old enough for a mash, and plenty of exercise all the time.—J. A. K.

Planting Beans

Will you kindly publish the number of pounds per acre to plant of Tepary and Henderson bush beans?—Subscriber, Chatsworth.

Plant 20 pounds of Tepary and 25 of the bush beans per acre.

Feed For Layers

Where may I obtain information as to feeding a few hens for laying? Amounts are generally given in such large quantities that it is hard to re-

The Supreme Tractor for Cultivating

The Bean TrackPULL SIX HORSE Tractor is the Ideal Machine for Cultivating

Cultivating time is here and every farmer and grower should know about the many advantages of using a Bean TrackPULL Tractor.

The Bean TrackPULL is very light, weighing only 2875 pounds. It pulls itself over soft soil and does not sink in nor does it pack the soil.

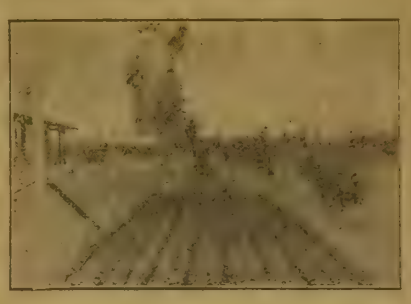
How it Works

The Bean TrackPULL Tractor is built on a substantial track 12 inches by 32 inches on the ground. The power in the tractor pulls it along its own revolving track. That's why it does not pack the soil — gets long traction — turns easily to right or left—can make a complete turn in a 10-ft. circle, is most economical in operation and a boy can easily work it. When the hot days come your team loafs and you get only an average half day's work done in 10 hours. The Bean TrackPULL will work day and night if you want it to and does the work all day long that a six-horse team could do if they worked hard continually.

The Price is Only $975.00

Bean TrackPULL Tractor construction consists of a 10 H. P. (at belt) Le Roi 4-cylinder vertical type—4-cycle motor. Equipped with Donaldson air clarifier, Bosch ignition, Perfex radiator, water cooled with centrifugal pump and fan, combination splash and pump lubrication, Hyatt roller bearings in track wheel sprocket and track rollers, six New Departure ball bearings in the transmission, running in grease and dust-proof. Gears are steel. No differential or other complicated mechanism.

Making Figure 8 around trees and leaving no unfinished work.



Pulling a spring track cultivator between rows 12½ feet apart.

Prompt Deliveries in April

Our entire output is sold a month in advance and we are working night and day. We are building a large addition to our factory to increase our capacity so that we will be able to ship tractors that are ordered now, in April.

Mail the Coupon Today

We will gladly send you our folder telling you more about the Bean TrackPULL six-horse Tractor if you will fill in and mail to us the coupon below.

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212 W. Julian St.
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LOS ANGELES BRANCH:
131-33 N. Los Angeles St.

Send coupon to Bean Spray Pump Co. office nearest you

Bean Spray Pump Co.
212 W. Julian St., San Jose, Cal.
131-33 N. Los Angeles St., Los Angeles, Cal.

Please send me prices and the big folder with the complete story of the Bean TrackPULL. If I decide to purchase I will need my tractor about

Date ....., 191...
I work ..... acres
I grow .....
(Name fruits or vegetables you produce)
Name .....
St. or R.F.D. .....
City .....
County .....
State .....

Corning Chamber of Commerce

Invites you to investigate

Corning and Vicinity

the best known Colony Town in the Sacramento Valley—successful and well developed subdivisions—land in any amount to suit purchasers on extremely fair terms.

The OLIVE, ALMOND and ORANGE are successfully grown here, together with the Prune, Apricot and other California fruits. Olive and Almond land is well worth your investment. Prices are not inflated, and good soil may still be had at comparatively low prices. General farm lands equally desirable and reasonable.

Make the trip on the State Highway, come and see for yourself a well ordered and highly developed Colony community. You will find comfortable hotel and commodious garages, as well as the pioneer free camping ground for tourists. Good schools, banks, business houses and a clean town and community—the home of the H. J. Heinz Co. "57 variety" Olive Plant and the Maywood Packing Co., the producer of the "Jumbo" ripe pickled olive. Corning ripe pickled olives are the standard of excellence. We believe an investment here will appeal to you. Take the West Side State Highway.

For booklet write to

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Strong germination and vitality

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The Cunningham Land Roller and Pulverizer

Makes a Perfect Seed Bed—Stops Evaporation—Preserves Moisture—The Best Clod Crusher ever made for Farmer, Orchardist, Vineyardist, Nurseryman and Seedsman—

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Write for Circular

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duce to proper amount for half dozen or dozen hens.—Subscriber, Los Angeles.

Valuable bulletins on feeding may be had from the Oregon experiment station at Corvallis, Oregon, the Cornell station, Ithaca, New York, Purdue University, at Lafayette, Indiana, the Missouri station, Mountain Grove, and many others, but there is nothing more comprehensive than Professor Jaffa's bulletin on "Poultry Feeding", published at Berkeley. A formula that corresponds in general with those of Professor Jaffa, but is better suited for a few hens, is: Bran two parts, ground oats or ground barley one quart, middlings one quart, alfalfa meal, one quart, beef scrap or fish scrap one quart. In cold weather a quart of corn meal might be added, and occasionally a portion of the beef scrap might be replaced by fine ground bone. This is my own formula and has been very satisfactory. When a very high protein content is desired one-half quart of soy bean meal or linseed meal might be added, or the formula might read; one-half part each of beef scrap and the vegetable meal. Many feeders add salt or charcoal or both to these formulas, but I could never see the need of either. There is no "best" formula, and no occasion for a complex ration. Just remember that with a mixture of three or four different ground grains, of which bran is the most important, as a basis, and about one-sixteenth animal protein, you can do almost anything you wish to do. Some feeders find a mixture of bran, feed meal, middlings and beef scrap sufficient, but in our climate ground oats and barley meal are both to be preferred for regular use to the corn meal. Variety and a reasonable balance are the main things.—J. A. K.

Extending Silo

Have purchased a resaw silo 14 feet wide by 20 feet high which I intend to move. I wish to make it deeper. Will you advise which would be the best method, to go down with concrete, say six feet in the ground, or extend the top? Also, what color should good corn silage be and is it customary to use salt in making corn silage?—Subscriber.

We think it would be much safer to make a solid foundation rather than to extend this silo from the top. If soil conditions are right so there is good drainage the six feet pit would be much the cheaper. If this could not be done then we would build from the top. The color of corn silage should be a rich brown, say a walnut shade. Salt adds nothing to the value of the silage and we believe is not generally used.

Cows Bloating on Burr Clover

I have a Jersey cow due to freshen in June which I have been pasturing on burr clover. She is fond of the clover but it causes her to bloat. Is there a preventive of this and will there be less trouble when the clover is more mature?—Subscriber, North Glendale.

There is great difference in cows in this matter of bloating and where one is so susceptible as this one appears to be it will be wise to watch closely and not let her get to the lush young feed until all moisture is dried off in the morning. Again, it might be well to leave on the pasture but a short time, making part of the ration dry alfalfa hay. When the clover becomes more mature the danger will not be so great. In the meantime, where one can do so it would be wise to cut and wilt or partially cure the clover, in which state it would not be so apt to cause the trouble.

Bulletins on Bees

Please advise if the California experiment stations have published any bulletins on bees. If so, how may they be obtained?—Subscriber, Visalia.

Bulletins published by the California experiment station are: Bulletin 274, "The Honey Bee as an Agent in Prune Pollination", by Hendrickson; No. 217, "Honey Plants of California", Richter; Cir. 63, "How to Make an Observation Hive", Nickels. It is possible that other bulletins may be had by addressing Agricultural Experiment Station, College of Agriculture, Berkeley. The United States department of agriculture, Washington, D. C., has issued several bulletins, among them, "Rearing of Queen Bees", "Comb Honey", "Cause of European Foul Brood", "Bees", "Bee Diseases", "Temperature of the Bee Colony".

Salting Ewes

A subscriber wished information as to whether salt should be withheld from ewes for a short period prior to lambing. He had been informed that some believed the feeding of salt might cause abortion. The question was referred to Dr. Hayes, veterinarian of the university farm school at Davis, who writes:

"We know that there is a popular idea abroad that salt given to pregnant ewes may cause abortion, but we do not know why salt should cause this effect, unless the ewes eat so much of it that diarrhoea is produced. This irritation of the bowels on account of too much salt, may sometimes act reflexly on the womb. Such conditions are rare however, and otherwise salt has no effect on pregnant ewes.

Cleaning Shells

Please advise what will remove the rough lime coating from abalone shells?—Subscriber, Hinckley.

Muriatic acid will take off the rough deposit from these shells. It should be applied with care, and unless watched closely the process may result in eating holes in the shell. After the lime formation is removed the shells should be polished.

THE "GREENING" OF POTATOES

GREENING potatoes means causing them to sprout under certain proper conditions just before you are ready to plant them.

There are two principal reasons for "greening" potatoes:

First. It makes the plant grow faster and mature more quickly, so that your potatoes can reach the market earlier.

This is a very important item to you, not only if you are raising some of the early varieties, but also if you are growing one of the late varieties. With the early varieties your natural desire is to plant and harvest as early in the season as possible, for the earliest potatoes bring the best price on the market. Yet if you plant very

Nitrate of Soda

California soils need available nitrogen. Get it as cheap as you can. Write us for "Cost of Available Nitrogen."

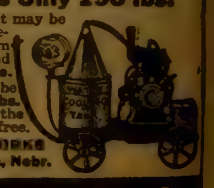
DR. WM. S. MYERS
Chilean Nitrate Propaganda
25 Madison Avenue, New York

Light Weight Cushman Engines

Built light, built right—for farmers who want an engine to do **many jobs in many places,** instead of one job in one place. Easy to move around. Very steady and quiet—no jumping, no loud or violent explosions, but smooth running. **Throttle Governed,** Schebler Carburetor. Friction clutch pulley. Runs at any speed.

4 H. P. Weighs Only 190 lbs.

Mounted on light truck, it may be pulled around by hand. Besides doing all regular farm work, it is the original and successful **Binder engine.** Saves a team and **saves the crop. 8 H. P. only 320 lbs. Not cheap** but cheap in the long run. Engine Book free.



CUSHMAN MOTOR WORKS
804 N. 21st St., Lincoln, Nebr.

For All Farm Work
4 to 20 H.P.

early in the season, you always run the risk of having your plants damaged by late frosts. Now if, by greening, you can make it possible to plant your potatoes later in the spring, thus escaping the danger of frost, and still put your potatoes on the market as soon as the ungreened potatoes which were planted two or three weeks earlier, you can see that you will have gained a big advantage. You will have all the advantages of early potatoes without the risk.

Moreover, your late potatoes can be badly damaged by early frosts in the fall, and greening operates to save them from this danger also. It hurries forward their development so that danger from early freezing is greatly lessened.

Second. It makes the plant stronger, healthier and more vigorous. The increase of yield due to the planting of greened potatoes has been shown to be from ten to 40 per cent. That is certainly worth going after.

Now as to the method of doing it.

The best way for you to do is to spread them out on the floor of the granary, tool shed or barn. It would be preferable to put the potatoes on an old bed spring, or on something else that would allow a circulation of air underneath them. They should not under any circumstances be piled more than a foot deep, and it will be better if you do not have them more than six inches. The light on the potatoes should come from the east or north, for the south or west light is too strong for good results. You should keep the temperature between 60 and 70 degrees Fahrenheit if possible, and if there is any danger of frost, the potatoes should be covered for the night with gunny sacks, straw, or something else that will protect them. It will take from two to three weeks to green them, the time varying according to the light, warmth, etc. The progress of the greening can be ascertained by the growth of the sprouts, which should be allowed to grow not more than a half inch in length, and which should be full of buds. If the sprouts do not grow well, it indicates that there is not enough light. If the potatoes are properly greened, the sprouts will be tough enough to withstand ordinary usage, although if they were to sprout in a warm, dark cellar, the sprouts would be very brittle, and would break off very easily.

To summarize—you will better the condition and yield of your potatoes if you green them, and moreover you will have your potatoes, both the early and late varieties, maturing earlier. You cannot afford not to green your seed.—Grubb and Guilford.

COVER CROP EXPERIMENTS IN ARIZONA

A number of different cover crops are being grown on the Salt River Valley, Arizona, experiment station to get comparative data as to values. Garbanzo peas are making a very good showing, covering the ground nicely, with a good even stand, and at this time (March 1) are eight inches high or more. Canada field peas, although a cold climate crop, are making a nice growth and promise a good tonnage of hay or green fodder or an immense growth to turn under. Colorado stock peas are also being grown, and to an observer there is no difference between them and the Canada peas. A variety of vetch, the Black Purple, which has succeeded well in Southern California, has made almost no growth at all. Button clover, a much boasted crop in some of the Southern states, made so little growth that it was plowed up.

The field of Peruvian alfalfa sown in the fall of 1915 is making a splendid showing and is at this time as pretty and even a field as one would care to see anywhere.

LETTUCE FOR SALT RIVER VALLEY

Lettuce is being experimented with at the Salt River Valley, Arizona, experiment station to a considerable extent. Fifty-six varieties and strains of lettuce are being grown, most of these made a fairly good stand, but two varieties seem now to be better adapted to growing lettuce for market than any other of those tried. These are the New York or Wonderful, which is sometimes called the Los Angeles, with the Iceberg a close second.

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Hen-house
Watering-trough
Roof
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California Redwood
Resists rot and fire
Whatever the new work or repairs you have in mind, you will find California Redwood the one best wood to use.
Resists rot—contains a natural preservative. Unaffected by the action of the sun, rain and contact with the ground.
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Will not shrink, swell or warp. Light weight and delightfully easy to work.
FREE BOOKLET
Write us for complete information about California Redwood for all uses, and copy of free booklet "California Redwood on the Farm."
Please give us the names of your local lumber dealers.
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770 NEW CALL BUILDING, SAN FRANCISCO, CAL.
Ask for the Child's Story of the "Big Trees" of California—there's a copy for every child in the nation.
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Olive Trees
such as these are grown only on our foot-hill locations
Note the good roots — for hardiness they have no equal.

We have a fine block of Mission and Manzanillo trees—both on PICHOLINE roots and grown from cuttings. We have had splendid success on all olive plantings—a most important assurance to you.

WRITE US TODAY

Submit a List of Your Wants for Special Quotations

If you need fruit trees—strong, true, free from diseases, also get our prices.

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The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877 Combined with California Cultivator 1914 Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, March 17, 1917

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

More tourists are enjoying California's roads this year than ever before in its history. It is said there are now more than 100,000 people of wealth visiting the state from east of the Rockies, and it is just such roads and such scenes as are depicted on this week's cover which draw many of these people. These good roads are, we believe, next to our scenery, one of our greatest assets. As to their value in facilitating movement of crops and of supplies required in the production of crops we have spoken often.

This particular scene is in Napa County, one of the smaller and one of the richer counties of the state. Perhaps one of the most striking features in this county are the great white oaks. The sunset glow adds to the attractiveness, and we hope we may be able to add a touch of color to our covers several times during the coming year.

SIXTH DISTRICT FAIR

The time was when California had a representative agricultural fair in Los Angeles, that is, representative so far as fairs of ten or 20 years ago were generally of agricultural interests. It must be admitted that the ponies had much to do with the principal features of those fairs. Later there was an effort to make a real estate speculative scheme out of the fair grounds, but they were saved and made a beauty spot within the city limits of Los Angeles. Now the management says these lands will be returned to their original use and made the site of a general agricultural fair with as little attention as possible to side shows and "attractions" of all types.

Mr. Davison and others of the management assert that it is to be an all-round agricultural fair, and as there has been a desire on the part of some to hold in Los Angeles this year a great live stock show similar to the International at Chicago, it is a safe guess that live stock interests will be given particular attention.

The exact date is not yet named, but it will be in late October or early November. Committees having to do with every feature of the fair have been named and with characteristic energy work has already begun. As usual Los Angeles is going to do things differently, and instead of the usual three to six days fair a suggestion at least has been made that this fair cover a period of practically 30 days.

CALIFORNIA

The Cultivator has no ambition to be a promotion paper devoted to description of our glorious scenery and our wonderful agricultural possibilities; its mission is cultural. Still, there is often material gain in standing off and looking at ourselves to see what has been accomplished and what we hope to do. To that end, especially with regard to the live stock interests, the Cultivator's field men have made surveys of Yolo, Napa, San Joaquin, Stanislaus, Kings and Tulare Counties and Southern California. We mention this lest, looking over this issue, one might ask as to the live stock industry,—which does not receive as much attention in this number,—for it is devoted to other things agricultural and horticultural in all of the northern and central sections.

We will not enlarge upon it in this place but refer our readers to Mr. Egilbert's excellent article on Page 307 and to Mr. Holman's on Page 311. Mr. Holman is the regular northern representative of the Cultivator with headquarters at San Francisco, and to him is due credit for much of the valuable material in this issue.

We have often said that some of the best reading of the farm papers is in the advertising columns, and in addition to that most interesting matter we give descriptive material of some of the large concerns which have their headquarters in the northern portions of California and make the things which enable farmers to produce more and better in California than in any other state in the Union.

We believe these issues of the Cultivator enlarging upon the great ess of our state are of material aid to its upbuilding.

CHAMBER OF AGRICULTURE

The commercial interests of the United States, through chambers of commerce, boards of trade and other bodies, have had for many years a national organization known as the National Chamber of Commerce. Some two years ago suggestion was made that various organizations of farmers should form a similar body which should have a national influence on things agricultural. There are today many powerful state and even national organizations, but these have lacked facility in working together when unity of action was required.

Regarding this condition Editor Meredith of "Successful Farming" says: "A group of farmers or certain individual farmers widely scattered over the country become interested in marketing, they hold meetings, write a few letters to congressmen, etc., to create sentiment for the particular matter in which they are interested; another group of farmers become interested in the good roads question and they hold meetings, pass resolutions, discuss the matter, but do not connect up with the farmers who are interested in marketing. Still another organization of farmers, centering their attention on the question of good seed corn, hold corn shows, urge the testing of seed corn, form purebred corn clubs, but they in turn have no contact with the organized good roads farmers nor those interested in marketing. Still another group of farmers become interested in pure bred livestock, form their associations, hold their shows, attend the state fairs, etc., but have no working arrangement with any of the other groups. In other words each interest confines itself wholly to its one particular line of work, gets no cooperation from the others, and for this reason has but little influence in making itself felt in state legislatures or in the national congress. Why cannot these farming groups get together and each take an active, cooperative interest in groups other than the one in which they are directly concerned and thus lend their support in getting such state or national legislation as might promote their common interests?

HIGH COSTS

State Statistician Robertson writes us that in his estimation neither the war nor large exports are entirely to blame for high cost of all products, that is, figures giving exports for the year 1914-1915, and 1916 show a decrease rather than an increase. In 1914 we exported of wheat 173,000,000 bushels; in 1915, 205,000,000 bushels; but in 1916 the exports were only 154,000,000. Sugar on the contrary showed a material increase, as did beans, but with wheat, as with corn, oats and all the cereals, decreased production for the three years shows explanation for the higher costs. In 1914 this country produced 891,000,000 bushels of wheat; in 1915, 1,025,000,000 bushels; in 1916, only 639,000,000. A similar decrease is shown in the other cereals and in potatoes, production of which in 1916 was but little more than half that of 1914.

This reduced production was in part due to weather conditions. We are hoping for ideal conditions for the coming year. In any case it appears that our farmers need to study conditions and prepare for intensive culture. So many of the world's workers are engaged in slaughtering each other that the production of the entire world will of necessity be far below normal.

SOME LEFT OVER

WE are proud of this week's Cultivator, but at the same time we are somewhat broken up over the fact that much valuable material has necessarily been omitted. Mr. Briggs' account of the Poland-China sale at Hanford, columns of news notes from all over the state and the coast, market reports, and much other matter has been "put on the galleys" for next week.

TILL WELL

Never was there a year with more of promise than this? Produce more. Produce better. The work put on the soil and the fertility put into it will determine the profits.

Tree Sprays

Whether or not your crop will pay for the labor, and outlay, largely depends on the care of the trees and the spraying. These depend on the quality of the materials used in compounding the remedies and sprays.

Scientific preparation, backed by the name, insure you the quality of

Orchard Brand

Bordeaux Mixture
Atomic Sulphur
Soluble Oil
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Lime Sulphur Solution
Distillate Oil Emulsion

Besides the certainty of quality, there's the advantage of consulting Mr. S. W. Foster, entomologist in charge of the insecticide department. Write to him for advice on any of your orchard troubles.

Send for the pamphlet you need to help solve your problems:

1. How to control the principal insect enemies and fungous troubles of deciduous fruit trees during the growing period.
2. The dormant spraying of deciduous fruit trees west of the Rocky Mountains.
3. Orchard Brand control of pests and diseases.

Use our service department—write us freely—the more help we can give you, the more success you will have. It's free.

Mail the coupon.

General Chemical Co.
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Insecticide Department, General Chemical Company, Dept. C4, San Francisco, Cal.

Please send me free bulletins regarding the control of orchard pests and diseases. I have

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Let Us Figure on Your Requirements. Address Nearest Office
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310 Market St. San Francisco
907 Trust & Savings Bldg. Cor. 6th & Spring Sts. Los Angeles, Cal.

Many Southern California canneries are preparing to handle tomatoes this summer.

North California Notes

Glenn County has decided on September 19-22 as the dates for its county fair.

The order of the railroad commission reducing freight charges on rice to Sacramento and San Francisco has been annulled.

A big irrigation project is reported to put water on foothill lands near Oroville, taking water from the north fork of the Feather.

The state insectary at Sacramento is getting ready to ship out 100,000,000 lady birds into the melon fields to take care of the aphis.

Horticultural Commissioner Van Dyke of Mendocino County reports that pear scab cost Mendocino pear growers $31,000 last year.

The first asparagus of the season has been shipped to New York. On account of the cold weather the season is eight days later than last year.

Representatives of sugar beet growers have asked an appropriation from the state legislature to conduct the fight against the sugar beet hopper.

Fruit growers of Eldorado County recently held a mass meeting in Placerville and protested the action of the supervisors in doing away with the office of county horticultural commissioner.

Application has been made to the state water commision for appropriation of 300,000 acre feet yearly of the waters of Putah Creek for the purpose of irrigating 55,000 acres in the proposed Dixon Irrigation District.

One hundred and eighty-seven members of the Glenn County farm bureau have agreed to market butcher stock and grain through Ord Leachman of Orland, who has been appointed market man by the farm bureau.

Farm Adviser Williams of Sacramento County announces the following farm bureau meetings through March: March 17; Franklin, March 21. Orangevale and Elverta have not selected their dates, which will be chosen later in the month.

Central California Notes

The Fig Growers' Association of Stanislaus County held a meeting on March 2nd at Ceres.

Prune and apricot growers are actively campaigning for the success of their organization.

Manager Niswander of the California Peach Growers' has announced a quarter of a cent increase in price on peaches of the holdover 1915 crop.

The rains of the past two weeks have brought happiness to grain growers and cattlemen. Grass and grain have already made heavy growth.

The Cattlemen's Protective Association, at a recent meeting in San Francisco, endorsed the Rigdon hide and brand bill to curb the activities of cattle rustlers.

Directors of the California Peach Growers' have decided to start an advertising campaign in the East. The association has not yet received a name for its peeled peaches.

County Horticultural Commissioner Roullard of Fresno urges all growers who find vines infested with phylloxera to refrain from removing the stumps to other sections, thereby spreading the trouble.

The high record mark for prices of butter fat was established in Stanislaus County last week when the Modesto creamery paid 50 cents a pound to ranchers. A year ago butter fat was purchased at 34 cents a pound.

Cattle thieves in California have stolen more than $200,000 worth of cattle in the past year, according to statement of members of the California Cattlemen's Protective Association recently assembled at San Francisco.

There was a large attendance of table grape growers and packers in Fresno February 17 to discuss growing, shipping and legislative problems affecting their industry. J. W. Jeffrey, in charge of the viticultural station of the state at Dinuba, told the growers of Eastern criticism of the Emperor pack.

DE LAVAL DAIRY SUPPLY CO.
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CREAMERY & DAIRY APPARATUS
DE LAVAL CREAM SEPARATORS
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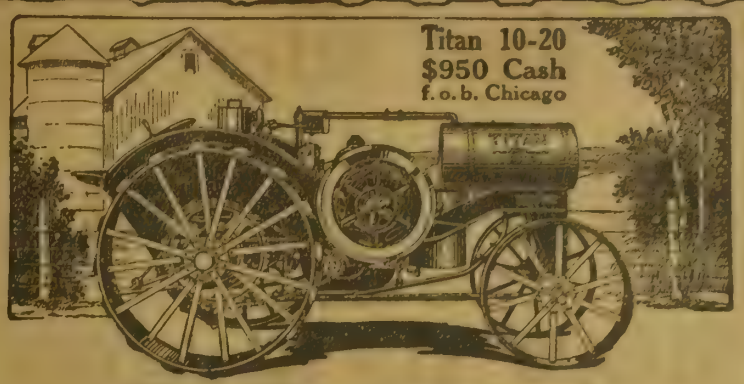
San Francisco Headquarters for De Laval

Bean Tractors Ready for Delivery



The Final Answer

To the Tractor Fuel Question

WE believe that a farmer who buys a kerosene tractor costing hundreds of dollars is entitled to get what he pays for.

We **know** that **Titan** tractors are real kerosene tractors. When you buy a **Titan** tractor you are safe. You have the **written guarantee of a responsible Company** that your tractor will do good serviceable work, **using common coal oil as fuel** at all loads. That is the final answer to the tractor fuel question.

Titan tractors are now built in three sizes, 10-20-H. P., the 3-plow outfit; 15-30-H. P., for 4 and 5 plows; and 30-60-H. P. for the heaviest work of the largest farms. All operate on kerosene.

The 10-20-H. P. size is a two-speed tractor, 1.85 and 2.50 miles per hour, with a smooth running twin-cylinder engine, slow speed, mechanically oiled, starting and running on magneto. It can be used for any field work you would expect nine or ten horses to do, and it will run any machine that takes up to 20-H. P. at the belt.

If you place your order soon you can have a **guaranteed Titan tractor** for the heavy spring work. Drop us a line so we can send you full information at once. Don't wait. Write now.

International Harvester Company of America
(Incorporated)

Crawford, Neb. · Denver, Colo. · Helena, Mont. · Los Angeles, Cal.
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How Old was The Old Oaken Bucket?

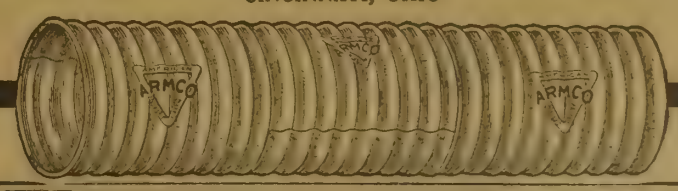
THE "iron-bound" bucket that hung in the well was covered with moss but the hoops were always tight and the bale was always secure. Time left its impress on the wood and on the metal but *rust* did not eat through the iron although the bucket was subjected to the severest of exposures. The iron was *pure* iron and pure iron resists rust.

"ARMCO" IRON CORRUGATED CULVERTS

By chemical analysis these are purer iron than were the hoops of the old oaken bucket. Under similar conditions "Armco" Iron should outlast even the old-fashioned ron. Under highways and railroads all over the country, "Armco" Iron Culverts give service like that of the old oaken bucket. They are the only metal culverts that can be counted on to outlast the generation that installs them.

For full information on "Armco" Iron Culverts, Flumes, Sheets, Roofing, and Formed Products, write the manufacturer in your vicinity, or

ARMCO IRON CULVERT AND FLUME MFRS. ASSOCIATION
CINCINNATI, OHIO



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We supply only absolutely warranted stock. We guarantee every deal. Write today for prices and 66-page book.

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In our every issue there are new advertisers. Are you keeping in touch with them?

See the Difference

BETWEEN THE

NEW DE LAVAL

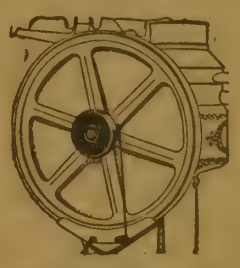
AND OTHER

CREAM SEPARATORS

YOU can *see the difference* between a NEW DE LAVAL and any other cream separator right away.

And five minutes spent in comparing the bowl construction, the size, material and finish of all the working parts, the manner of oiling, the tinware and the frames, will surely convince you of the superiority of De Laval construction and workmanship.

Then if you go a step farther and turn the cranks of the two machines side by side for fifteen minutes, running milk or water through the bowl, you will see still more difference.



Every New De Laval is now equipped with a Bell Speed-Indicator, the "Warning Signal" which insures proper speed and uniform cream.

Speed Indicators can be furnished for use on old style De Laval machines at a cost of $3.00 each.

And if you will run the two machines side by side in practical use, as any De Laval agent will be glad to have you do—the De Laval one day and the other machine the next—for a couple of weeks, you will see still greater difference in the work of the two machines.

There is a De Laval agent near you who will be glad to explain all the improvements and advantages of the NEW De Laval, and who will set and start a machine for you on your farm and let you *prove the difference* for yourself.

Why not see the nearest De Laval agent at once? If you do not know him, write to the nearest office for any desired information.

DE LAVAL DAIRY SUPPLY CO.

LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST. We specialize in Alpha Gasoline and Distillate Engines, Ideal Green Feed Silos, Irrigation Equipment, Centrifugal and Deep Well Pumps and Alpha Spraying Outfits. Send for special catalog.

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50,000 Branches and Local Agencies the World Over

FOREST GROVE LAUREL 8TH
First and Reserve Grand Champion
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The Type We Are Breeding For

Hardy, prolific sows of best blood lines and breeding. Strong, upstanding, prepotent boars. In short the best possible specimens of the Berkshire breed. We plan to do this by breeding large numbers and from them making a rigid selection.

James Mills Orchard Corporation

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The Papec Cutter and Blower

Run it with Your Auto

Save Money, Power, Expense of Upkeep and Labor. It lasts always and has a positive guarantee. Ask for Catalogue.

SIMPLEX SILO, The Best That Money Can Buy.

SANTA FE LUMBER COMPANY

16 California St. • • San Francisco, Cal.

Request your storekeeper to supply the goods advertised in the California Cultivator.

Wanted---Cattle Loans in California

CATTLE loans comprise a new element of business in California banking circles. There are very few banks in this state which are cultivating this desirable investment. Their failure to appreciate the value of cattle paper is because they are not fully conversant with the cattle industry.

California feedlots and pastures absorb several hundred thousand head of beef cattle annually. This number of cattle represents a valuation of approximately $35,000,000. The majority of the cattlemen who have ample supplies of feedstuffs and wish to buy grass steers from the Arizona and California rangemen are handicapped in securing loans to carry them along until the animals are fattened and shipped to the killer. Within four to six weeks the movement of grass cattle from the winter ranges to California feed lots will be in full swing.

At market centers like Portland, cattle paper has long ago proven its worth to the banks. In the February issue of Rand McNallys Bankers Monthly F. N. Shepherd, cashier of the Empire National Bank, Lewiston, Idaho, covers the subject of cattle loans in a very able manner. After briefly sketching the cattle industry by showing how our open ranges were rapidly passing, how this affects the supply of beef cattle, etc., Mr. Shepherd goes into detail and tells the story of cattle loans from the bankers standpoint.

Animals which formerly ranged freely over the public domain are now kept under fence and are no longer subject to the vicissitudes of the seasons for water, shelter and food. This change has had the effect of putting the industry on a more scientific basis and making more desirable paper based upon cattle as security, in that the business is more stable and less liable to wide fluctuations. for while cattle values may vary widely over extended periods, these fluctuations are very slight over short periods, and the cattle feeding business is of comparatively short duration.

Ten years ago we were exporting $150,000,000 worth of beef annually. Today we are importing beef. Within six years our beef cattle have decreased from 50,000,000 head to 30,000,000, while our population has increased 20 per cent. The average price of beef cattle during the period from 1905 to 1915 increased from $15.15 per head to $33.39, and this year they are much higher.

Cattle paper is classed under three heads: Live beef loans, stocker loans, dairy loans. Live beef loans, or as they are often called, feeder loans. are usually made for the purchase of steers to be put on feed for fattenting. Where the borrower is a man of known integrity, has an ample supply of feed and the proper facilities for housing, watering, and caring for the animals, the entire purchase price is usually loaned, and as security a chattel mortgage is taken covering both the cattle and the feed.

Section 13 of the federal reserve act permits rediscounting of this paper. To bankers who know and understand them these loans compare most favorably with prime commercial paper and are highly regarded as secondary reserve, and in the territory where cattle loans are frequent the supply is seldom equal to the demand.

Stocker loans run for a longer period and are not considered quite as good, but still high class. Stock cattle consist of cows, young heifers and steers, which are kept on farms or ranches for growth and breeding purposes. Through the natural increase in calves and the growth of the young animals the security behind stocker cattle increases in value during the life of the loan.

Dairy loans are considered better business for the local banker than for the bankers at the money centers. Where the borrower knows his business, has heavy producing cows, and knows how to dispose of his product these loans are very desirable for the local banker.

Since the federal reserve act admits rediscounting of cattle paper with maturities up to six months, and the number of loan companies has increased at the livestock centers, the security has been standardized, because it is desirable, widely known and salable.

While many of the applications for large loans come direct to the livestock banks or cattle loan companies, cattle loans are, for the most part, made in the ordinary course of business by the country banker acting individually for his bank.

The cattle loan company acts as a broker and through its various connections or sales organizations places the paper with city banks or the investing public, using much the same methods as the mortgage loan companies or commercial paper houses.

Behind paper so acquired the ultimate purchaser has as security the live stock—a life necessity for which there is at all times a cash market—the financial and moral responsibility of the stockman, the guarantee of the local banker and the endorsement of the cattle loan company.

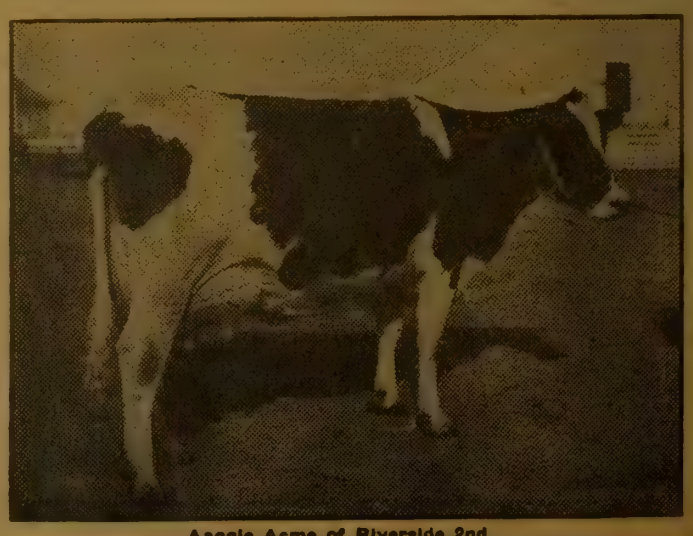
Livestock puts fertility in the soil as well as money in the bank, and those communities which rest upon livestock are on a sound foundation and for the most part prosperous. The livestock grower is not a mere soil tiller bartering a raw material, but a manufacturer selling a finished product. In liquidity, rate of interest earned and amount of risk involved the banker will find cattle loans, carefully taken, to compare favorably with prime commercial paper. In purchasing them he not only acquires a good security but encourages an industry meriting support.

Latest State Record Cow

Written for California Cultivator

Frank L. Morris of A. W. Morris & Sons of Woodland writes on the latest state record cow.

"Aaggie Acme of Riverside 2d, still on strictly official test, is demonstrating the same persistent qualities that



Aaggie Acme of Riverside 2nd

Raise Your Calves on
Blatchford's Calf Meal
and Sell the Milk

More calves have been raised on Blatchford's Calf Meal than on all other milk substitutes combined.

100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk. Prevents scouring and insures the early maturity of sleek, handsome calves. It is steam-cooked and no trouble to prepare or use.

Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or Blatchford Calf Meal Factory, Dept. 8 Waukegan, Ill.

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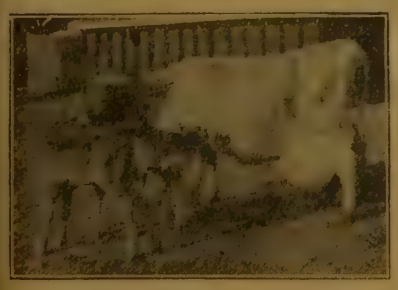
? ARE YOU GOING TO BUY A SILO ?

Hinged Doors — More Anchorage

Don't make a deal without getting full information about our better fixtures and money-saving prices.

SILOS—Concrete or Wooden
Write or Call on
Artesia Lumber & Cement Co.
Artesia, Calif.

The Leonard Jersey Herd



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Service bulls and heifers from Registry of Merit cows of strong individuality and best lines of blood and breeding for sale. For information, prices and pedigrees, write to

Chas. L. Leonard
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HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families. Some of serviceable age.

REGISTERED BERKSHIRE PIGS

Masterpiece, Longfellow and Robin Hood Strains. Fine individuals of both sexes—we pay registration fee.

Careful attention given to mail orders.

Whittier State School
Whittier, Calif.

Live Stock and Real Estate LOANS

I am especially prepared to make loans on California, Arizona and Nevada live stock in amounts of $5000 or more at reasonable rates. Prompt service. Can also make loans of from $100,000 to $1,000,000 on large improved California ranches.

R. B. CAMPBELL CO.
218 Security Bldg. Los Angeles 65422

When writing advertisers, mention the Cultivator.

marked her last year's performance. In the seven days just passed, beginning 93 days after calving, she has yielded 24.40 pounds butterfat, or 30.50 pounds butter (80 per cent). She continues to surpass all previous marks set by a California cow, having just increased the 90 day record to 320.77 pounds fat (400.96 pounds butter) out of 7931.3 pounds milk. Her other records, as previously reported, are, seven days butter 35.38, thirty days 142.34, sixty days 275.02.

"It is interesting to note the market value of her product, in view of the fact that butterfat has been at the highest during the period that she has been in test, the average being a fraction above 40 cents. Her 90 days yield of butterfat figures $128.30, and with an additional credit for 7000 pounds of skim milk at 20 cents per hundred, totals $142.30, an average of $47.30 for each 30 days.

"According to government statistics the 90 days production of this cow exceeds the yearly yield of the average cow in the United States by more than 100 pounds butterfat. Her product exceeds that of five of the average cows of this country, and the reader may make his own deductions as to the comparative yield of profit.

"A few words with reference to the breeding of Aaggie Acme of Riverside 2d may also be of interest. She may be called a line bred cow, being a double granddaughter of Juliana King of Riverside, son of Juliana De Kol, famous at one time as California's world record two year old. In addition to the dam of this cow whose record is 28.35 pounds butter in seven days and 808.82 pounds in one year, Juliana King of Riverside has a three and a four year old daughter that have made respectively 1021 and 1011 pounds butter in one year, one of which was a world record at the time. Eight of his 15 tested daughters have records over 700 pounds, including three under mature age.

"Aaggie's sire is King Mead of Riverside, son of Juliana King of Riverside and De Kol of Valley Mead, 25 pounds in seven days, a noted show cow, a high producer and the dam of three high record daughters. Five two-year-old daughters of King Mead of Riverside have averaged in yearly test 721 pounds butter and over 14,000 pounds milk, one of these holding the state two year old record of 870.61 pounds butter in one year.

"Miss Valley Mead, De Kol Walker, the two year old heifer that has just broken the world's seven day record eight months after calving and for six months averaged 94 pounds butter per month, has for her dam, De Kol of Valley Mead 2d, a full sister to King Mead of Riverside, and her great capacity is no doubt due in a large measure to these blood lines."

OLEOMARGARINE LEGISLATION

The secretary of the National Dairy Union is mailing "Protest of the Dairy Interests of the United States Against the Underwood Oleomargarine Amendment". This is a 12-page pamphlet, and we doubt not it will be mailed if request is sent to National Dairy Union, 37 Bliss Building, Washington, D. C.

"In behalf of the 4,500,000 dairy farmers of this country, we most emphatically object to any legislation affecting this great billion dollar industry at this time in the manner in which it is being taken up. The farmers of the country had no intimation that legislation so detrimental to the dairy industry would be attempted at this time. We oppose this amendment for the following reasons:

"That the legislation proposed is destructive of the great dairy industry and in favor of the interests seeking to foist on the public oleomargarine colored in imitation of butter.

"That the purpose of the amendment, as expressed in the title, namely, 'To provide increased revenue to defray expenses of the increased appropriations for the army and navy, and the extension of fortifications, and for other purposes' is incorrectly stated. A title fittingly expressing the effect of such a law would be 'To destroy the great dairy industry of this country in favor of the oleomargarine interests, and, incidentally give the federal government $1,000,000 of revenue for every $10,000,000 taken by the oleo—the beef trust—interests above a legitimate profit.'

"That if it is true that oleomargarine is the poor man's substitute for butter,

They are Right!
RIGHT as producers.
RIGHT as breeders.
RIGHT as individuals.

That sums up the facts concerning the herd of registered Holsteins owned and developed by H. E. Cornwell, Modesto, Cal. But to arrive at the sum total we had to add together the splendid blood that Mr. Cornwell selected for foundation; the careful matings he has made of select animals during the years it has taken him to build the herd up to its present size and quality; the creditable official records made in the herd; the good semi-official yearly records, both of milk and butter; the consistent show ring winnings of members of the herd; and the splendid way in which the herd is breeding on in both form and production.

AND NOW—this good herd, consisting of 11 A.R.O. cows with records up to 26.50 pounds butter in 7 days; 6 cows with semi-official yearly records up to 707.31 pounds butter; daughters of A.R.O. and yearly record cows; several well bred young bulls; and the great young herd sire, PRINCE HISKE WALKER, son of Prince Gelsche Walker, will be sold by us at Mr. Cornwell's ranch near

Modesto, California
ON
Thursday, April 19, 1917

A catalog is being prepared and a copy will be mailed to those requesting it.

Sale under management of

CALIFORNIA BREEDERS' SALES & PEDIGREE COMPANY

AUCTIONEER
COL. BEN A. RHOADES, Los Angeles

C. L. HUGHES, Sales Manager
Sacramento, Cal.

Elliott-Brant Rancho Guernseys Are Persistent Producers

The results of our first two years of official testing show our herd to average 10,172.28 Pounds of Milk and 507.97 Pounds of Fat. One half of these cows were heifers with first calf who averaged 8,670.24 Pounds of Milk and 436.01 Pounds of Fat (only 7 pounds under the average of all A.R. records). Our mature cows averaged 12,710.5 Pounds of Milk and 621.52 Pounds of Fat (120 pounds over the average of the mature cows of the breed).

A bull from these cows will increase the production of almost any herd.

Elliott-Brant Rancho, - Owensmouth, Cal.

Poland Chinas, Medium Type

Choice breeding stock, both sexes, from Panama-Pacific International Exposition prize winning strain. 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to

M. Bassett
Hanford, Kings County, Cal.

BERKSHIRES

A few fine fall pigs, strong in Bandmaster, Masterpiece and Rival's Champion blood. They are strong and active with good top lines, heart girth and moderate heads. Glad to show them or send full particulars and prices.

MAPLEWOODE RANCH

E. M. HOLGE, Owner
HOMER HEWINS, Jr. Manager
Calistoga, Cal.

Forest Grove Duchess 5th

APOLLO ROOFING

Insures greatest *resistance to rust and corrosion*, and best protection from fire and weather. Specially adapted to farm buildings.

Made from APOLLO-KEYSTONE Copper Steel Galvanized Sheets—highest quality sheets manufactured. The added Keystone indicates that Copper Steel is used. These sheets are also unexcelled for Silos, Tanks, Cisterns, Culverts, Sheds, etc. Sold by weight by leading dealers. Send for free "Better Buildings" booklet.

AMERICAN SHEET AND TIN PLATE COMPANY, Frick Bldg., Pittsburgh, Pa.

Pacific Coast Representatives: United States Steel Products Co., San Francisco, Los Angeles, Portland and Seattle.

Grape Wild Farm
BERKSHIRES

ENTIRE HERD CHOLERA IMMUNE

Grand Leader 2nd

At P. P. I. E. on 18 entries we won 26 ribbons, including 7 firsts, 4 championships and premier breeder.

At 1916 State Fair—The get of Grand Leader 2nd won grand championship sow, and she sold later in the Congress sale for $500, the highest price ever paid for a California bred Berkshire sow. Grand Leader breeding also won first on get of sire, first on aged sow, first senior yearling, first junior yearling and second under-year sow.

A Sow Bred to Grand Leader topped the list at the recent Berkshire Congress sale at Davis, and one of his sons was recently sold at private sale by the University of California for $1500.00.

Present Sale Offerings—Ten service boars, 8 to 14 months old, at Farmers' Prices. We have the best and we want them in the hands of real farmers.

February and March Pigs are coming on fast and we can furnish boars and sows or trios unrelated.

We Can Furnish a Few Bred Sows, but we will hold the most of our young females to be bred for our August Sale of Bred Sows. Watch for the announcement later.

A. B. HUMPHREY, Prop.

Escalon, San Joaquin County, California

ANCHORAGE FARM

ORLAND, CALIFORNIA

Home of

Star Leader

Junior and Reserve

CHAMPION

Panama-Pacific International Exposition

HIGHEST TYPES

OF

PURE BRED BERKSHIRES

Request your storekeeper to supply the goods advertised in the California Cultivator.

it is a crime in these days of increase in the high cost of living to increase the tax thereon 700 per cent, and the actual price to the consumer a considerable increase above this tax.

"That the evidence is conclusive that the oleomargarine frauds are due entirely to the law permitting it to be colored in imitation of butter, and that the Underwood amendment, if enacted into law would restore the intolerable conditions that prevailed when the two-cent oleomargarine law was in effect.

"That if the real intent of this amendment is to raise revenue regardless of the unjust burden such tax would place on people in proportion to their poverty, then the government could raise as much honest revenue—if increasing the tax on the poor man's substitute for butter 700 per cent can be called honest—by inserting a clause in the amendment absolutely prohibiting the coloring of oleomargarine any shade of yellow whatever."

POLAND-CHINA STATE ASSOCIATION ORGANIZED AT HANFORD

Written for California Cultivator
By C. A. Briggs

ON Tuesday, March 6, at Hanford the Poland-China breeders of the state organized the California Poland-China Breeders' Association. The officers elected were W. F. Bernstein, Hanford, president; O. L. Linn, Modesto, vice president; R. H. Whitten, Los Angeles, secretary-treasurer; C. R. Hanna, Riverside; N. Hauck, Alton; H. I. Marsh, Modesto; Mark Bassett, Hanford, directors. The directors and officers form the governing board. Thirty-two members present signed the roll and paid their membership dollar. The association will hold a

Officers of State Poland-China Association

At the top, Wm. Bernstein, president; middle, R. H. Whitten, secretary; bottom, Mark Basset, one of the directors.

[Advertisement.]

Contagious Abortion

Appears in Highly Bred Herds of Dairy Cattle

The intense breeding and milking strain such cows are under makes them especially susceptible to this infection in its most dangerous form.

Careful breeders take no chances, as they know that in the past when Abortion has become prevalent in any herd it has taken years to stamp it out, Research men of the U. S. Government and other institutions assert that there is no absolute Abortion "cure," but that it can be controlled so that the loss of calves is stopped. No serum or vaccine has been found that gives any protection. These authorities all recommend that a thorough system of sanitation be followed on every farm, including treatment of bulls, cows, calves and buildings. This is the only certain means of controlling and preventing Abortion—Sterility — Premature Birth — Retained Afterbirth in cows and white Scours in calves. These all seem to be symptoms showing the presence of Abortion germs.

In the case of Abortion itself the germs inhabit and develop in the albuminous matter in the vagina and uterus. Used as an injection, the germicide Bacili-Kil (commonly called B-K) dissolves the albumin, cleanses the tissues and destroys the germs, B-K does not irritate, but is soothing and healing to torn membranes, and does not cause straining. Other substances such as carbolic acid, cresol, iodine, etc., are more or less irritating, do not dissolve albumins, but tend to coagulate or thicken them, thereby preventing destruction of the germs and through cleansing of the infected tissues.

B-K is a wonderful germ-killer. Its remarkable germ-killing strength is plainly marked and guaranteed on every package. B-K contains no poison, acid nor oil—it is clear and clean as water and as easy to use. B-K may be used freely in the drinking water, helping to destroy the germs which accumulate in the tanks; also helping to disinfect mouths, throats, and digestive tracts.

B-K is handy. You have in one jug, all ready for use by simply mixing with water, your treatment for calves, cows and bulls; also the best disinfectant you can possibly have for general use—no special mixing of various ingredients—saves trouble and mistakes — insures promptness, accuracy, convenience and successful results.

Contagious abortion is being successfully controlled in many herds by following our simple plan with B-K. One man writes: "I have been using B-K according to directions and the results have been very gratifying. My cows have every one passed the time for aborting and are calving all right in a natural way. I had lost $1,500.00 on my cows and feel that B-K cleaned up the trouble entirely."

B-K is sold by dairy and farm supply houses, druggists, general stores, etc., everywhere. If your dealer does not have it, send us his name.

Send for the "evidence" and these interesting, useful booklets founded on practical farm experiences.

Bulletin No. 52 Contagious Abortion—Prevention and Control
Bulletin No. 136 Calf Scours—How to Save Every Calf.

CLEAR and CLEAN as WATER

Awarded Gold Medal at the Pan-Pac-Expo.

GENERAL LABORATORIES

3100 So. Dickinson St., Madison, Wis.

B-K · B-K · B-K · B-K · B-K · B-K · B-K

consignment sale at the Sacramento state fair. The organization meeting and banquet was largely attended and great earnestness and enthusiasm prevailed. Addresses were made by W. F. Bernstein, O. L. Linn, R. F. Guerin, R. H. Whitten, D. O. Lively and James McCord.

The Poland-China men have long felt the need of a state wide organization and the move now made will advance the best interests of the breed and the breeders. H. I. Marsh of Modesto during his remarks made a hit when he said "The individual cannot advertise and boost a breed, but an organization can."

FIELD NOTES

S. F. Williams, Orland, reports sale of a registered Jersey bull to M. C. Finch and a Poland-China boar to Arthur Hughston.

John Burrell, Hanford, has sold two fine jacks, one to Peter Miller for $1250. This jack is Grand Duke, that was grand champion at Hanford in 1916. The other sale was to Adolph Camarillo for $3000. Mr. Burrell has a number of fine big boned jacks that are good to look at.

Many High Class Holstein Herds will be represented in the public auction sale of 20 registered Holstein bulls to be held May 24 at Chico, under the management of California Breeders Sales and Pedigree Company. To date the following herds have made consignments to the sale: University Farm, Davis; Fred W. Kiesel, Sacramento; A. W. Morris & Sons Corporation, Woodland; Bridgford Co., Knightsen; Henderson Co., Sacramento; Palo Alto Stock Farm, Palo Alto; Toyon Farm, Los Altos; and The J. S. Gibson Co., Williams. The dairymen of Northern California are thus assured of an exceptionally high class selection of bulls of breeding age in this sale.

Dr. J. W. Henderson, owner of the Bella Vista herd of Guernseys, reports some records of his herd. He writes: "The old dam, Clementine Mabel 19901 who recently gave me her 11th calf and is giving over 50 pounds milk daily in her 13th year. She produced four females, one a twin with male and sterile. Of her other three Golden State Beauty, her first calf, produced a bull calf which was first in his class at the California state fair 1913. Of her four daughters all have qualified for Advanced Registration and as they were from three different sires she can be accused of handing something down. Her last and only other son is a good one and goes into a good herd and will be heard from later. Beauty was never given an annual test on account of one of her teats being snagged with a barbed-wire but officially she produced 71.33 lbs. butter fat in a month.

J. M. Henderson, Jr., president of four banks and many corporations at Sacramento, still finds time to take up the gigantic task of organizing the dairy industry of Northern California. With characteristic thoroughness he has delved deep into the problem of cost of production, and he has already shown a great many dairymen the holes through which their profits are leaking out, and he has produced the figures which have convinced a large number that the dairyman is not receiving an equitable price for his product based upon actual costs of production.

C. B. Cunningham, president of California Swine Breeders Association, and owner of Billiken herd of registered Chester White swine, Mills, is having an exceptionally good demand for breeding stock. It has been interesting to note the progress of this herd over a period of years. To popularize Chester Whites in California in the face of prejudice and opinion as it existed among hog growers even up to three years ago, was a task of no mean proportions. But Mr. Cunningham tackled the job, went about it in the persistent and systematic manner that is characteristic of him, and while his efforts to date may not have established the Chester White as the most popular breed in the state, yet it is remarkable in how many widely separated points in the state one may now find Chesters that "came from Cunningham's herd." The breed has made good in California, and Cunningham has spared no expense in bringing into his herd the very best blood that has been developed in the sections of the country where the Chester White reigns over hogdom.

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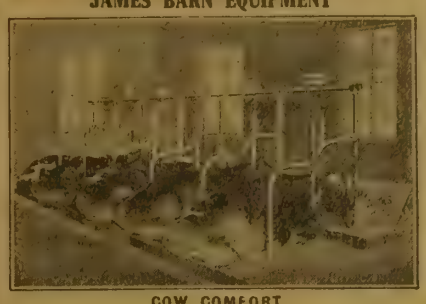

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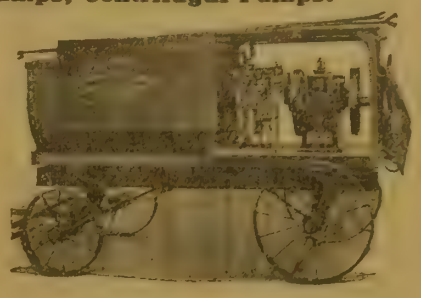

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Stephenson Farm Herd of Holsteins of Kenosha

at

Lake Mills, Wisconsin

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April 6 and 7, 1917

175 head of as fine cattle as ever entered the sale ring. This herd has been under the management of James P. Torrey for a number of years, and by his careful and judicious manipulation has come to be considered one of the leading herds of Wisconsin.

In this sale will be

116 descendants of Admiral Walker Prilly 72923, senior herd sire, who has 25 tested daughters, all as junior 2's and junior 3's.

60 of his daughters, 18 of which have yearly records.

10 yearling bulls from these year record cows.

40 sons and daughters of King Walker Pietertje Segis 127857, junior herd sire, one of the best bred bulls of the breed and a **grandson of King Segis,** whose grand daughters, Segis Fayne Johanna, with 50.68 pounds; Fancher Farm Maxie with 46.84 pounds, and Mabel Segis Korndyke with 40.32 pounds, have placed him in the limelight above all other bulls.

Auctioneers: Haeger, Kelly, Mack — **S. T. Wood in the box**

Write for Catalog to—

F. H. Everson, Mgr.

Lake Mills, Wis.

Ten Commandments for Hog Cholera Protection

1. Through the days of thy labors thou shalt remember that swine require special attention in the way of feeding, drinking, housing and general cleanliness.

2. Thou shalt keep daily vigilance over thy flock of wine, lest a portion become subject to cholera.

3. Knowest thou that cholera infection being of easy distribution over the land by rodents of the field, birds of the air and human agencies, it behooves the master of the farm and his attendants and their wives and children to pursue and flay, yea, even destroy pigeons, crows, buzzards, stray dogs and other animals that go from farm to farm; for the same reason, thou should not permit in visitation upon thy swine habitat, strangers, such as peddlers, agents and buyers, nay, not even thy neighbors, lest they introduce cholera and lead to the destruction of thy herd.

4. Watch thy neighbor as thyself, for often it comes to pass that cholera hath stricken his herd and he remaineth silent.

5. Should it come to pass that the scourge hath stricken thy herd, isolate the afflicted ones from the well, using a goodly portion of distance between.

6. Should death overtake one or more of thy porkers, thou shalt observe strictly the Biblical injunction, ashes to ashes.

7. When cholera is rampant over the land, be thou ever watchful of thine animals' habitation. Thou shouldst provide good wire fencing for the protection of thy swine, thou shouldst forever banish from thy doorstep, the filthy, germ laden wallow hole; thou shouldst keep thy hogs in good health, free from lice and worms and thereby resistant to any disease, including cholera.

8. Thou shouldst keep thy swine habitat clean and disinfected at all times, using plenty of slaked lime and crude oil and other recognized disinfectants around the premises.

9. And if these things come to pass and still thy breast be filled with fear lest the danger be imminent, betake thyself to counselors, wise in cholera lore, and take goodly counsel of these. They will instruct thee in the way of having thy swine made immune against cholera through the medium of vaccination.

10. In the time that vaccination hath become necessary and imperative to safeguard thy herd against cholera, thou art admonished to employ a competent person to apply the treatment, and be ye also certain that good potent serum be used. All these things shall be revealed by these counselors, and in the days to come thou shalt profit from the fruit of thy labors and thy nights shall not be spent in grief.

The Dairy Industry in Northern California

Written for the California Cultivator
By Leonard T. Kitts

THE call for dairy products is one of the most insistent, universal, and exacting of all the demands of trade. An infant necessity, a standard food, a common luxury, is the milk of the dairy cow. Dairying is often said to be "the backbone" of agriculture. Agriculture depends on the dairy cow more than on anything else for the best use of its roughage and for soil fertility. Dairying offers one of the greatest money-making opportunities in California for the simple reason that the local consumption is much greater than the production. Butter, cheese, and milk are being brought into the state in large quantities from other states and even from foreign countries.

With these conditions confronting us and the generosity of Mother Nature in bestowing upon us most favorable climatic and soil conditions, the opportunities for profitable dairying are greater in California than in any other part of the United States. For instance, alfalfa grows all the year and can be cut as many as six or seven times, yielding as high as nine or ten tons to the acre. Impoverished lands, a condition brought about in the old wheat farming days, have been re-

Continued on Page 338

GREATLY IMPROVED HORSE COLLAR PADS

Our new staple and felt reinforcing device gives the hooks a larger, firmer hold on the pad and keeps them from coming off easily. It adds to life of the pad and satisfaction of the user. This form of attachment is

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will reduce them and leave no blemishes. Stops lameness promptly. Does not blister or remove the hair, and horse can be worked. $2 a bottle delivered. Book 6 M Free.

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Laying hens lay more eggs on Milk Diet.
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Practical Poultry Building

Written for California Cultivator By Frank P. Penn, St. Helena

ON the average farm and with the average busy poultry keeper too little time is given to laying out definite plans for the new poultry house. Most of us get a vague idea of what we want and then start to work. By following such a course we materialize these vague ideas into a vague sort of poultry house and besides we are constantly running against obstacles which could have easily been avoided had we used our heads before we began to use our hands. To the beginner with poultry who contemplates building, he not having had the opportunity to study the needs of the hen, we would advise getting building ideas from some poultry publication, books, or state or national bulletins. Many good building points can be found in these building plans, and by borrowing from each we can build them into a house which will meet with individual requirements, no matter where we are situated or upon what manner of soil. Having just completed some poultry houses this building problem has been one of present thought with me.

Of even greater importance than the building itself is the location. Study your ground as to its natural adaptability for poultry keeping. These essentials are slightly rolling ground, porous, if not gravely soil, southern or eastern exposure with ample shade. Such a location is ideal and not always obtainable in each detail. However most of these can be found upon any fair sized ranch. Better have such a location than a fancy house. Proper location is an absolute necessity to the easiest success obtainable. Sloping ground gives proper drainage; porous soil does away with contamination; proper exposure is an ill preventive, so let Mr. Sun be your germicide.

For each 36 hens we have built a house of two pens of 18 birds each, intended for breeding yards and raising young stock after leaving the brooder. This house is 12 feet long, 7 feet deep, 7½ feet high in front and 4½ at the back. This gives you a scratching floor space of 21-3 square feet for each hen, which we deem ample for all practical need. This house being high roofed, as shed roofs go, at the back, enables one to put the perches at the back with nest boxes underneath, still leaving the floor free for scratching material.

The dropping board is made permanent like a table. The roosts are made of two inch boards nailed to two heavier pieces hinged at the back to the wall of the house, allowing the ends of the roost supports to rest on the dropping board some nine inches back from the front. In cleaning the dropping boards one has to merely raise the roost frames up and fasten them to the roof and he has everything clear before him. The droppings are raked into a box and carried to a place fixed for them outside the yards. This should be done, at least twice per week. The entire front excepting two feet down from the roof of this building is open, being covered with tightly stretched poultry netting. A drop curtain is conveniently rolled up in its place to be used during exceptional storms. Such a house having a roof projecting some two feet in front will remain dry under ordinary weather conditions without the use of the curtain and is very accessible to the sun's rays. Being on a slight elevation sloping to the southeast and facing the same direction it receives the morning sun entirely over its floor space and is protected from south and west winds and rains.

We would have no other than dirt floors. Here the hens can bathe in the soil after digging the grain out of the litter. What chance has the hen with vermin on our perfectly nice looking cement floors? No matter if some dust does fly as the hens take the much needed baths and in scratching. Dust is not at all healthy for vermin. We have tried earth, wood and cement, and of the three cement has the least to recommend it. And while on this line of thought let us guard against nice looking and personally convenient points of poultry house construction when these points are actually detrimental to the fowl's welfare and therefore our poultry profit.

Each of these pens has a large yard running back among the oaks. Do not stint your fowls for yard room.

Such a house as above described will cost much below $1.00 per fowl, which among poultrymen is a low estimate. It is practical, sanitary, sightly and easy of construction.

Is it not better to use an hour planning definitely what we desire our finished house to be than to grab hammer and saw and create an unsightly something which is not convenient for fowl or attendant. A commonsense poultry house will save us months of labor during its life.

STORRS EGG LAYING CONTEST

Storrs, Connecticut.—Report for week ending February 27, 1917.

In the seventeenth week of the laying contest at Storrs the hens made the biggest gain in any one week during the past two years. They laid a total of 3680 eggs, a gain of 617 over the previous week's yield and 659 eggs better than for the corresponding week last year. They are now farther ahead of last year's record than at any time during the contest.

The three best pens in each of the principal varieties are as follows:

Barred Plymouth Rocks

Fairfields Poultry Farms, 522; Jules F. Francais, 468; Rodman Schaff, 381.

White Wyandottes

Merrythought Farm, 577; A. L. Mully, 488; Brayman Farm, 465.

Rhode Island Reds

Jacob E. Jansen, 55; Geo. W. Harris, 513; Hillview Poultry Farm, 496.

White Leghorns

A. P. Robinson, 677; Hilltop Poultry Yards, 562; J. O. LeFevre, 552.

Miscellaneous

Koshaw Farms (Buff Rocks), 455; Obed G. Knight (White Orpingtons), 471; Cloyes & Sullivan (Buff Wyandottes), 450.

THE FREE POULTRY SHOW

One of the features which made the Missouri state poultry show so popular with the exhibitors and the general public last year was the free admission to the show room, and the officers have decided to again throw the doors open to the public, at this year's show which will be held in St. Joseph, December 5-9. This plan has been tried in a few eastern shows and received very favorable comment. Poultry shows are held for the purpose of competition to learn who owns the best birds in each variety, for the advertising value, which is very important.

The other purpose of a large poultry show is to develop trade for pure bred poultry, and a great many sales are made each year, to beginners who get the "poultry fever" when they see so many fine specimens on exhibition. The poultry breeder who has a lot of fine birds, but never exhibits them at the big shows, has to sell his surplus at market prices for lack of a buying public who would be glad to get some of his stock at remunerative prices if they knew what he had to sell.

In this department next week Prof. Dougherty of the university farm will report of results from electrically lighted hens.

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They would if you hatched them in a MODEL INCUBATOR and raised the chicks under a Model Hover. These machines are guaranteed result-getters.
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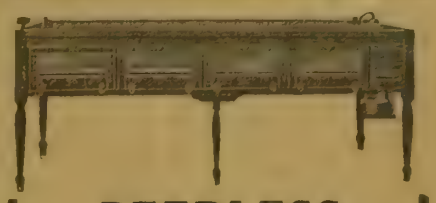

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Patented Features—Can't be imitated. Self-regulating. Costs 5c. or less a day to run. Write at once for our FREE Book. It will save you money.
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TREES

For Sale — Washington and Thomson Navels, Valencias, Seedless Grapefruit, Eureka, Lisbon, Villa Franca and Seedless Lemon, Harman Avocados. Buds were selected from the best bearing trees and will yield bumper crops. Also 40,000 Mission and Manzanillo Olives. The above stock is growing in Rialto, Whittier, Glendora and Fallbrook. Budding cloth 30c yard, post paid. No frost damage. We solicit your patronage. Prompt replies to inquiries. Cyrus W. Wilhite, P. O. Box 154, Glendora, Cal. Phone 303.

For Sale—Placentia perfection budded walnuts on Northern California Black root, Bartlett pears on Japanese blight resistant roots. Apples, peaches, plums, etc.; all true to variety. We have Roeding's new Gower Nectarines. Earliest and best of all. Prices on application. Los Nietos Valley Nursery, Downey, Cal. Phone 692.

Citrus Trees—All leading varieties. Large line, Lisbon & Villa Franca Lemon and Washington Navel trees. All first class and clean. Special prices to dealers or in carload lots to growers. Randall Bros.' Nurseries Co., Whittier, Cal.

Eureka Lemons—Healthy, nearly 5000 two years old. Buds from known heavy bearers of fancy fruit. Trees grown between young orchard and must be sold this year. Information cheerfully given. E. J. Vander Sluis, Glendora, Cal.

6500 Washington Navels, 7000 Late Valencia Orange trees ¾ up to two years old. Buds carefully selected. Stock thrifty. 30c each open roots, 38c balled f.o.b. Glendora. Wilbur K. Howard, Box 464.

Broad Leafed Mission and an extra early strain of Manzanillos. If you want the early ripening and early bearing kinds, we have them. Every tree guaranteed. Olives exclusively. H. Detmers & Son, Exeter, Cal.

Budded Avocados—All leading varieties. Address Mather's Avorado Nursery, 137 N. Fair Oaks Ave., Pasadena, Cal.

Citrus Trees—Fine stock, no frosted trees. Best root system. Any size desired. Get our prices on large or small orders. Nurseries at San Dimas. Main 3604. Smith Citrus Nurseries, F2729 315 Marsh Strong Bldg., Los Angeles.

Fine Large Satsuma Plums, Royal Apricots, Mission Olives, $10 per 100. Placentia Walnuts on black root, 50c up. All kinds trees, berries, ornamentals. A. R. Marshall's Nurseries, 5th and Broadway, Santa Ana, Cal.

For Sale 6000 Valencia Trees—One year old this spring. Buds from Performance Record trees in one of the best groves in the state. Write today. L. V. W. Brown, Riverside, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

Apricots and Olives—Royal Blenheim and Tilton apricots. First class trees. Large stock of Mission, Manzanillo and Ascolano olives. Balled or open root. No scale, no defoliation. C. E. Moyer, Hemet, Cal.

Roses 50 cents per dozen. Apple trees $6.00 per 100. Olives $4.00 per 100. Big stock fruit and ornamental trees and roses. Write for catalogue. Kavan Nurseries, San Bernardino, Cal.

Apricots Apricots Apricots
5c up, 5c up, 5c up, 5c up, 5c up.
The largest in the state to select from. Carsten Truelsen, Nurserymen, Hemet, Cal.

For Sale 23,000 trees. Valencia oranges, 18,000; Eureka lemons, 5000, all two years old, extra fine this spring. Frank R. Baxter, R. F. D. 1, Fullerton, Orange County, Cal.

For Sale—6000 fine thrifty two-year-old Lisbon lemon trees. Bud selection the best. Address Chas. Story, Rivera, Cal. Phone Whittier 4721.

For Sale—Excellent citrus trees, principally Eureka lemons and Marsh grapefruit, 2 years old. B. C. Dodson, Glendora, Cal.

Mission Olive Trees—Raised from my own bearing trees. This is only sure way to get what one wants. W. A. Hayne, Box 461, Marysville, Cal.

Olive Trees—Mission, Manzanillo, Ascolano. Propogated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, Cal.

Valencias, one and three years old. Eureka lemons, three years old. Selected stock. May A. Miller, Glendora, Cal.

25 CENTS—FEW HUNDRED VALENCIA TREES. ROBINSON CITRUS NURSERIES, SAN DIMAS, CAL.

Citrus Trees—All kinds, any quantity. Butler's Morning Side Nursery, Lamanda Park, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Quality Trees—Prune trees 10c each. Cash Nurseries, Sebastopol, Cal.

LUMBER

AAA—Lumber, New and Second-Hand; rough, $10 M; finished, $15 *A*R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St., San Francisco, Cal.

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Automobile Parts and Accessories, both new and second-hand, can be obtained from us for any make of car. We save you money and guarantee satisfaction. Standard Automobile Wrecking & Supply Co., 476 Golden Gate Ave., San Francisco.

HOGS

Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

The Billiken Herd of Chester Whites. The type that is ready for the market in from 6 to 7 months. Twenty bred gilts due to farrow in May and June. Four young service boars. Forty pigs, four months old, both sexes. Pork is going up every day; brood sows will be high priced by the middle of June. No advance in prices as yet; get busy and order now. Write for booklet, etc. C. B. Cunningham, Mills, Cal.

Send for Free Catalog—Finest ever issued. Tells of the famous Whitten Ranch money making strain of Big Type Poland-Chinas. Make greatest weight in shortest time at lowest cost, topping market at 225 lbs. in 6 months. 600 head, both sexes, all ages, reasonable prices. Satisfaction guaranteed. Ranch in Tulare County, but address owner, R. H. Whitten, 610B Security Bldg., Los Angeles.

Large Number of excellent young boars ready for immediate service. Weanlings of either sex. Sired by Joker, first prize boar at Wisconsin State Fair 1915. Sows and gilts, sired by Iowa Wonder and bred to Joker and Sunnydale's Chief. For prices and further information write to Geo. A. Smith, Corcoran, Cal.

Poland-Chinas—Twenty good gilts and three 2-year-old sows for sale. Either sired by or bred to I. B. A. Wonder, reserve champion at P.P.I.E. A few good young boars ready for service, sired by I. B. A. Wonder. A fine lot of fall pigs. I please you or refund your money. W. A. Young, Lodi, Cal.

HOGS WANTED—POLAND OR BERKSHIRE. FOUR OR FIVE SOWS OR LARGER NUMBER GILTS POSSESSING BROOD QUALITIES DOWN TO WEANLINGS. PURE BRED STOCK ONLY. WHAT HAVE YOU? C. T. JAMES, SAN BERNARDINO.

Cholera Immune Berkshires, August, Masterpiece boars. September values. Bachelor boars and November Ames Rival boars, $20 and $35 each. Fall gilts $25. All registered and out of choice dams. Prices for March only. W. H. Waugh, Riverside, Cal.

Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P.P.I.E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

Superba World's Grand Champion Poland-China boar and one of the greatest sires of the breed. Spring boars ready for service, also few sows bred to this noted sire, reasonably cheap. Rough's Greenfields, Arlington Sta., Riverside, Cal.

Registered Poland-Chinas, prolific, fabulous, profitable, porkers. Choice young boars now ready for service, $25 each, weanlings $15 each. Dr. J. A. Crawshaw, Hanford, Cal.

Thirty Medium Big Type Poland-China boars for sale. Shipped on approval. We will send a good one for $30 and a crackajack one for $50. Bernstein Ranch, L. C. Trewhitt, manager, Hanford, Cal.

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Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, Cal.

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Durocs—A few gilts of exceptional quality. H. E. Boudier, Napa, Cal.

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Big Type Durocs—Quick maturing, easy keeping. F. M. Johnson, Napa, Cal.

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I Have several pair of black tail deer for sale at $50 a pair. For particulars address Joseph Masters, Roseburg, Oregon.

CATTLE

For Sale—From 1 to 100 extra fine, straight, well marked, light colored, highly bred, registered Holstein heifers from 6 to 12 months old. They are rich in the blood of King of the Pontiacs, Pontiac Korndyke, Hengerveld De Kol, Rag Apple Korndyke, 8th, King Segis and other most celebrated sires of the breed. Prices very reasonable. Write Geo. A. Smith, Corcoran, Cal.

Registered Shorthorn Bulls for sale. I have just from Iowa, 30 registered Shorthorn Bulls, 4 of that lot are Herefords. I have 18 grade Shorthorns, all yearlings, and 2-year-old, all ready now for service, on my ranch, 9 miles northeast of Delano, Cal. Will make special price on car load lots. E. B. Armstrong, Earlimart, Cal.

For Sale—20 registered Guernsey cows, all milking, all bred to imported bull. Cows sired by Langwater Emigrant 14076, who is sired by a son of the great bull, Imported King-of-the-May 9001. Jethro Bass, all good producers and priced right. Herd absolutely free from disease. Middledale Farms, Creswell, Oregon.

Grandsons of Hengerveld De Kol and out of A.R.O. cows for sale. Prices reasonable. Write for pedigrees. Many years of constructive breeding has made my herd one of the prominent ones of the San Joaquin Valley. R. F. Guerin, Visalia, Cal.

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Have a Nice Registered Holstein bull calf from dam with 18.025 lbs. record. Is 3 years old. J. W. Benoit, Route C. Modesto, Cal.

For Sale—Ayrshire Bull, 4 years old February, Santa Maria Prince No. 16266 Ayrshire Breeders' Association. Bred by Brown & Brandon. Santa Maria Ranch Company, Watsonville, Cal.

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N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

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GIANT BRONZE TURKEYS

Let me tell you how to make more money on turkeys. Large turkeys can be raised at practically the same cost as small ones. It is in the strain. By scientific cross-breeding I have developed a strain of turkeys which mature rapidly, and attain unusually large size by holiday time. You can introduce some of this blood into your flock and make money by it the very first year. Gold Nugget strain wins again. At Pacific Coast largest shows, 1916, the California and Arizona State Fairs and San Diego, also the great Los Angeles Show 1917, eleven prizes eleven entries. Stock and eggs from my flock should put you in the Giant Bronze Turkey lead in your locality. Toms for sale, also eggs. Write for circular. Raised on 320-acre farm. Address J. Will Blackman, 607 East Third St., Los Angeles, Cal.

Bourbon Red Turkeys—Blue ribbons at Panama-Pacific, California and Arizona State Fairs, Los Angeles, since 1914. Eggs for April delivery, $5.00 per 12. Mating list. The Ferris Ranch, S. Reservoir, Pomona, Cal.

DOGS

For Sale—Ten English bloodhound puppies, $10.00 if taken when weaned. Both sire and dam registered in A.K.C., also pups 6 months old for $20. M. A. Watson, Lucerne Valley, Cal.

POULTRY

Cecilian Buttercups, Silver Spangled Hamburgs, Speckled Sussex, Single Comb Rhode Island Reds and White Rocks. Winners at the best shows for years, including Panama-Pacific and last Oakland show. Eggs from $1.50 to $2.50 for 15. Write for particulars. G. L. Wakeman, 411 Euclid Ave., Oakland, Cal.

Book Your Order for White, Buff or Brown Leghorns, Anconas, Barred Plymouth Rock or White Wyandotte chicks with Kokohi Hatchery, 19 Center St., Watsonville, Cal.

White Leghorn Hatching Eggs — Our strain "bred-to-lay". Reduced prices, March and April. Rush orders. No chix. Pine Tree Farm, Los Gatos, Cal.

Hatching Eggs and Chix—Thoroughbred Hoganized White Leghorns; eggs $4 per 100; chix, $10. D. Clayton, Modesto, Cal.

POULTRY

Baby Chicks, hatched from my own carefully selected and Hoganized flock of S. C. White Leghorns, $10 per 100, $95 per 1000, hatch eggs $5 per 100, $45 per 1000. I have built up a very good, purebred and vigorous flock of S. C. White Leghorns during the last 12 years, and as I use hatch eggs from my own flock exclusively and only from hens that are two and three years old, I can furnish a good, vigorous, thoroughbred chick at a reasonable price. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal., San Luis Obispo County.

White Leghorn and Brown Leghorn day-old chicks from healthy, vigorous breeders. Per 100, March, $10, April and May, $9.00. Reduction in larger lots. "Chicks well hatched are half raised". San Jose Hatchery, 371 Meridian Road, San Jose, Cal.

East Side Poultry Yards, established 1904. Our object, egg type and size for ideal utility stock, thoroughly Hoganized, baby chicks, correctly hatched, dozen or thousand. White Leghorn 10c, R. I. Reds 13c in February. After that cheaper. Satisfaction guaranteed. 255 S. 18th St., San Jose, Cal.

Penn's Quality Rocks and Reds—Specializing in strongly vitalized hatching eggs from a selected few of our well known Barred Plymouth Rocks and S. C. Rhode Island Reds. Eggs $7.00 per 100, $1.50 per setting. Golden Rule Poultry Farm, St. Helena, Cal.

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Baby Chicks from mothers with 180 to 240 eggs each per year. S. C. White Leghorns, the best ever, $10.00 per 100, $90 per 1000; also Mammoth kale plants for sale 35c a hundred—$2.50 a thousand. Delivered free. A. P. Ward & Son, Box 100, Calistoga, Cal.

For Sale—Ancona and Buff Leghorn Eggs, $1.50 setting, $7.00 hundred; none better, delivered at Germain's, Main St., Los Angeles. Ancona cocks, 1 and 2 years old, fine large birds. Sunset Poultry Yards, 1431 Sycamore Ave., Glendale. Home phone 1075.

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Lynnhurst Leghorn Layers Guaranteed pure bred S. C. White Leghorn chicks $12 per 100, $100 per 1000. Hatching eggs booklet. Lynnhurst Poultry Ranch, 631 Penna Ave., Riverside, Cal.

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Buff Orpingtons—Buff Leghorns. Winners at Riverside, San Diego, Los Angeles in strongest competition. Eggs, settings and incubator lots; chicks for April and May. Free mating list. The Ferris Ranch, S. Reservoir, Pomona, Cal.

Model Poultry Farm, White Leghorn specialists. Baby chix and hatching eggs from heavy laying stock, bred by us for thirteen years. Our prices are right. W. C. Smith, Pron., Corning, Cal.

Mrs. R. E. Allen's beautiful prize Columbian Wyandottes, winners at Boston, San Diego, Los Angeles shows. Unexcelled for eggs, broilers and table use. Stock and eggs for sale. Fullerton, Cal.

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Quality Single Comb White Leghorn Chicks and eggs for hatching. Utility strain. Bred to pay. Write for prices. Quality Egg Ranch, Artesia, Cal. Phone Artesia 5017.

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Black Minorcas—Largest egg, whitest flesh. Eggs $1.00 per 13, $5.50 per 100. Edward A. Hall, R. F. D. No. 1, Watsonville, Cal.

Baby Chicks—White Leghorns, Brown Leghorns, Reds, Barred Rocks, Black Minorcas, Anconas. Prices on application. Orland Hatchery, Orland, Glenn Co., Cal.

Petaluma Hatchery, Established 1902, Capacity 16,000 chicks a week—the kind the hen hatches. Five varieties. Send for free circular. L. W. Clark, Petaluma, Cal.

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Baby Chicks, White Leghorns, from healthy, vigorous, heavy laying, two-year-old hens. Satisfaction guaranteed. John F. Forney, Kingsburg, Cal.

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Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Rural 1, Sonoma, Cal.

POULTRY

Extra Quality White Leghorn Chicks 12c each until March 1, then 10c. Carefully line bred from MacFarlane, Young, Cyphers and Martin strains of foundation stock. Eggs $1.50 per 15, $2.50 per 30, $5.00 per 100, $50 per 1000. Acres of free range connected with our breeding pens, 20,000 feet under roof. Only Jubilee incubators used, disinfected every hatch. Don't save 2c per chick in buying and lose a dollar per pullet in raising, get the best and succeed. Newton Poultry Farm, Dept. 3, Los Gatos, Cal. Catalogue free.

Roofden Ranch Chicks are well hatched from first class utility breeding stock; money making egg producers our aim, and the prices are right. 7 to 14c, depending on breed, month, quantity (dozen to thousands). White, Buff, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks. For Dollars and Sense. Send card for circular. Roofden Poultry Ranch and Hatchery, Campbell, Cal.

The J. K. Bigelow Poultry Ranch and Hatchery, 300 acres devoted to superb vigorous selected White Leghorns. The greatest egg farm in the West. Bigelow chix are incomparably superior to the product of commercial hatcheries. Price same as former seasons, 10c each till April 1, 9c during April and May, 8c thereafter. Shipped on approval; examination before paying. The Bigelow Poultry Ranch, R. R. No. 2, Sonoma, Sonoma Co., Cal.

Highest Class—Winners at State Fair, Oakland, Modesto, Reno—White Rocks and White Leghorns. Incubator chicks. Rocks $25 per 100; Leghorns, $10 per 100. Hatching eggs $2.00, $5.00 and $10.00 per 15, according to quality. Rock eggs $10 per 100. Leghorn eggs $6 per 100. From range flocks. The best of stock and a fair deal. Mahajo Farm, P.O. Box 597, Sacramento, Cal.

The Reliable Poultry Exchange invites your correspondence on the Baby Chick business. We can start you RIGHT with strong, sturdy chix from the best thoroughbred flocks in Southern California. Also the best of breeding stock in poultry, rabbits, pigeons, of all kinds, etc. 741 Los Angeles St., Los Angeles, Cal.

Baby Chicks and Eggs for Hatching from pure bred McFarland strain of carefully culled and Hoganized stock; bred-to-lay S. C. White Leghorns, $8.50 per 100 and $80.00 1000, shipped on approval. Sonoma Valley Hatchery and Poultry Ranch R. F. D. 2, Sonoma, Cal. Box 48.

Farmers, sell your scrub stock and order some thoroughbred White Leghorn or Rhode Island Red Chicks from us. Leghorns $10 per 100, Rhode Island Reds $12.50 per 100, from March 20 to July 1. Brooke Farm (Rancho Del Paso), Office 807 J Street, Sacramento.

Our White Leghorns made official 202-egg records, pen average, in a state college test last year. Oregon agricultural college purchased two of these hens. Eggs $6.00 and $8.00 per 100 from trapnested layers. O. Hudson, Escondido, Cal.

Baby Chicks—Hatching Eggs. White, Buff, Brown Leghorns, R. I. Reds, Barred Rocks; sturdy chicks from well mated fowls. Prompt, efficient service. Write for circular. Campbell Poultry Ranch, Campbell, Cal.

Kellerstrass White Orpington and fertile Mammoth Pekin Duck eggs for sale, $7.50 per 100, $1.50 a setting. Also young hens and ducklings. Lehmann, 1874 Avon St., Los Angeles.

Baby Chicks and Eggs for Sale—Hoganized Cyphers strain of Barred Rocks and McFarland strain of White Leghorns. I. B. Williams, Route "B", Box 13, Kingsburg, Cal.

Baby Chicks from select free range White Leghorn stock. Place orders now for early delivery. Prices on application. Western Hatchery, Petaluma, Cal. W. S. Waldorf, Proprietor.

Black Leghorns—Eggs for hatching from prize winning stock; can supply in limited quantity only. Write for information. Otto Nielsen, Rt. E, Box 287, Fresno, Cal.

Selected S. C. White Leghorn and Barred Rock eggs for hatching, from hens typed to lay 200 to 260 eggs per year each. $6.00 per 100, $1.50 for 15. Jay Maxwell, Madera, Cal.

Hatched Chicks For Sale—Barred Rocks, R. I. Reds and White Leghorns. Strong, vigorous chicks. Send for circular. G. L. Hawley, Madera, Cal.

Eggs for Hatching—Ancona eggs $1.50 per 15, $6.00 per 100. Barred Plymouth Rocks. Eggs $2.00 per 15. H. A. Lowd, Winters, Cal.

Rhode Island Reds—Dark red, vigorous, heavy layers. Eggs by setting or hundred. John Reed, Route C, San Jose, Cal.

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Choice White Minorca Hatching Eggs—America's finest breed. Mating list free. Leech Poultry Yards, 1170 West 37th Place, Los Angeles, Cal.

Pure Bred White Rocks, White Leghorn chix, quackless White Muscovy ducklings, Embden goslings. White Star Hatchery, Kerman, Cal.

Chicks and Settings from Prize Winners—Houdans, Barred Rocks, S. L. Wyandottes, Black, Buff, White Orpingtons, Reds, Black Langshans. C. L. McGee, 1635 Julia, South Berkeley.

Incubators—Essex Model Incubators at factory prices. Write Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco. Poultry supplies.

Barred Rocks, eleven grand pens. Quality and satisfaction assured. Mating list on request. Cameron Bros., R. D. 4, Box 76, Sacramento.

For Sale—S. C. White Leghorn Chicks and hatching eggs. Monitor Egg Ranch, R. 1, Box 211, Inglewood, Cal.

Chicks For Sale at C. A. Gray's Hatchery, Lemoore, Cal. Brown, White Leghorns, 10c.; Anconas, Rocks, Reds, 12½c.

Silver Campine Setting Eggs. Utility stock, $2.00 for 15. B. W. Taynton, 3022 Shattuck Ave., So. Berkeley, Cal.

FARM LANDS FOR SALE

10 Acres, irrigated, 4-room house and barn, chicken houses, 2 miles out, $2000. 30 acres, irrigated, checked, nearly new cottage, 40x52 barn and tankhouse, with concrete floors, other outbuildings, fenced hog tight, $6500. 80 acres, on Highway, 2 miles out, very level, for alfalfa, corn, rice, $10,000. 145 acres, on river front, nothing better anywhere for walnuts, prunes, etc., 55 acres alfalfa, complete dairy, electric light and power, subdivision 1 mile selling at $250. My price $125 per acre. 640 acres, level and rolling, house and barn, finest soil for almonds, lands nearby selling at $75 and $100. My price $30 per acre. 720 acres in foothills, 15 miles from R.R., easy auto and stage road, 150 acres has been plowed, 35 acres alfalfa, 3000 cords of wood in large trees, no brush, 7 room house, barn and other outbuildings, windmill, garden and some fruit. A pretty and very cheap place at $15 per acre. JOHN C. MOGK, Colusa, Cal.

An Exceptional Opportunity to secure the most beautiful picturesque income fruit farm home in Santa Cruz County; owner is called East to look after large estate and will sacrifice 48 acres located in foothills of Pajaro Valley, 8 miles from Watsonville; 30 acres cleared; richest black redwood loam soil, about 20 acres in fruit, apricots, prunes, apples and cherries; modern 7-room bungalow, baths, sleeping porches, etc.; beautiful flower garden, lawn, shrubs, palms, etc.; 20 fine orange and lemon trees, many rare tropical plants; mountain trout stream traverses boundary; entrance over rustic bridge from main country level road; garage, barns, packing house, full, up-to-date farm equipment, horses, wagons, etc., all included. Price $12,500; no trade. It's different from anything in the state. Get full details. E. Steinhauser, 467 Main St., Watsonville, Cal.

FREE ROUND TRIP TICKET TO HONOLULU OR TO PANAMA CANAL—FIRST CLASS
You choose steamer and hotel. Berth and meals included on steamer and 5 days' room and board in best hotel. For a limited time I will give FREE any one of these trips with every 20 acres of my Sacramento River Bottom Silt Lands purchased from me. Proven BEAN LAND. Enormous bean crops grown last year without irrigation. FORTUNES MADE. No guess work or experiment. Price and terms based on intelligent farming judgment and actual returns. It costs nothing to investigate. I mean business. If you do, write me for appointment. Land Appraiser and Adjuster, 208 Raymond Bldg., Franklin at Market Street, San Francisco.

Apricots Net $20 an Acre Annually in the foothills of Pajaro Valley. No irrigation, no frosts. We have to offer 200 acres ideal cot land, 2 miles from town and R. R. station; all now in two-year-old, thrifty apricot trees and adjoining full bearing cot orchards that have netted yearly for the past 8 years an average of $175 an acre. We can sell this in lots of 20 acres or more at $125 an acre and on easy terms. Nothing can beat this as an investment. It's better than life insurance. Write for full details, government soil survey, etc. Farm & Forest Realty Co., Watsonville, Cal.

For Sale—Orange County ranch, 167 acres with good improvements and in good state of cultivation. Water conditions excellent. Artesian wells and pumping plant both. Located ¾ mile from village of Westminster and ¼ mile from Orange County's fine highway running from Long Beach to Santa Ana. Property clear and title perfect, but on account of peculiar circumstances of ownership this land is for sale under value just now and never offered before. W. F. Marks, 226 S. Main St. Phone Main 1499, Los Angeles.

For Sale—320 acres fine sandy loam soil, 5 miles northeast of Modesto, 1½ miles directly south of Riverbank in Modesto Irrigation District. Average yearly water costs less than $1.00 per acre. Land suitable for alfalfa, grapes, deciduous fruits or farm trucking. Will sell as whole or in 20-acre tracts. Average price $150 per acre. Special inducements to possible purchaser of entire tract. Will make suitable terms to parties buying for improvements. B. F. Kierulff, 757 S. Los Angeles St., Los Angeles.

For Sale or Trade—185 acres rich land at Puente, near Covina and Valley boulevards, consisting of 30 acres, suitable for farming; 85 acres pasture and 70 acres in 60,000 seven-year-old eucalyptus, grove estimated worth $20,000. Two wells, plenty water, house and barn, adjoining lands in orange and walnut groves, beans and grapes. Will include home place of 5 acres adjoining if desired. Prof. Wm. Malcom, Puente, Cal.

For Sale—80-acre improved foothill ranch, 12 miles east of Porterville. 30 acres citrus land now in wheat; 15 acres alfalfa land; hog fencing; pasture; timber; river; railroad adjacent. Modern new house (furnished if desired), gas plant, furnace, etc. Five outbuildings; implements; live stock. Nothing delapidated. Ideal place for country life. Sacrifice $25,000. $17,000 will handle. Address New, Box 3, California Cultivator.

Oregon & California Railroad Co. grant lands. Title to same revested in United States by act of congress dated June 9, 1916. Two million three hundred thousand acres to be opened for settlement and sale. Power site, timber and agricultural lands. Containing some of best lands left in United States. Large sectional maps showing lands and description. Price $1.00. GRANT LANDS LOCATING CO., P. O. Box 610, Portland, Oregon.

Sonoma County, the home of the satisfied orchardist, chicken rancher and diversified farmer. Best markets, best climate, best land. Satisfactory terms. L. J. Lowry, Santa Rosa.

For Sale—12 a. 17 miles east of Los Angeles. 9 a. alfalfa. Independent pumping plant. Plenty water, $6500, $2500 cash, balance terms 6 per cent. M. Everham, 725 Laurel Ave., Pomona.

For Sale—12 acres rich bottom land near Corona. Suitable for gardening or alfalfa. Small pumping plant. 100 inches water. Easy terms. Box 106, Arlington, Cal.

Up-to-Date Poultry Plant—Near Laveaga Park. Write owner for particulars. No agents. Address Box 595, Santa Cruz, Cal.

FARM LANDS FOR SALE

Attention, Mr. Dairyman—If you own a herd of good dairy cows and are now renting your land, we will sell you good alfalfa land, WITH NO PAYMENT DOWN, and with interest at 6 per cent payable annually. Water in abundance. Rental $1.00 an acre for season. Lands are U. S. Government irrigated, at Orland, Glenn County, California. A. B. Aitken (Selling Agent). (A resident of the valley since 1858). Dealer in Sacramento Valley Lands. 1701 "J" St., Sacramento, Cal.

For Sale—20 acres orange land in Tulare County. Ten acres two years to late Valencia and 10 acres ready for planting or will exchange for good general farm land in suitable location. San Luis Obispo County preferred. Address P. O. Box 45, Soldiers' Home, Cal.

Free New Blue Booklet.—Tells how to use your 9 rights, obtaining overlooked, covered-up, well located, bargains in STATE, SCHOOL, GOVERNMENT land. Maps. Write California State Land Information Bureau, Sacramento.

Stock Ranches — All sizes and prices. Write Low Priced Land Co., Pacific Grove.

Free New Blue Booklet—State, government and Indian lands. Bargains overlooked. Joseph Clark, Sacramento.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit", It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

Second Hand Pipe For Sale—All sizes standard water pipe and screw casing, half inch to ten inches. Also valve and fittings. Guaranteed good as new. Cheap for cash. Write for our prices. Weissbaum Pipe Works, 169 Eleventh Street, San Francisco.

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Household Department

ST. PATRICK'S DAY

'Tis springtime in old Ireland,
My homeland far away,
Where all the flowers are waking,
And all the fields are gay.
But, oh, this lonely heart of me,
The ever faithful part of me,
Is throbbin' with its sobbin'
This lone St. Patrick's day.

'Tis springtime in old Ireland.
Though far from there I stray,
I hear the lark's song ringing,
Its sweet notes with me stay.
But, oh, this weary soud of me,
Beyond all control of me,
Is burnin' with its yearnin'
This lone St. Patrick's day.

'Tis springtime in old Ireland.
But here the skies are gray,
And memory wakes a sadness
That time cannot allay.
The heart, and soul, and mind of me—
Acushla; 'tis the kind of me—
Are throngin' with their longin'
This lone St. Patrick's day.
—Youth's Companion.

A beautiful home means a simple one. Too often we get the idea that a lavish outlay of money is indispensable when really it is not at all necessary or even desirable.

THE STORY OF ST. PATRICK

THIS is one of the many stories told of the life of the good St. Patrick whose birthday is coming to be more and more generally celebrated on the 17th of March—the 17th of Ireland as some good Irishmen call it.

"To begin with, he was born about the year 387 A. D. at Boulogne-Sur-Mer and was named Succat by his father, who was a deacon, and was a nephew of our beloved St. Valentine, whose birthday we celebrate on the fourteenth of February. He led the usual life of little French boys, playing games, sailing kites and indulging in the pastimes of that day, until he reached the age of seventeen years, when a band of pirates captured him and sold him to the great Irish king, Neall Mor, or "Niall of the Nine Hostages." The king, after his conquests in Britain and France, returned to Ireland, taking his captive with him, and hereafter the boy became known by the Roman name of Patricius.

"For six years he attended the sheep on the hillsides, but history does not tell us whether, like Little Bo Peep, he lost any of his flock or whether he was a good shepherd; but once while minding his flock a strange hermit appeared before him and presented him with a staff. Resting on it he went to sleep and dreamed that he saw a ship approach the shore and heard a voice tell him it had been sent to take him home. Shortly after this dream such a ship arrived and he boarded it and sailed for France, where he became a priest or monk, and when the Pope heard of him he sent him back to Ireland to become a missionary to the people with whom he was familiar.

"Taking his magic staff with him, he reached Croagh Patrick, where he was immediately assailed by demons, so he gathered all the serpents, toads, and all manner of venomous creatures together and with his magic staff drove them into the sea, where they were destroyed. From that day Ireland has been fre from any venomous serpents.

"St. Patrick next began his work amongst the inhabitants of the country. He found them worshiping snakes, the sun, the moon and fire, and their priests offered up human sacrifices—usually a girl or boy—when they wanted a special gift from their god. These priests were called Druids—from deru, an oak—as the oak was reverenced by them and their services were held beneath its spreading boughs. Their altars were decorated with mistletoe and were always in the deepest, wildest part of the forest. St. Patrick began to teach them to give up their idols and spectres, and to turn to the only true God. In order to do this he used his magic staff to work miracles. First, he caused their fertile lands to become bogs—like our swamps. Then he destroyed all the fish in the rivers; next he charmed the fires so that while they made a bright blaze, they would not boil their kettles, and as they did their cooking in these kettles in the open air they had no cooked food to eat. Finally he cursed the earth and it opened up and swallowed all the Druids. No longer troubled with them or the demons, he preached to the people and converted them, laboring as a missionary for thirty years. He lived to be one hundred and twenty-five years old.

"In one of his sermons he used the little shamrock leaves, growing at his feet, as an illustration. From that time it became Ireland's emblem, and though he has now been dead a thousand years, every child of Erin wears it in his honor on the seventeenth day of March."

ST. PATRICK

"Along about the time when Ireland annexed America—whenever that was—St. Patrick became the patron saint of America, and the patronage still continues," writes Chester Rowell in the Fresno Republican. He continues: "So let us acknowledge the annexation, and be proud of it. Sure it was no dour fairy that annexed us to Ireland, but a blithe and kindly one, that knew our needs. Many things we had, but of laughter and tears and quick wit and quick temper, and the fire

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and light and brightness of life our Puritan ancestors had bequeathed us less than enough. Ireland—blessed be St. Patrick—supplied the deficiency. So we will all wear shamrocks today, and it will not be unpatriotic or unneutral if some of us also whistle 'The wearin' of the green.'"

SALADS AND DRESSINGS

With the coming of the first warm days there is an especial appeal to the palate in a salad that is a little different. Here are some suggestions:

Lemon Jelly Fruit Salad

Soak half a package of gelatine in one cup of cold water for an hour, then add half cup lemon juice and two cups boiling water. Turn into bowl, and when jelly is set, with a warm spoon scoop out the jelly, leaving a shell an inch thick. Fill this with a mixture of oranges, tart apples and celery which have stood in a French dressing for a few moments. Cover with liquid jelly and when stiffened and ready to serve, turn out on leaves of lettuce in a shallow salad bowl. Serve and garnish with mayonnaise dressing.

Savory Salad Dressings

The usual salad with French dressing is too seldom varied. With a little pains the dressing may be changed. The gist of the whole matter lies in the vinegar. The experienced salad maker experiments with many different flavorings, keeping several cruets ready all the time. Tarragon vinegar, vinegar which has stood on crushed celery seeds and a bay leaf, or which has had dropped in it two or three cloves of garlic, all give a different flavor. A tablespoonful of chopped mint or a dash of Worcestershire gives what is known as English dressing. Italian calls for much onion, and Japanese for soy. Lemon juice gives a delicate flavor, and even a sprinkling of some spice like mace makes an entirely new and delicious flavor.

Fruit Salad Dressing

Two eggs, one-quarter cup each of lemon juice and sugar. Beat the eggs, add the other ingredients and cook in a double boiler, stirring constantly until the dressing commences to thicken. Cool and pour over sliced fruit any combination desired.

Without Oil

A yolk of egg beaten thoroughly with a saltspoon of salt, a teaspoon of mustard, one half of saltspoon of pepper and a whole teaspoon of white sugar. Mix in gradually thick cream to make dressing of desired flavor, and lastly work in a tablespoon of vinegar drop by drop.

OUR HOME GARDEN

Written for California Cultivator
By Clara I. Remington, Los Angeles

TWO years ago my husband and I purchased our present home, a "half acre" lot, 150x120, sandy soil with six full bearing walnut trees, which yield us an income of $20 a year. We set out a number of two year old fruit trees, which will bear this year for the first time. My husband does the heavy work, such as plowing, etc., while I do most of the planting, irrigating and cultivating. It has been my first experience in gardening, being city born and bred and an ex-business woman. Of course, my first desire was to plant a little of everything, but experience has demonstrated that while some things do exceptionally well in our soil and locality, others are almost a complete failure.

Of those crops which are permanent, and need little care, outside of pruning, thinning out and fertilizing, we have blackberries, blackcap raspberries, strawberries, rhubarb, asparagus, parsley and chayote. Carrots are in the ground the year round and cabbages are always growing from occasional plantings. Lettuce we enjoy from early spring to late fall, as well as White Icicle radishes. Have a thrifty patch of onions this winter as a result of sets planted in October.

Last year we dug three sacks of Irish potatoes and one of sweet potatoes. Our fall crop of Irish potatoes was killed by the early frost, which also destroyed our late corn crop and our bell peppers, which were carried over from the previous year. Will try pimientos this year. This frost also finished our chayote vine for the season. I planted corn, beginning with Adams Early in February, following

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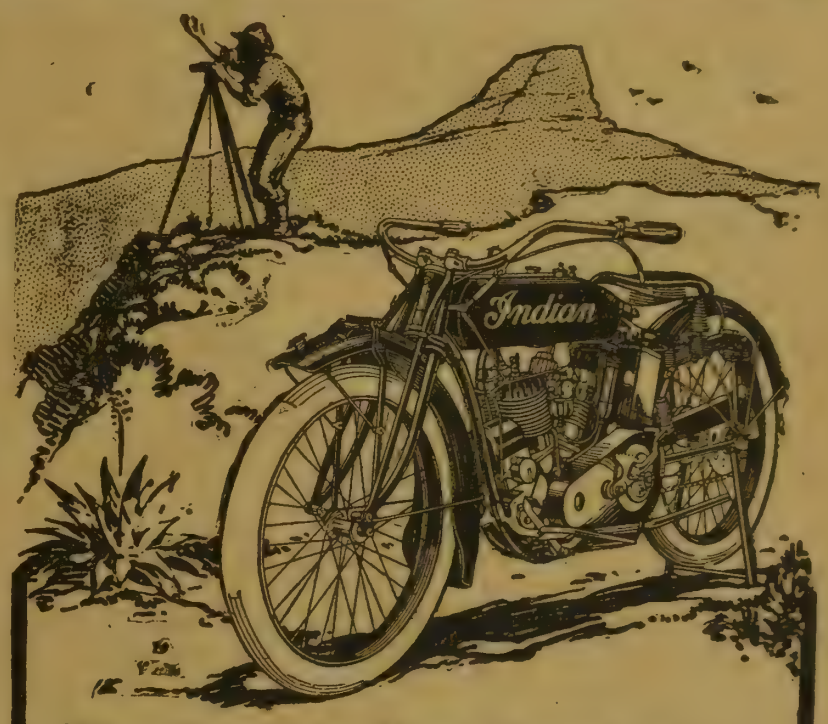

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BUY NOW—Lb 50c; 10 lbs. $4.00; 100 lbs. $35.00

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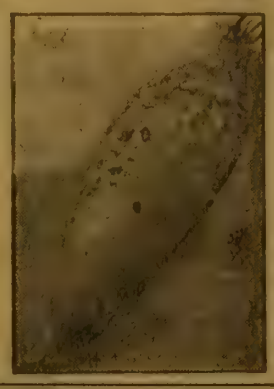

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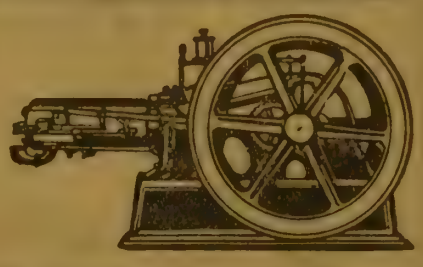

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with Country Gentleman and Oregon Evergreen, every two weeks until August, and had it in abundance for the table and canned six quarts. Kentucky Wonder beans was another splendid crop, of which I canned 20 quarts out of the surplus. Lima beans and wax beans did fairly well.

Will plant many beans of different varieties this year with a view to drying most of them. This is a most economical and satisfactory way of carrying things over when possible. I dried celery leaves with great success. Intend to raise herbs, such as sage, mint, thyme, etc., to dry.

Tomatoes are my faithful friend. We have been enjoying them all winter as the result of my 70 quarts put up, not to mention what we ate fresh and cooked in every variety of dish, and eight pints of picalilli made from the green ones. I raised some peas but expect more this year from what I planted last fall and winter. Last year I raised ten pounds of peanuts, while I raised enough popcorn the year before to last both winters.

I made a very successful attempt at raising celery, but much of my crop was stunted by beet nematodes whose identity I just learned through the columns of the Cultivator and which evidently have possession of my place, for I find them on carrots. They ruined my beets last summer when I didn't know what ailed them. It's rather a blow to be up against something I cannot trap, spray or otherwise poison.

My fall planting of spinach, though small, yielded well, and I will double my crop of this wonderfully healthful vegetable this year. A few small heads of cauliflower and two good sized pumpkins but fired my ambition to bigger efforts next season. Cucumbers, summer squash, casabas and watermelons, while they can be grown nicely here, were not a success, due to black aphis, but the first two are neither one a favorite dish with us, and melons, too, take up so much room and come at a season when fruit is so plentiful that we scarcely miss them. Kale, Swiss chard and alfalfa we raise for the chickens and rabbits.

Handicaps are everywhere on our little place. With the spring comes a voracious army to contest our rights to everything grown; ground squirrels, gophers, moles, cut worms and other chewing bugs, worms for cabbage, lettuce and tomatoes, red spider, nematodes, aphis of all sorts and kind and ants of every variety—and a soil which needs vigilant irrigation and cultivation. I am ready for the enemy this year with a good supply of ammunition and an effective spray pump.

Outside of my flower garden, cooking, bread-making, sewing and other household duties, my kitchen garden will ever be my most absorbing and fascinating interest. What it has meant to us as a source of food supply and what it has accomplished for me in the way of restored health cannot all be told here.

In spite of the fact that 100,000 names have been submitted for the new Peeled Peach, which the California Peach Growers (Inc.) is putting on the market, no name thus far received has been exactly what was desired. Much originality and many splendid ideas have been submitted. Many of the words were at first sight "just the thing," but when analyzed from every angle as to their appropriateness and suitability from an advertising standpoint, they have one by one been eliminated and the directors have decided to retain the name "Blue Ribbon Peaches" exclusively for the peeled article. The fact that the peaches are peeled will be brought out in the advertising.

Pardon us, but we believe "Prepared" beats "Practically Peeled".

The General Chemical Company is a corporation with $40,000,000 capital. They are the largest manufacturers of chemicals in the United States.

One of its departments is the furnishing of remedies for the diseases that affect fruit trees and for the killing of insects that injure the crops. These remedies, which they supply, are the result of laboratory experiments by chemists of international fame. As their brands are national they must be protected.

To that end they maintain a service bureau in San Francisco in charge of S. W. Foster, an entomologist for many years in the service of the government stations in California, investigating and solving orchard problems under Western conditions. He is, therefore, thoroughly familiar with orchard conditions of the West, and in position to furnish reliable information and directions for the most efficient control of insect enemies and fungous diseases.

A Yuba Tractor

coasts like a sled. Most of the power generated by the engine, is delivered at the draw-bar—where you need it.

The rigid steel frame travels over highly polished steel balls. The track is rigid—and there's no slack to take up—the force isn't wasted—it's conserved.

Write for the catalog.

YUBA MANUFACTURING COMPANY,

Department B7

433 California Street, San Francisco

ALFALFA SEED

Sweet Clover Seed

Get Samples and Prices

Western Soil Bacteria Co.

112 Sansome St. SAN FRANCISCO, CAL.

"Breeders of Westrobac."

IRRIGATION Preparedness

Wouldn't it be a rather good plan after a prosperous year to replace your old uneconomical plant with a newer and better one? Let us furnish it.

Or perhaps all your engine or pump needs is a good overhauling. Let us do that and we will do it right too.

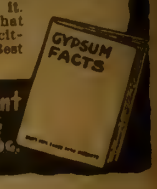
SMITH-BOOTH-USHER CO.

Irrigation Machinery and Supplies

Los Angeles California

PRODUCE BIGGER CROPS USE AMBOY GYPSUM

California soils are severely deficient in sulphur and other valuable elements so vastly important in the production of BIG crops. AMBOY GYPSUM replaces these locked-up elements and does other wonders. Increases soil fertility wonderfully. OUR FREE BOOK on gypsum facts should be in every rancher's hands. Write at once for it. Tells how, when, where and what gypsum to apply to alfalfa, citrus, garden and other lands. Best booklet of its kind.



Consolidated Pacific Cement Plaster Company

811-812 SAN FERNANDO BLDG. LOS ANGELES, CAL.

Tells why chicks die

E. J. Reefer, the poultry expert, 426 Reefer Bldg., Kansas City, Mo., is giving away free a valuable book entitled, "White Diarrhoea and How to Cure it." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every batch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

San Francisco Markets

SAN FRANCISCO, March 13, 1917.

BUTTER

Dairy Exchange quotations, lb.:
Rcts. wk. ending March 12, 546,500 lbs.
Fresh extras 33
Prime firsts 32

Extr. Cr'y. Prod. Exch. past wk.						
Mar.	6	7	8	9	10	12
'17	32½	33	33	33	33½	33
'16	....	29	31	30	30	..

CHEESE

Dairy Exchange quotations:
Cal. Flats..20@21½ Y. Am.....22½

EGGS

Rcts. wk. ending Mar. 12, 17,682 cases.
Dairy Exchange quotations:
Fresh extras 25½
Firsts 25
Select Pullets 24
Firsts 23½

Fresh Extr. Prod. Exch. past wk.						
Mar.	6	7	8	9	10	12
'17	25½	25½	25½	26	25½	25½
'16	....	19	19½	20	19½	..

POULTRY

We quote from producers, lb.
Hens, large .....22@23
Fryers, lb. .....28@35
Roosters, old..15@16; young .....26@27
Squabs, doz. .....3.00@3.50
Ducks .....21@23
Geese .....18@19
Turkeys, live .....22@24
Belgian Hares, live 13@14; dr.....17@18

LIVE STOCK

Prices gross weight:
Cattle:
Steers, lb., 7¾@9½, cows and heifers, 4½@8; calves, 6½@9.
Sheep
Wethers, 10½@11; shorn, 1½@2c less; ewes, 9½@10; lamb, lb., 11½@12½.
Hogs:
Hard grain fed, wt. 100 to 150 lbs., 12¼; 150 to 300 lbs., 13¼@13½; 300 to 400 lbs., 12¾@13; undesirable, 8.

POTATOES

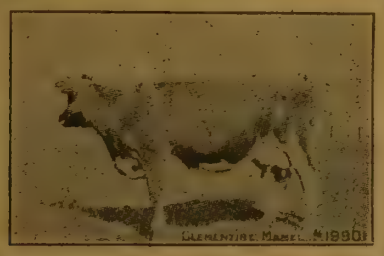
Wholesale selling prices at wharf:
Delta .....3.00@3.50
Oregon Burbanks .....3.25@3.75

You want Dairy Stock or Hogs?

Any old cow or hog is not now good enough for the up-to-date rancher of California.

He wants Superior Stock, he needs Producing Stock and he must have Economical Stock to make the success his efforts warrant. If he cannot get all pure bred animals of his choice, then a pure bred sire is his aim.

Guernsey cattle and Hampshire hogs have demonstrated conclusively the above characteristics. The next thing to consider is where to get the animals that give promise of the best for the investment, and here is where you will become interested in the BELLA VISTA HERDS. You may always expect to get Herd Headers here.



IN GUERNSEYS—every female in the herd is either in the A. R. or is qualifying for the same. In Males Imp. Lord Kitchener, many times Grand Champion of California, sired a four-year-old which produced over 550 b. f., and a two-year-old in the herd under test has produced over 1230 pounds for the second month and 1168 milk and 47 lbs. b. f. for third month. Dam of Glenburnie Boy, the Jr. herd bull, produced as a three-year-old 13,559 M. and 684 b. f., while her dam produced 12,634 M. and 654 b. f. Bulls ready for service.

IN HAMPSHIRE HOGS—the Jr. and Grand Champion sows of the State are here:

Berkeley King—Grand Champion boar from Gen. Allen, undefeated boar.

KENWOOD 2nd, a model in form, from prize winning ancestors on both sides, is the Jr. herd header.

State Fair Record: 23 prizes in 22 entries. One Grand Champion, 2 Jr. Champions and the Silver Trophy from the American Hampshire Association for best herd bred by Exhibitor.

You want just such stock and I will be glad to furnish it as long as it lasts and at a reasonable cost.

Write me just what you want and I will be glad to furnish you. Address me at my office in Berkeley.

Dr. J. W. HENDERSON
First National Bank Building
BERKELEY, CAL.

Alfalfa Land

For Dairying

Also First Class Orchard Land 10 Acres and Up.

BRENTWOOD IRRIGATED FARMS

in Contra Costa County

(63 miles from San Francisco)

Easy terms of payment. For prices, etc. address

Balfour, Guthrie & Co.
Land Department.
350 California St. San Francisco

ONIONS

Wholesale selling price on wharf:
Onions, cwt. .....6.00@7.50
Garlic, lb. .....3@5

VEGETABLES

Wholesale selling price:
Asparagus, lb. .....15@30
Artichokes, doz., large 60-75; small, 40-50
Celery, cr. .....2.50@3.50
Cucumbers, bx. hothouse .....1.50@2.00
Lettuce, cr. iced 1.15-1.35; uniced 1.00-1.25
Mushrooms, bx. .....50@1.00
Peas, small, 7@9; large.....10@12½
Rhubarb, box .....2.00@2.50
Squash—Hub., lb. .....2½@3½

FRESH FRUIT

Wholesale selling price:
Apples—Newtown Pippins.....1.00@1.50
Newtown Pippins .....90@1.25
Bananas, bunch .....1.00@1.50
Pineapples, doz. .....2.25@2.50

CITRUS FRUIT

Wholesale selling price:
Lemons .....1.50@3.50
Grapefruit .....2.00@3.00
Grapefruit .....1.75@3.00
Navels .....1.50@2.50
Tangerines, half orange box.....1.50@2.00

DRIED FRUITS

Wholesale quotations:
PRUNES—Bulk basis, per lb.: 30s and 40s, 6½c; 50s, 6⅞c; 60s, 7¼c; 70s, 7¼c; 80s, 7½c.
Other fruit, 50-lb. boxes:

	Standard	Choice	Extra Choice	Fncy.	Extra Fncy.
Apples	8¼c	8½c	9 c	....	....
Apricots.	16¼c	16⅜c	16½c	17½c	
Peaches . 6¾c	7 c	7½c	8½c	9½c	
Pears ... 6½c	8½c	9½c	11¾c	....	

NUTS

Jobbers' Prices:
Almonds.—Exchange opening prices: Nonpareil, 20½c; Ne Plus Ultra, 17c; IXL, 18c; Drake, 16c.
Peanuts .....5½@6½

BEANS

Jobbers' prices, cwt. recleaned:
Limas .....12.25@12.50
Bayous .....8.25@8.50
Garbanzos .....4.25@4.50
Small White .....11.75@12.00
Mexican Red .....8.00@8.25
Large White .....11.75@12.00
Pinks .....8.75@9.00
Horse Beans .....5.50@6.00
Black Eyes .....7.00@7.20
Red Kidneys .....11.75@12.00
Cranberry California .....9.50@10.00

HONEY

Jobbers' prices:
Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. .....11@12
Ex. Fy. lb.....9c; Lt. A.....6@8
Beeswax .....20@32

HAY

We quote the average wholesale price of hay in carload lots on today's market as follows, viz:
Wheat, Fy., lt. bales.....24.00@25.00
Wheat or Wh. and Oat. No. 1.22.00@23.50
Wheat, or Wh. and Oat, No. 2.20.00@21.50
Oats, Choice Tame .....22.50@23.50
Other Tame .....20.00@22.00
Wild .....18.50@21.50
Barley .....20.00@22.50
Alfalfa .....18.50@21.50
Stock .....17.00@18.00
No. 1 Barley Straw .....90@1.10

GRAIN

Grain Exchange prices, cwt.
Wheat, California Club .....2.65@2.75
Wheat, No. Bluestem .....3.02½@3.05
Corn, Eastern Yellow, sk.....2.23½@2.35
Corn, Egyptian White .....2.15@2.35
Oats, White Feed .....2.05@2.07½
Barley, feed .....2.20@2.22½
Shipping .....2.32½@2.37½
Rye, cwt. .....2.65@2.75

FEEDSTUFFS

Wholesale prices per ton:
Bran .....30.00@31.00
Cornmeal feed .....48.50@49.50
Rolled Barley .....45.00@47.00
Cracked Corn .....48.50@49.50
Middlings .....39.50@43.00
Alfalfa Meal, carlots.....20.50@21.50
Shorts .....31.50@33.50

SEEDS

Prices in round lots, lb.:
Millet, recleaned .....3¼@4
Alfalfa .....20@21
Rape .....2¼@2½
Flax .....5@6

Citrus Fruit Market

Shipments of oranges from Southern California since November 1, 1916, 11,163 cars, lemons 2161, total 13,324; to same date last year, oranges 9165, lemons 1975, total 11,140. From Central California to date this season, oranges 4035, lemons 161 total 4196; to same date last season, oranges 4161, lemon 140, total 4301. From Northern California to date this season, oranges 842 cars, last season 610.

LOS ANGELES, March 14, 1917.

Report of the Los Angeles market is crowded out by the large quantity of material from the northern end of the state. This issue is given up almost exclusively to this northern matter.

As to the market there are no material changes, other than a general upward tendency, excepting with asparagus, new potatoes or similar fresh vegetables which are approaching more nearly to normal prices.

WEATHER CONDITIONS

For the Week Ending March 10, 1917

	Rainfall Wk.	Season	Norm.	Temp. Max.	Min
Eureka 1.97	23.51	34.01	52	34	
Red Bluff ..... .52	15.45	18.90	60	34	
Sacramento ..... .48	11.99	14.95	66	40	
San Francisco ..... .68	14.65	17.65	62	42	
San Jose ..... .42	11.81	12.86	64	32	
Fresno ..... .46	6.70	7.02	68	38..	
San Luis Obispo .... .20	22.19	15.32	72	38	
Los Angeles ..... .12	14.53	12.05	76	44	
San Diego ..... .04	8.54	7.77	70	44	

Olive Trees

There is a wonderful future for the Olive industry in California.

The demand for California Ripe Olives and California Olive Oil is growing steadily, and a much larger acreage can be profitably devoted to this great industry than is at present employed.

Grow Olives For Profit

Today there is not a fruit grown in the great Mediterranean section of Europe which is not being successfully produced and marketed in California. The success of the Olive is a notable example.

Manzanillo

The Manzanillo Olive is a regular and prolific bearer—fruit ripens earlier than other varieties. The Manzanillo is a standard for green and ripe pickles; also produces oil of a very high grade. When planting an Olive orchard, it is well to remember that the Manzanillo Olives are picked and in the vats before even commencing to pick the Mission.

Mission

The Mission has always been a popular variety. The tree is a handsome, upright grower—very fine for avenues. Fruit medium to large — makes excellent pickles and a superior quality of oil.

Sevillano

The Sevillano, or Queen Olive of commerce, is the largest of them all. This Olive attains a much larger size in California than it does in Spain, often weighing one ounce a piece. The tree is very ornamental.

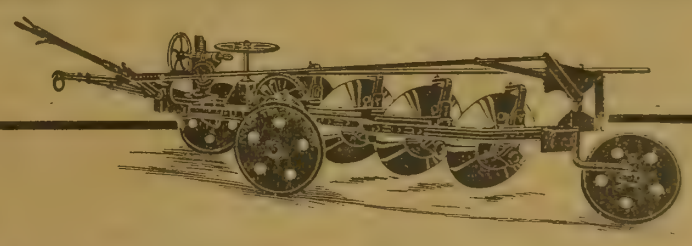
For twenty-five years our nurseries have been closely associated with growing Olives. Of late years we have devoted our attention to growing the best types of recognized standards.

Catalogue Write today for illustrated 1917 Price Catalogue—lists over two thousand varieties of deciduous, citrus and ornamental trees, vines and rose bushes. **FREE**

Fancher Creek Nurseries

GEO. C. ROEDING Pres. and Mgr.

237 Holland Bldg. FRESNO, CAL.



Knapp Tractor Disc Plow

If you own a tractor, you should also own a Knapp Tractor Disc Plow. It enables you to operate your tractor at greatest efficiency. Plows through hard soil as well as soft—and plows deep. Built solid and strong for tractor use. And here's a feature that will appeal to every man who owns a tractor—the Knapp Tractor Disc Plow is

Controlled from the Tractor

The discs lift CLEAR OF THE GROUND by an easy motion of the lever, without stopping the tractor, and without the engineer leaving his seat. Tractor and plow thus become a real one-man outfit.

Write for Further Information

H. G. KNAPP & SON
Plow Manufacturers.
1036 So. 1st St., San Jose, Cal.

Young Hereford Bulls For Sale

Seven head of fine, stocky youngsters, fit to head any man's herd. They are out of Beau Donald and Beau Defender. Inspection invited and Satisfaction Guaranteed.

Write to H. E. COIL

Woodland, Yolo County, Cal.

Buy a Prize Winner!

We have 7 Grand Champions and 11 First Prize PERCHERONS, BELGIANS, SHIRES, CLYDESDALES, and HACKNEYS, winners at the biggest Western shows. Also have some of the best registered JACKS that money can buy.

If you are in need of a good stallion, registered mare or jack, be sure and visit our stables before you buy, for we can save you from $500 to $1000, as we handle more horses than any other firm on the Coast, with a four-year guarantee back of every horse.

We also have forty head of stallions and mares, the best that were ever shown on the Pacific Coast, also the famous Belgian Stallion, Stevenot, coming three year old, won first at the P. P. I. E., first at the State Fair at Sacramento, 1916, first and grand champion at Salem, Oregon, first and grand champion at Portland Fat Stock Show, same year, will be here at our barns for service. He weighs over a ton. Pure bred mares preferred. Service fees $25.00. We have added to our horse business the cattle business, and we have 150 on hand at present (Durhams and Herefords). The best raised on the Pacific Coast. Also handle Eastern cattle. Write and let us know your wants. We will save you money.

Ruby & Bowers

Davis - - - Calif.

Use Tuberculin Tested Sires in Your Herd

WE HAVE A NICE LOT OF SHORTHORN BULLS and HEIFERS THAT WILL SELL FAST WHEN THE SPRING FEED COMES. SELECT YOURS NOW FROM THE BRIGHTON FARM HERD.

H. L. & E. H. Murphy, Perkins, Cal.

THE DAIRY INDUSTRY IN NORTHERN CALIFORNIA

Continued from Page 330

habilitated, increasing in value tenfold and will continue to increase in value through the agency of our dairy industry.

Dairying is highly profitable when well conducted because it markets the crops of the farm in the most valuable form and because it is a business of almost indefinite development. The dairy cow may be likened to a factory. She is the medium by which the raw materials are transformed into the finished product ready for market. But no amount of feed or skill in handling will make a profitable cow out of one that does not inherit a strong tendency to give milk. This is why success with dairy cows depends so largely upon the selection of the individual animal by keeping records of milk and fat production. On the other hand no matter how good a producer a dairy cow may be by inheritance she cannot give results without proper feed and management.

Good cows can be made to produce their own value in butter fat every year and yield a calf besides. But every cow is a good eater and many a bossy is petted and tolerated who eats her head off every year without saying a word about it. Dairying is not a matter of sentiment but of business. The values involved are large; the consumption is heavy; the public is exacting, intelligent and critical, and only the best of modern business methods and dairy equipment will insure a continuance of patronage or a balance on the right side of the ledger.

Dairying is made more profitable through the use of better dairy equipment, proved by increased production of clean, wholesome milk and less danger from communicable diseases among the cattle. Barns with the best types of sanitary barn equipment are fast becoming the rule.

The silo is taking a prominent place in the industry in California by providing for periods of short pasture. During our dry season, covering a period of many weeks, the pastures become short and insufficient to maintain a full flow of milk. Probably as much loss occurs during the summer season by lack of feed as occurs from improper feeding during the winter. The silo provides the equivalent of rich, succulent pasture during those periods of the year when green feed is unobtainable.

Economy in feeding alfalfa may be accomplished through the use of a feed cutter. The coarse hay which is generally nosed out and discarded by the dairy cow amounts to approximately 25 per cent of the whole. By running the alfalfa through a feed cutter and then feeding, this coarse hay will be entirely consumed, thereby actually increasing the value of the alfalfa 25 per cent, a saving of from $3.00 to $4.00 per ton.

The dairy industry has made great strides during the past ten years. The dairyman has realized that the production of milk can be made most profitable by applying the same principles that have made other business a success. An analysis of the following tables give some idea of the development of the dairy industry in California during the past ten years:

Butter Production

	Pounds
1907	44,699,211
1908	48,469,585
1909	43,899,018
1910	45,989,140
1911	50,380,738
1912	54,940,886
1913	56,542,709
1914	59,286,460
1915	67,522,402
1916	70,030,174

Cheese Production

	Pounds.
1907	5,928,946
1908	6,262,194
1909	4,431,194
1910	4,648,348
1911	4,640,491
1912	4,785,617
1913	5,600,972
1914	6,016,815
1915	6,249,775
1916	7,745,124

Condensed Milk Production

	Cases.
1907	134,907
1908	100,069
1909	83,476
1910	172,916
1911	116,384
1912	172,309
1913	172,900
1914	274,096
1915	345,402
1916	370,212

Te total value of dairy products in California during the year 1916 was $40,310,105.

The consumption of dairy products has always been greater than the production, not only in California but throughout the Union.

The public is just beginning to realize the value of clean, wholesome milk and milk products as a food. Milk, the best and finest food of mankind, is consumed at the rate of but one glass per day when the average should be at least two glasses per day—double what it is. There is plenty of room for increased production. People are beginning to drink more milk and use more butter and cheese. We need more cows and better cows. It means increased soil fertility and prosperity for the farmers.

All in all the dairy business is one that commends itself to the best of thinking men as an important means of service worthy the exercise of the highest faculties and certain to give prompt and full returns on the capital energy and thought put into the industry.

American Berkshire Congress

The eleventh annual meeting of the American Berkshire Congress, held at Purdue University, Lafayette, Indiana, February 20-22, 1917, was the most successful meeting yet held by this unique organization of Berkshire breeders. Nineteen states were represented. It was a real congress, and the number present brought out in discussion about all the knowledge possessed by the speakers on the topics assigned them.

On Wednesday evening occurred the annual congress banquet. C. C. Pierce of Boston proved himself a toastmaster supreme. Addresses were made by President Stone of Purdue University; H. W. Gossard, Dean C. F. Curtiss and Zed L. Williams. Dean Curtiss spoke on the topic, "Size in Berkshires", and demonstrated that while there may be Berkshires that are comparatively small, the breed ranks as one of sufficient size, that it is an easy feeder and that Berkshires weigh more than they look.

Officers were elected as follows: President, Harry W. Knights, Littleton, Massachusetts; vice president, J. T. Hogsett, New London, Ohio. Secretary-treasurer, F. S. Springer, Springfield, Illinois. Executive committee—The president, vice president and secretary, together with C. F. Curtiss, Ames, Iowa; N. H. Gentry, Sedalia, Missouri; J. E. Dodge, Lowell, Massachusetts; J. L. Thatcher, Riverside, California; C. H. Carter, West Chester, Pennsylvania, and W. S. Corsa, Whitehall, Illinois.

NEW IMPROVEMENTS IN THE DE LAVAL SEPARATOR

Since Dr. De Laval perfected the first cream separator in Sweden in 1878 there have been many improvements made in the construction and operation of these wonderful cream saving machines. In such improvements the De Laval Dairy Supply Company, the world-wide organization built upon the foundation so well laid by Dr. De Laval and his associates, has always been the leader. In fact, most of the changes which have been effected in the gradual improvement of the cream separator during the past 40 years originated in some one of the various De Laval shops, either in America or Europe. The De Laval Company is now making announcement of a new machine which embodies many advantages over previous styles, including a self-centering bowl, greater capacity, easier running and simpler bowl construction. All these and other improvements are fully described in the new De Laval catalogue which will be mailed from the De Laval Dairy Supply Company's office in San Francisco, upon request.

Remco Redwood

REDWOOD FOR DURABILITY

REMCO FOR MECHANICAL PERFECTION

Pipe

For
Irrigation
Domestic Supply
Power
Drainage

In all sizes from two inches to fourteen feet. Built for all pressures, with a guarantee of 100 per cent overhead.

Valves, Fittings, Risers and Reducers furnished to fit each size pipe.

Tanks

In all sizes
from 500 gallons
to
500,000 gallons

Equipped with covers and discharge gates if desired.

Towers furnished to hold any size tank.

Silos

Sizes
10 by 20 feet
to
20 by 40 feet

Shipped complete ready to erect. No extra charges.

Blue prints of proper foundations and erection instructions furnished free.

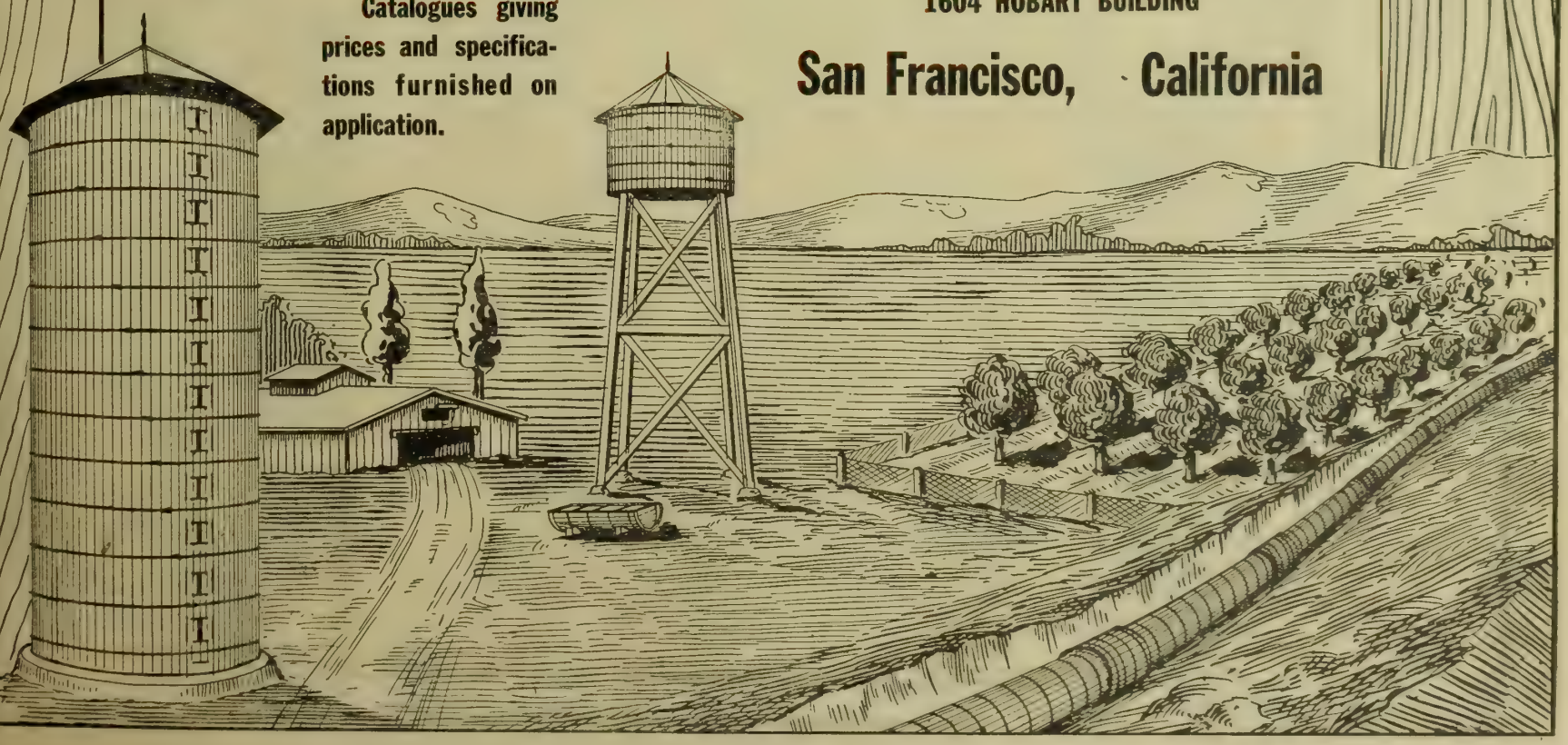
All made from Clear Air Dried Redwood, seasoned in our own plant; designed by our Engineers; manufactured by Skilled Mechanics using latest and finest machinery. Every Pipe, Tank and Silo guaranteed to be our own manufacture. Our big organization of experts and engineers is at your service, free of charge, for advice or plans.

Redwood Manufacturers Co.

Catalogues giving prices and specifications furnished on application.

1604 HOBART BUILDING

San Francisco, California



Just Back from Town with his New FISK NON SKIDS

And a wise buyer is he who makes his tire equipment Fisk throughout. Thousands of today's users of complete Fisk equipment began years ago with a purchase of a single tire.

When you pay more than Fisk prices you pay for something that does not exist

THERE is no better tire quality—no greater mileage—and one set of Fisks will prove that you can't make a better dollar-for-dollar tire investment. If you don't know Fisk Tires, buy one—put it to the test and learn the Fisk standard of tire value. It will be more than worth your while. The price of Fisk Non-Skids is actually less than the plain treads of several other standard makes.

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LOS ANGELES March 24, 1917 SAN FRANCISCO

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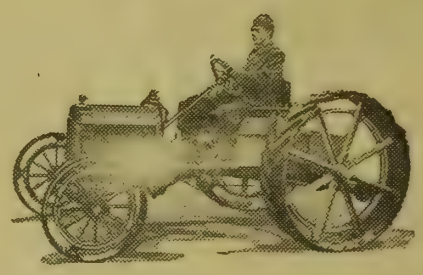

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California Cultivator

Vol. XLVIII No. 12 LOS ANGELES: March 24, 1917 One Dollar Yearly

Plowing Out of Nursery Stock, Kirkman Nurseries

Twenty mules and horses on the great plow lift an entire row of nursery trees in a few minutes. The plow, in the form of a great U-shaped hoop, goes underneath the row, lifting the trees.

Producing Millions of Orchard Trees and Vines

In the San Joaquin Valley Business Methods Combined with Soil and Climatic Conditions Make for a Great Industry. A Successful Year is Just Closing. Illustrations from Cultivator Camera

CALIFORNIA is the first state in the Union in the production of nursery trees. We make this statement on the general principle that if California isn't, it always claims to be. But to stick closer to facts. In 1909 New York produced $2,751,000 in value of nursery trees, while California produced slightly less, $2,213,000. But the spirit of the West and the demands of the West have made necessary immense growth of the nursery industry during the past eight or nine years, and this growth has been so much greater than that of the older states that we are reasonably safe in the statement that California leads the world in the nursery industry.

The greatest nursery center of the state is also its geographical center, or very nearly so. There are large nurseries in other sections, which are noted the world over, e.g., at Pomona, at Hemet and other places are hundreds of acres given to growing rose plants. In San Diego there are other acres given almost exclusively to the growing of poinsettias, or Christmas flowers. Near Sacramento nut trees are given attention and thousands of these are produced. Very near the coast in Humboldt County climatic and soil conditions have induced the planting of broad acres to bulbous plants.

But coming to Fresno, the center of the state and center of the nursery industry, we presume the two greatest features of the business are fig trees and grape vines. However, the nurseries grow literally thousands of varieties of trees and shrubs. Look at the ordinary nursery catalogue and note one section which perhaps contains olives or perhaps roses, and in the latter case, at least, literally hundreds of different varieties, largely Madame This and Madame That; all these made necessary by the demands of the discriminating rose grower. And therein lies one great difficulty with the nursery business, the necessity of keeping thousands of trees and plants which the public may clamor for and, again, may never think to ask for. And the season usually ends with a bonfire, and sometimes with many heartaches on the part of the nurserymen.

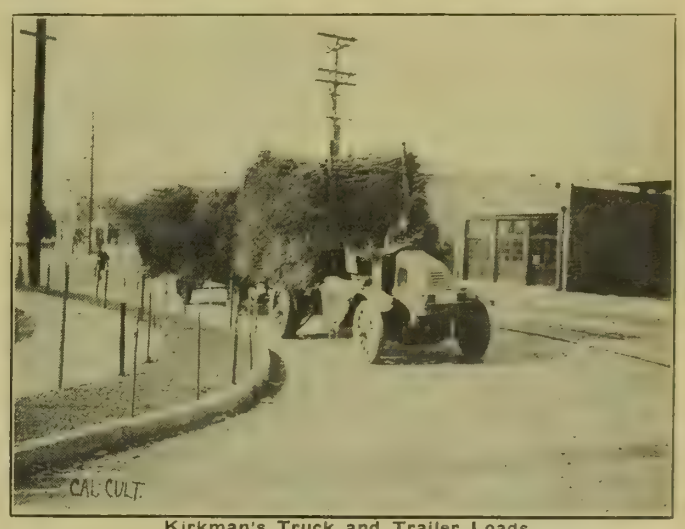
Take staples like the best of canning peaches, even French prunes which this year are in keenest demand, or fig trees of proven worth, and the season may end with thousands, or possibly with hundreds of thousands of trees, whose only avenue of disposal lies through the brush heap. One nurseryman last year reported over a half million trees from his nursery alone sent to the brush pile. We mention this because it is a feature of the business which often is not considered by the layman. The nurseryman has troubles enough that are real.

One of these troubles comes from legislation, and this matter of legislation affords opportunity for much oratory at state fruit growers' conventions, at nurserymen's conventions and at state conventions of county horticultural commissioners.

Continued on Page 370

Figs in Nursery Row

As Fresno has become the center of the raisin industry it is now becoming the greatest fig producing section of the world. Almost the entire San Joaquin Valley is adapted to fig culture. Only a few months ago there was held in the city of Fresno a fig growers' convention, at which varieties, cultural methods and marketing methods were discussed. Since that meeting many fig marketing associations have been formed. This photo was taken in one of the nurseries of the Fresno Nursery Company. There is some difference in opinion as to varieties but the Calimyrna—or Smyrna fig—with caprifigs to supply a home for the blastophaga is being planted more every year.



Kirkman's Truck and Trailer Loads

Grown in other counties and brought to Fresno for distribution.

Some Walnut Trees

George C. Roeding is standing by one year's growth of walnuts. These are fine husky trees and show what a successful nurseryman can do.

Thousands of Apricots of the Fresno Nursery Company

Apricots are in keen demand this year. It is a fruit on which California has almost a corner. Mr. Wilson of the Fresno Nurseries, however, says: "Plant apricots, but plant staple varieties, known and tried." This great field, taken when the trees were in full leaf in summertime, shows how thousands of trees of one variety are grown.

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Request your storekeeper to supply the goods advertised in the California Cultivator.

Frost Protection in Citrus Groves

By Prof. R. S. Vaile

Concluded From Last Week

The writer compiled certain figures showing the total effect of the heating practiced on the two nights mentioned in the Pomonoa section. These figures were arrived at by taking the readings of all the available thermometers within the firing area, that is to say, that area which was very definitely cvered by the dense smudge smoke all through the period observed, and a similar set of temperature readings in the districts which were distinctly out of the smudged area. These temperatures have been averaged and show the rise and fall as effected by the smudging. The night of December 25 was one in which there was a rise of temperature commencing shortly after the fires were started even outside of the smudged area. The night of the 26th, on the other hand, showed a fall in temperature up to morning. Table VII. shows a comparison of average readings.

the orchard to retain the heat stored in the fruit, foliage and soil. Even granting that these results have been possible in Mr. Jones' case—and there is no doubt but that it is so—it hardly seems that the saving in labor and convenience will offset the greater cost of oil in adding this moist warm blanket to the air. Take, on the other hand, the conditions of the January freeze of 1913. The temperature throughout the day had been hardly above the freezing point. The amount of latent heat stored in the soil and fruit was practically nothing, therefore the prevention of its radiation would have had little effect in preventing the freezing of the fruit. In such a case every effort would have to be thrown into actually adding heat units.

Why the Wall of Heat is Not Efficient

Theoretically, at least, the production of frost is due in considerable measure to the fact that the heat of the earth

TABLE VII.

Average temperatures, Smudged and Unsmudged Sections, Pomona District, December 25-26, 1916.

Dec. 25			Dec. 26		
	Smudged	Unsmudged		Smudged	Unsmudged
11:30x to 12:50	28.9 deg.	29 deg.	10:30x to 11:30	29.2 deg.	29.2 deg.
1:00 to 2:00	32 deg.	30.1 deg.	3:30 to 4:30	28.8 deg.	27.3 deg.

xFiring commenced about 30 minutes before first reading.

This comparison shows that the rise of temperature over the district as a whole was comparatively small, and it indicates to the writer that too much value has been placed in the minds of growers upon the smoke and not enough attention has been paid to the actual amount of heat added to the air.

Mr. Willis S. Jones of Claremont has worked out a system of firing orchards in which he builds a heavy wall of heat around the outside of his grove and through the grove in both directions at intervals of 16 trees. This system has many practical advantages, such as the ease of lighting and the ease of filling, and continued observations during the past four years have demonstrated that Mr. Jones is able to hold the temperature in his grove not less than three degrees above the temperature outside of his orchard by this system. As Mr. Jones himself states, it is not possible that the temperature of air 180 to 300 feet from the fires could have been influenced by radiation, conduction or convection of heat. He, therefore, lays the effect to the blanket of moist air thrown over the orchard by the heaters, thus enabling

is rapidly radiating to and through the atmosphere, continuing upward to an atmosphere which is very cold and which in turn can radiate practically no heat back to the earth. Therefore the earth must and does lose considerably more heat than it gains and thus cools to a temperature below the adjacent atmosphere. This condition giving a rising temperature with increasing distance from the ground to 300 or 400 feet, is contrary to the adiabatic rule that temperature falls at the rate of 1.6 degrees for each 30 feet elevation, but it makes it possible to protect against frost by the liberation of heat units at low temperatures at or near the earth's surface. For instance, if air warmed to 34 degrees could be liberated all over the ground surface on a still night when the surface temperature was between 30 degrees and 32 degrees, such air would not rise over 30 or 40 feet, while if it were heated to 40 degrees it might rise to 300 or 400 feet in keeping with the adiabatic rule of elevation and the effect on temperature. Theoretically then, with a wall of heat around blocks of orchard, where the temperature is raised to a relatively high point, there must be large amounts of heat units lost to the high atmosphere.

Mr. Mertz on the experiment station property at Riverside has several times during this winter tried out the relative efficiency of lighting only a few pots, say one to every four or six trees, with a fairly large fire as against one for every tree with a much smaller fire, the attempt being made to burn approximately the same amount of oil per acre in each case. There seemed to be no room for doubt in these tests but that the largest number of small fires gave better efficiency in raising the temperature in relation to the surrounding temperature than did the small number of large fires.

Improvement to Be Looked For

One of the greatest objections to the present method of orchard heating is particularly felt in such districts as the Pomona district where the great amount of smudge produced becomes an active nuisance in the towns of the district, and probably somewhat of a menace to health. As indicated above, it is questionable whether the smudge produced in the heating of orchards is in any way necessary from the standpoint of preventing the frost. On the other hand, the difficulty is to get a cheap fuel that will give heat units without the smudge. Many things have been suggested along this line but nothing very practical has as yet been produced. Oils carrying somewhat less asphalt than formerly have been used the last two seasons with somewhat improved results but much is still to be hoped for. The Fruit Growers Supply Company is taking up the matter of fuel oil, ma

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R. M. Teague
Citrus Nurseries
R. M. TEAGUE, Manager
San Dimas, California

rather exhaustive investigations into the question and outlined certain rather rigid specifications for the oil that was to be furnished. When it actually came to placing the orders, however, they found that the important thing and one to which all other specifications must give way was to get an oil that could be handled in large quantities on short notice. For this reason there has been considerable variation in the grade of oil furnished, although the last two years the average has been about 27 degrees or 28 degrees Baume with a five per cent asphalt content.

Conclusion

In conclusion, we would make the following rather definite statements which we trust this discussion has borne out.

It is entirely possible to protect orange groves against frost

Whether or not it pays to protect any certain orange grove depends upon the actual risk, the amount of protecting that would need to be done and the value of the crop to be protected.

More attention should be given to adding heat units than to prevention of radiation by formation of a cloud of smoke.

The improvement in orchard heating which is to be worked for may possibly come from the finding of some better type of fuel, but probably because of practical limitations will have to come through finding a better type of burner.

Mulched Basin System

THE Mulched Basin System of Irrigated Citrus Culture and its Bearing on the Control of Mottle Leaf" is the title of Bulletin 499 of the United States department of agriculture, written by Dr. L. J. Briggs, C. A. Jensen and J. W. McLane, all of whom have been investigating in connection with the citrus experiment station at Riverside. Every citrus grower will be interested in securing this bulletin from United States Department of Agriculture, Washington.

The bulletin touches upon: cultural practices in California, plowsole, organic mulching, basin and cover crop experiments, furrow irrigation, summer cover crops, effect of mulch basins on soil and root, fruit setting, cost of basin mulching, limitations of the system, etc.

From the summary we give:

The present paper is concerned with field experiments relating to the irrigation of oranges and the use of organic fertilizers and deals particularly with a new method of citrus culture. The mulched-basin system, in which low dikes are thrown up so as to form large shallow irrigation basins near each tree, and each basin is heavily mulched with alfalfa hay, bean straw, manure, or some other organic material. The basin makes it possible to supply each tree with water in accordance with its needs, while the water carries with it to the feeding-root system the plant food extracted from this disintegrating mulch.

The system of furrow irrigation and clean cultivation in common use in citrus districts in California tends to promote the formation of a plowsole, or incipient hardpan, below the surface mulch, varying in thickness from three inches to two feet; leads to excessive accumulations of soluble plant-food substances, especially nitrates, at the surface of the soil, where they remain until washed down by the winter rains; and fails to conserve the soil moisture sufficiently to prevent the trees from wilting frequently during the summer months.

The mulched basin system was found to conserve the soil moisture better than any other system of soil treatment compared with it, and none of the basined trees on either light or heavy soils wilted. Under all the other cultural methods employed wilting occurred at some period during the summer on both light and heavy soils.

Available soil moisture below the third foot did not prevent orange trees from wilting if the moisture content in the first three feet of soil fell below the wilting coefficient.

With the amount of irrigation water ordinarily available in these districts (one miner's inch to four or five acres) cover crops of barley or sweet clover can not be grown during the summer months in groves on either heavy or light soils without causing the wilting of the orange trees.

Circular trenches dug around orange trees, filled with manure or alfalfa and covered with dirt, did not remain open sufficiently after the second irrigation to distribute the irrigation water adequately.

In the clay-loam soils the lateral movement of moisture is very slight. In such soils the furrow system of irrigation is inadequate unless a large number of furrows are used, including furrows under the trees.

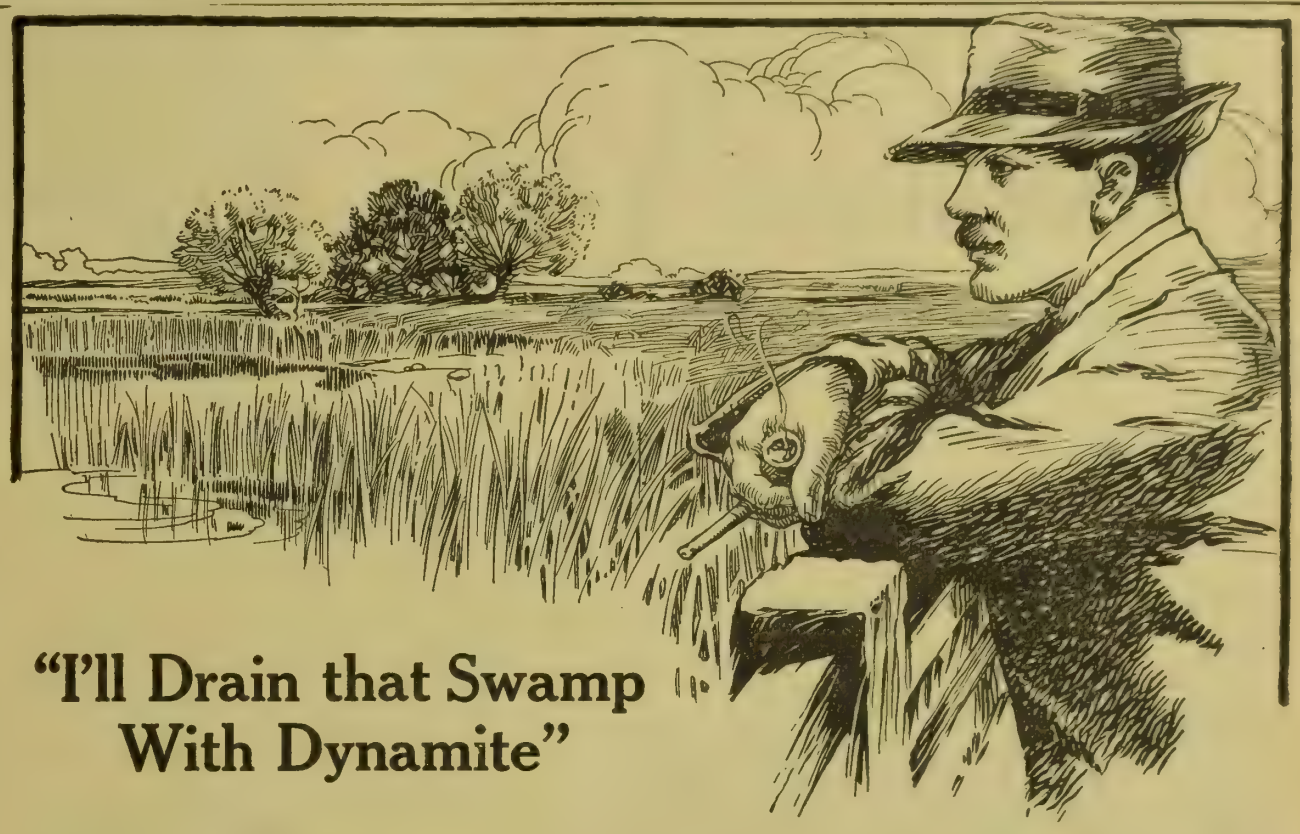
Moisture determinations in groves in which alfalfa was being grown as a permanent cover crop show that the irrigation water never penetrated deep enough into the soil to insure an adequate moisture supply for the orange trees.

For a basin having an area of 150 square feet the experiments indicate that approximately 150 pounds of alfalfa or 15 to 20 cubic feet of stable manure will be required each year to maintain an effective mulch.

It is not possible with the water ordinarily available to grow mulching material between the basins sufficient to maintain a satisfactory mulch on the basins. Cover crops, however, can be grown between the basins on winter rainfall to supply part of the mulch, and where water is available in the summer it can be used for the same purpose.

Orange trees on clay-loam soil responded more quickly to the mulched-basin system than trees similarly treated on light soils, because the heavier soils under the furrow method of irrigation do not absorb moisture as rapidly as lighter soils. Mulched-baisined trees on clay-loam soils showed a marked response to the treatment in three months, while basined trees on light soils required from six to 12 months to show a growth superior to that obtained with furrow irrigation and clean cultivation. The mulched basin is not satisfactory on heavy gumbo soils.

The set of fruit was very light throughout the Riverside district in 1915, owing apparently to cold weather following the bloom. In the Sunny Mountain tract, where the mulched basins were first installed in 1913, the average number of oranges per tree on the check trees in 1915 was 116, while on the mulched basin trees the average number of oranges per tree was 281, or two and one-half times as many as on the check trees. The quality of the fruit on the basined trees was also superior to that on the unbasined trees. In the Victoria tract in 1916 the alfalfa-



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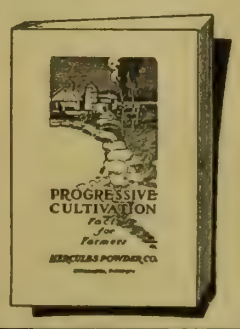

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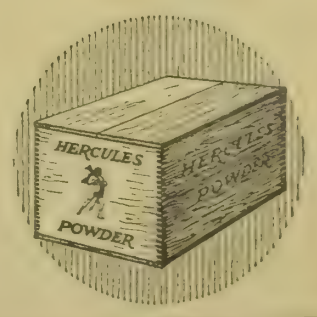

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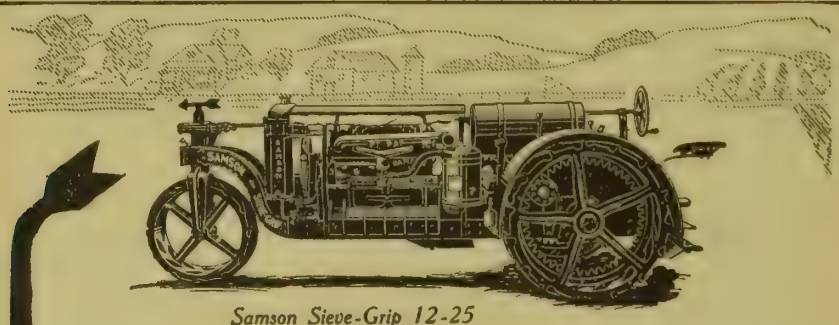

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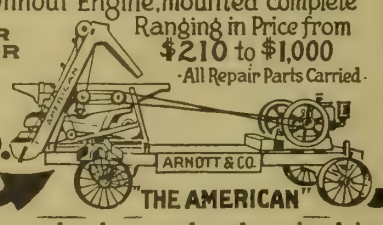
-All Repair Parts Carried-



"THE AMERICAN"

QUALITY ARNOTT GUARANTEED

ARNOTT & CO.

BEAN THRESHER HEADQUARTERS
112-118 So. Los Angeles St Los Angeles

Request your storekeeper to supply the goods advertised in the California Cultivator.

mulched trees averaged 483 oranges, the manure-mulched trees 242 oranges, and the check trees 182 oranges. In the Eureka tract, where the mulched basins had been installed the preceding autumn, the alfalfa-mulched trees carried on the average 550 oranges, an increase of 33 oranges per tree over the average yield of these trees for the preceding six years. Experiments in this tract with other mulching materials showed a decrease in yield during the first season, due in part at least to the fact that the new root system below the basins was not established at the time the fruit buds were set.

The new leaf growth on the basined trees was less mottled than the new growth on the unbasined trees after sufficient time had elapsed for the mulched-basin system to produce response in the tree growth.

The new leaves on the basined trees were larger and darker in color and had a better texture than those on the unbasined trees, especially on heavy soil.

The new growth of rootlets under the mulch in the basins was very much greater than in the check treatments, the soil in the basins being filled with rootlets to within about two inches of the surface.

Great numbers of earthworms were often found in the basins under the mulch, and their burrows honeycombed the entire soil mass. The worms help to incorporate the organic material with the soil, while their burrows facilitate the absorption of water in heavy soils.

No soil crust of any kind has been found in the basins where the mulch completely covered the soil surface. A complete mulch must be maintained at all times, however, to prevent the surface from crusting.

The experiments indicate that alfalfa and bean straw are superior to stable manure for mulching purposes.

In the mulched basins the quantity of humus, as measured by the intensity of the color of the alkaline extract, increased markedly in the first foot of soil buring the summer, but no increase was observable at the greater depths. From 70 to 120 days were required for the mulch in the basins to decompose sufficiently to produce a measurable increase in the humus content. Alfalfa and manure mulches were equally effective in producing this increase in humus. Barley cover crops produced a marked increase in the humus content of the soil 50 days after being disked into the soil.

The use of an organic mulch moderates the rise in soil temperature during the day. The advantages of the mulch, however, are not wholly attributable to this fact nor to the conservation of moisture. Wood shavings when used as mulching material afforded as much protection in this respect as alfalfa or bean straw yet trees mulched with pine shavings gave yields less than half those obtained with mulches of alfalfa or bean straw.

Surface mulching with organic material, especially when available in quantities sufficient to cover the entire surface, may in the long run prove fully as effective as the use of the mulching material in basins. A more immediate response from the mulched basin may be expected, however, owing to the fact that each time the basins are flooded the soluble portions of the decaying mulch are carried with the irrigation water directly into the soil. In this respect the mulched basin resembles a surface organic mulch in humid regions where the rainfall first passes through the mulch before entering the soil. Many of the citrus soils of California contain so little active organic matter that it is essential to secure the advantages of the applied organic material at the earliest possible date, and this appears to be brought about more quickly by the use of the mulched basin than by organic mulches with furrow irrigation. The mulched basin also appears to be the most effective means of using a limited quantity of mulching material.

The marked response of citrus trees in the experimental tracts under the mulched-basin system justifies its serious consideration by citrus growers. It is still in the experimental stage, and its suitability to local conditions in any instance should be thoroughly tested in an experimental way before installing basins on a large scale. Its final value in the industry can be determined only after it has been so tested in comparison with other systems in commercial practice.

Selling a Good Bill of Nursery Stock

At the reader's right is Wm. Kirkman just after he has sold a large bill of stock to James Mills, the gentleman with the overcoat.

Roeding's Palm Sheds

George C. Roeding standing near center of picture looking at the immense stock of palms ready for delivery. Many of these are boxed and large enough to give the place in which they are established an old-time look.

Mildew of Vines

Written for California Cultivator

OIDIUM, or powdery mildew of grapes, is a disease well known to every vineyardist. The ease with which it is controlled is known to many a vineyardist but not to as many as it should be. A high grade of sulphur applied either wet or dry does the work, if applied at the right time. Good sulphurs are now to be had but the purchaser must be sure he gets the sublimed or highest quality.

In dry sulphur application the use of coarse meshed sacks or perforated cans of pepper box type is expensive, even wasteful of sulphur. The blower or dry sulphur "spray" is now a complete success, and it is claimed that with its use four to six pounds of sulphur per acre is sufficient.

In "Oidium, or Powdery Mildew of the Vine" by Bioletti and Flossfeder we note:

"Mildew on most varieties can be controlled cheaply by proper sulphuring, even under unfavorable conditions in the interior valley.

"It is probable that it can be controlled on all varieties by the same means in the same region.

"The presence of missed or untreated vines much increases th difficulty of controlling the disease on all the vines.

"Winter treatments are unnecessary and useless.

"Wet sprays are more expensive to apply, and that tested less effective than dry sulphur. It is probable that other wet sprays would be no more or even less effetcive.

Number of Sulphurings

"The number of times it is necessary to sulphur will depend on the locality, the variety, the season and the sources of infection and will vary from one to six. In the interior valleys two will usually be enough if the work is done regularly and properly in all the vineyards.

"The first sulphuring should be done when the shoots are not more than six or eight inches long. Later, the foliage becomes dense and it is difficult to cover every part of the surface with sulphur: At the first sulphuring it should be possible to see daylight through all parts of the vine."

"The first sulphurings are preventive and are the most important and effective. If we wait until mildew is perceived, the cost of control will be much greater and it will often be impossible to control the disease completely.

"The second sulphuring should be given during or just before blossoming. At this time the interior of the mass of foliage will be dense in places, but the first sulphuring has already covered the parts which might escape the second. With Muscats and most fine grapes these sulphurings will usually give perfect control if there are no summer irrigations and no untreated vines or parts of vines in the immediate vicinity. With very susceptible varieties, such as the Carignane, or excessively vigorous growers, like the Emperor, or where summer irrigation is practised, a third sulphuring may be necessay about the time the grapes are half grown. Only imperfect work or abundant reinfection from untreated vines should necessitate more than three treatments except in the coast regions of summer fogs and even here three will usually be sufficient.

INCREASE IN FRUIT ACREAGE

Reports received from many counties by the state commission of horticulture show a remarkable increase in acreage planted to trees and vines last month in California.

Top notch prices and large unfilled orders for many varieties of fruits have served to stimulate an increased interest in the fruit industry, the natural result being more money, labor, and acres devoted to plant life than ever before. Furthermore on account of fair pices orchards are receiving better care than usual. For example: Madera County planted 84,924 trees during February exclusive of several hundred thousand cuttings, the major portion being peaches, apricots and figs.

Yolo County 72,030 trees, with almonds in the lead. Large increase in all fruits.

San Luis Obispo County 65,050 trees, also shows almonds holding first place. Total increase here more than 30 per cent.

Kings reports an excess of 109,000 trees and plants; apricots ranking first, prunes and peaches following in order mentioned.

Yuba County: 385,316 trees, vines and plants were received for planting, prunes leading other trees.

Many other counties not yet reporting have shown a phenomenal gain in acres planted this year.

SPRAY FOR APPLES

At one time former Commissioner Volck of Santa Cruz County issued a bulletin giving special spring treatment for apples. This treatment provides both insecticide and fungicide and is perhaps as economical as one could ask considering its double purpose. The formula is: For Newtowns, Bellflowers, Gravensteins and most other varieties:

Iron sulphide, dry basis, 8 pounds; zinc arsenite, 6 pounds; or acid arsenate of lead, 16 pounds; or neutral arsenate of lead, 20 pounds; water, 200 gallons. For aphids add "Black Leaf 40", 1 to 2 pounds.

The arsenical poisons are rated here in the order of their efficiency in controlling the various caterpillars which are troublesome in the early spring. It must be remembered, however, that zinc arsenite or acid lead arsenate may cause injury if the application is made too late. The proper time for the application of zinc arsenite is full bloom, and the spraying must not be materially delayed beyond this time. When properly timed zinc arsenite is the most satisfactory arsenical for the first spraying.

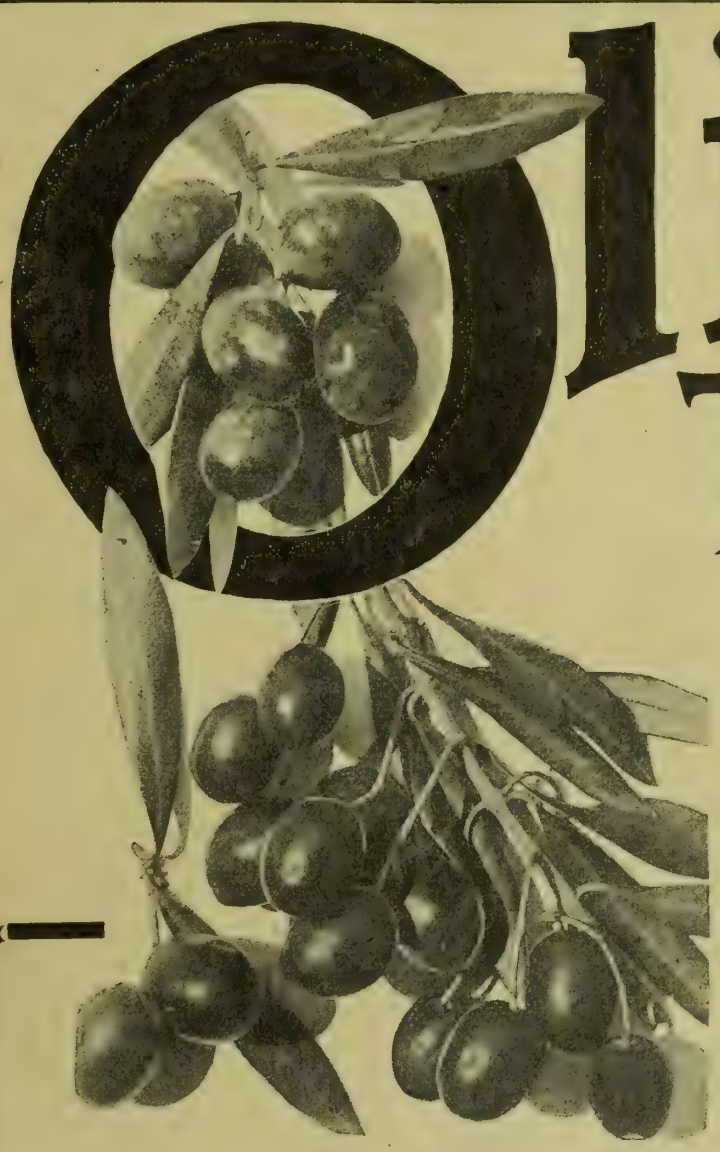
Iron sulphide is a very important part of the spring sprays. It serves two purposes, namely the control of apple mildew and the strengthening of the foliage so that arsenical poisoning will not be so likely to occur.

FRUIT PLANTING IN SAN LUIS

Practically no nursery stock being grown in San Luis Obispo County, and the inspection of nursery stock being practically over, Horticultural Commissioner S. V. Christierson, estimates that the following acreage will be planted in the county this spring, such estimate being based on total number of trees inspected, and an average of 70 trees being planted to the acre: Almond 2565, pear 800, prune 554, apricot 279, peach 147, apple 82, mixed varieties 67, walnut 11, cherry 12, grapes 10. Total 4547. This total is to date better than 125 per cent over the estimate made by the commissioner before shipping season commenced and will increase the county's acreage of fruit and nut trees 44.7 per cent.

One of the best ways to solve the labor question on the farm is to make the farm so attractive that the young folks will want to stay there, and the way to do this is to keep the farm home just as well supplied with modern improvements as the city home. Give the young folks an opportunity to enjoy life on the farm equal to the opportunities they find in the city.

Ten carloads of lettuce were shipped out of Brawley last Sunday.



Olive Trees

Read This Letter from the Secretary of the Los Angeles Olive Growers' Association

Los Angeles, Cal., March 14, 1917.
Fancher Creek Nurseries,
Fresno, California.

Gentlemen: I desire to write you and express my views of the present situation relative to the Olive Industry, and would say that at the present time there is more demand for the products of California Olives than at any time in the past history of the State of California. It would be possible today to sell for delivery out of the next crop, which will mature in November and December, three or four times the amount of the visible supply and at prices which would render the grower a good return upon the money invested and labor employed. The former consumers of the Imported Green Olives have more rapidly during the past twelve months turned their attention to the California Ripe Olives, than in any similar period of time ever before experienced. It is reasonable to believe that after they once become accustomed to the California product, they will never revert to the Green Olives, on account of the superior food values to be obtained through the use of the California Ripe Olives.

The Industry looks encouraging for the reason that it provides a product that can be put up in cans, so it is not at the mercy of the market, the same as a perishable article would be. Those looking for a product upon which they may reasonably expect an advanced increased consumption can make no mistake in selecting California Ripe Olives.

Yours truly,
FRANK SIMONDS,
Secretary.

— There is a shortage of Olives in California.

— California Olive Oil is practically all sold out.

— There is a strong demand for California Ripe Olives.

— Prices for trees are lower than they probably will be next season.

— The next five or six weeks are ideal for planting.

— We have a magnificent stock of Manzanillo, Mission and Ascolano, which are the three best varieties to plant—all propagated from bearing trees in Mr. Roeding's orchard.

— Special quantity prices on application.

Fancher Creek Nurseries

Geo. C. Roeding
President & Manager

237 Holland Bldg.
Fresno, Cal.

The Genuine
FAIRBANKS
Scale - 1000 lb. Size
$14.85

500 lb. size
$12.50

Both Prices
F.O.B. Chicago

FAIRBANKS Every Farm Should Have One Because-

"If it's weighed on a FAIRBANKS there's no argument"

Steel to Steel Bearings—Arrow-tip Beam.
Large Platform—Wide Wheels.

Go to Your Local Dealer—see the scale and you'll buy it. A reputable dealer selling a reputable scale, certainly is a strong combination. If you don't know the local FAIRBANKS-MORSE dealer, write us.

Fairbanks, Morse & Co., Chicago

ESTABLISHED 1896
REX
KING OF SPRAY MATERIALS

"There is a REX for every orchard trouble."

REX SPRAYS
are the development of 20 years of Scientific Investigation and Development

LIME and SULPHUR SOLUTION
The Most Generally Used Spray

ARSENATE OF LEAD
An Arsenical Poison for Killing Leaf Eating Insects, Codlin Moth, Etc.

SUL-PASTE
A Product of Finely Divided Sulphur for the Control of Scab, Mildew and other Fungus Troubles. Also Red Spider and Other Insects.

BORDEAUX--OILS--SOAPS

California Rex Spray Co.
BENICIA, CAL.

"REX" SPRAYS — The Standard for 20 years

Fireless Brooders

Fifty-chick, $1.50; 100-chick size, $2.50; 150-chick size, $3.50; 150 outdoor type, $5.00. Freight paid. **Free Catalog.**

Pioneer Hatchery, 320 S. Spring St., Los Angeles

Autumn Flowers

Written for California Cultivator By E. Braunton

THOSE who are looking forward to a fine crop of autumn flowers should act now and be rewarded an hundredfold when the cool days of October and November come. Asters will come first and reign from September until autumn's floral queen, chrysanthemum, becomes the reigning flower late in October and on to the yuletide.

Aster seeds should be sown now in boxes of light sandy soil not less than three inches deep and kept in a shady and somewhat protected spot until the last plant is well up. The one point to remember about asters is that from the time the seeds are sown until the flowers are picked the soil must never be allowed to get dry yet should not be kept saturated with water. Young plants may be set out in boxes two or three inches apart each way when quite small, about a half inch to an inch high and transplanted to permanent position when four inches high, or they may be left in seed bed until two inches high and then shifted to place where they are to flower. The method first given is the better for then plants may be partially shaded until well established and finally transplanted with a small square of soil so they will suffer no check in growth as a result of moving.

Chrysanthemums should be handled now from the old clumps of last year. If you merely wish to divide, break clumps up into the smallest pieces possible. If but one good shoot remains to each bit it is enough. Plant these where they are to grow. As they will be early they may grow too tall unless pinched. Therefore keep tops pinched back whether from divided clumps or grown from cuttings but never pinch or cut down later than July. Give a richer and heavier soil than for asters and use any and all kinds of fertilizers more freely. Still, do not crowd plants too fast; there is plenty of time for the best and fullest growth and forcing should be reserved for later days.

All professional growers and those who get best results propagate each spring from cuttings. From the old clumps take four-inch cuttings of good sturdy firm growth. If the terminal leaves are large so as to be in the way or draw too heavily on the sap in the cutting, snip off the upper half. Put cuttings in a box of sharp sand three inches in depth with cuttings never less than one inch down in sand. Keep in cool shaded place away from winds. Always use a very sharp knife, for the cuttings must not be bruised. Never force them into sand but make holes or slots in sand so they will go down freely, but press sand firmly about them and settle it by a good thorough though gentle drenching. The young plants should be ready for transplanting to field in about six weeks. Some plant them a foot apart in row and rows two feet apart, but spacing should be governed by experience and the training you expect to give. If plenty of space is available put them one and one-half feet apart in the row and rows three feet apart. Subsequent culture will be outlined in future issues to keep pace with expected growth and development.

Near-Eucalypti

We have a family of shrubs that came from Australia and have become strong favorites in all parts of California. They are splendidly drouth-resistant and seem to thrive in all kinds of soil. Have observed them closely, I would advise, if but one sort is to be planted, to use Leptospermum laevigatum. The other species introduced locally are four: coccineum, lanigerum, scoparium, and stellatum. No use to seek all the species of shrubs mentioned in this department, for though I have seen all of them and have photographs of all, no dealer has them all, but the species recommended is always easily found in plant depots.

Fine Shrub Group

In local plant depots there may be found a splendid group of shrubs known to botanists as cotoneaster (co-to-ne-as-ter). Eight species have been introduced to California, as follows: acuminata, angustifolia, frigida, horizontalis, microphylla, pannosa, Wheeleri, and thymifolia. All are good, all do well in California, but the best of the lot in my opinion, is pannosa. In the southern end of the state it is nearest a true evergreen of any of them, flowers freely, and sets a heavy crop of brilliant red berries.

Value of Trees

The Los Angeles County board of forestry now has a suit pending against a land owner who cut down some fine old trees on his lot frontage. The question of values arise at the outset. What is the value of a street tree and upon what basis shall it be computed? The first considerations is association. If trees destroyed formed members of a line uniformly planted to one species and of large size, the value is great.

Next comes the kind of tree and along with it the most important matter of location. If tree or trees are on unimproved streets where they would subsequently have to be removed, or if improvements would either fill in about them or leave them well above grade, their value is little, no matter how fine the trees.

Divide Perennials Now

Do not neglect longer to divide and replant clumps of flowering plants with perennial roots. They will flower much better after division even if placed in ordinary soil. But in rich soil they will produce better crops of better blossoms for several years to come. Re-divide from three to five years after each planting, according to rapidity of growth.

Useful and Ornamental

Once again we beg of you to consider evergreen fruit trees, shrubs, vines, and lesser plants when improving the home grounds. Many gardens are filled with trees that have only ornamental value and even this in less degree than the avocado, loquat, guava, feijoa, carissa, and a host of others. Cut the high cost of living down by growing fruiting ornamentals.

What to Plant

The most perplexing question that confronts the intending planter is: "What shall I plant?" It is well to be guided by the experience of those who have planted. Yet do not go too far back for advice for it is said that the first thing Adam planted in Eden was his foot, which is too heavy for the josher "in lighter vein". Observation is the keynote to success. So variable are the soils of our state and so variable are local climatic and other conditions that even the most expert are at times nonplussed. Therefore lean on the experience of others in your neighborhood and study the matter closely yourself.

Try Blasting in Your Garden

By J. R. Mattern

IN most states there is a lack of experimental work on blasting the soil to secure intensive tillage. There is no need of anyone's waiting for the state to decide whether or not this practice is of value in any particular soil, because to do some of the blasting costs only a dollar or so. If the blasting is done when the ground is dry there is no possibility of harm resulting any more than there is from plowing or harrowing.

Blasting of soil is nothing more than intensive tillage that reaches three or four feet into the ground. Nowhere is intensive tillage more needed than in gardens. Pick out a time in late May or in June or July, this summer, when the ground is dry (the drier the bet

ter), and place small charges of farm powder two and a half, three, or four feet deep, and six to 15 feet apart. You want the charges so placed, and of a size so that they will not blow out, but will only heave or swell the surface over each shot and reach all the ground between.

It will not hurt the growing plants to blast right under them when the ground is dry. If the blasting can be done just before a hard rain the blasting will produce more immediate benefits than if rain does not follow soon. If you prefer to wait till the crops are off do the work in late August or September before the fall rains arrive.

One good blasting in a garden should be of as much good as a dozen thorough spadings to a depth of 15 inches. For field and orchard crops the same intensive tillage is equally as valuable, and you can find out all about it for yourself by trying small plots in representative parts of the fields. One 50-pound box of farm powder ought to more than subsoil an acre, and if you divide the acre up into several small experimental corners, where you have corn, potatoes, grass, trees, wheat, etc., and watch the results carefully, you should have some valuable data in your possession before long. Bear in mind that, as with any other sort of tillage, the results are not immediate but come about through the lapse of months and seasons. If you can get leguminous cover crops planted in the fall on the blasting ground the benefits will be very much larger in proportion.

TO POTATO GROWERS

George P. Weldon, chief deputy horticultural commissioner, is now in receipt of a letter from Lou D. Sweet, president of the Potato Association of America, in which he gives the result of investigations made by that society, as follows:

"On the first of March there were about 1200 cars of potatoes left in Oregon, Washington and California, 1,000 cars in Idaho (half of which are still in the hands of the growers, and the balance in storage because shippers have been unable to get cars to move them), and about 600 cars in Colorado.

"When you stop to think that there are less than 3000 car loads of potatoes west of the Missouri river, you will realize that many of the people will have to get along on short potato rations. Seed potatoes will be very high, and no doubt a large percent of those planted this year will be culls that are more or less infected with disease, and few people will treat with corrosive sublimate as they should, so I am fearful that the quality of potatoes grown in the United States this year will go down ever so much."

Senate Bill 197, now before the Colorado legislature, already approved by the assembly of that state, would prevent, according to Mr. Sweet, "California early potatoes that are infested with the tuber moth from coming into Colorado." Therefore, it behooves the grower to exercise great care in the selection of seed potatoes.

Queries

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Chick Problems

Is the common wild yellow mustard fed to hens? What makes baby chicks pick toes when they are comfortable and have everything, including gravel and chaff on floor? They have charcoal, bran, chick feed, milk and fresh water, also greens hung so they can pick them. Some one told me they need salt. If so how much should I feed to 100 chicks and how should it be fed?—Subscriber, Saratoga.

Yes the common field mustard is used, but it should be fed before it blooms, else the leaves are tough and bitter. I have read somewhere of salt being fed as a remedy for toe-picking, but this vice is generally attributed either to lack of animal food or exercise. If you feed salt use just a little mixed in the dry mash, rather less than you would use in salting mush for the family. I should not salt a large quantity of the mash, for salt is something that must be used with great discretion, if at all. My own theory is that toe-picking, which seems to be a vice of Leghorns exclusively, or at least of the Mediterranean breeds, is due to lack of employment. The Leghorn chick is a very lively little creature. Confine a lot of them in a brooder with nothing to do but eat and they will try to eat everything in sight. Let them out where they have all the room they want and green things to pick at and they will never think of each others' toes. I have never seen any other breed do this, no matter how they were fed. Sometimes a feeding of cooked lean meat, chopped fine, once a day keeps confined chicks from toe picking, and sometimes it can be controlled by keeping them on deep litter, which hides the feet, but the easiest and surest cure is to let them run. These chicks, however, should have a mash containing meat, preferably a good grade of beef scrap. Equal parts by measure of bran, middlings and feed meal, with from one-half to one part beef scrap, is a good formula for growing chicks.—J. A. K.

Feed for Pigeons

What is best feed for pigeons so as to have no waste of grain?—Subscriber, Hermosa Beach.

Wheat, corn, Canada peas, kafir, German millet and hemp are the staples for pigeon feeding. The corn should be cracked. Other grains are fed whole. All should be of the best quality and thoroughly cured. A good balanced ration is the following: Morning feed, equal parts by measure of sifted, cracked corn, wheat, Canada peas and kafir; afternoon feed, the same with the addition of one part millet. Twice a week hemp is substituted for millet in the afternoon feed. About a quart and a half to a pen containing 50 pairs of pigeons is the normal quantity of grain at a

$1150 F. o. b. Racine
Mitchell Junior—a 40 h. p. Six
120-inch Wheelbase

Mitchell SIXES

$1460 F. o. b. Racine
7-Passenger—48-Horsepower
127-inch Wheelbase

Mitchell Junior—$1150
Now Added to Mitchell Line

Many buyers prefer a 5-passenger car. Such a car has ample room with a 120-inch wheelbase. Few such cars are that long. And a 40-horsepower motor gives them ample power.

To meet that demand we build Mitchell Junior, which sells for $1150. It is our big, 7-passenger Mitchell in a little smaller size. So you now pay only for the room and power you need.

Saving Every Waste

Note how John W. Bate, our efficiency engineer, is saving every waste. These two Mitchell sizes form a new example.

He has built and equipped here a model plant, which now covers 45 acres. It is designed to build the Mitchell at the lowest factory cost. About 98 per cent of the Mitchell is built under his methods. Our factory cost has been cut in two.

Our new body plant this year brings another big saving — hundreds of thousands of dollars. Nowhere else in the world could a car like the Mitchell be built at so low a cost.

Extras That Result

These savings show in Mitchell extras. There are hundreds in the car.

There are 31 features which nearly all cars omit. And each is a thing you'll want.

There is 100 per cent over-strength in every vital part. Over 440 parts are built of toughened steel. Many parts are oversize. Steering and transmission parts are built of Chrome-Vanadium. The gears we use are tested for 50,000 pounds per tooth.

There are springs which never have broken — the Bate cantilever springs. In two years of use, on many thousand cars, not a single leaf has broken.

There is beauty and luxury which few cars can afford. This year alone we add 24 per cent to the cost of finish, upholstery and trimming. Our new body-plant savings pay that.

See These Extras

Before choosing a car for years to come, learn what these extras mean. See the 31 features—like a power tire pump—which hardly a car includes. See the beauties and luxuries which distinguish the Mitchell.

The vast over-strength, in all probability, means a lifetime car. It means safety, low upkeep, small repairs.

See what Mitchells give as compared with cars built in wasteful ways. The facts are bound to win you to the Mitchell.

If you don't know our nearest dealer, write us for his name.

MITCHELL MOTORS COMPANY, Inc.
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TWO SIZES

Mitchell—a roomy, 7-passenger Six, with 127-inch wheelbase. A high-speed, economical, 48-horsepower motor. Disappearing extra seats and 31 extra features included.
Price $1460, f. o. b. Racine

Mitchell Junior—a 5-passenger Six on similar lines, with 120-inch wheelbase. A 40-horsepower motor—¼-inch smaller bore than larger Mitchell.
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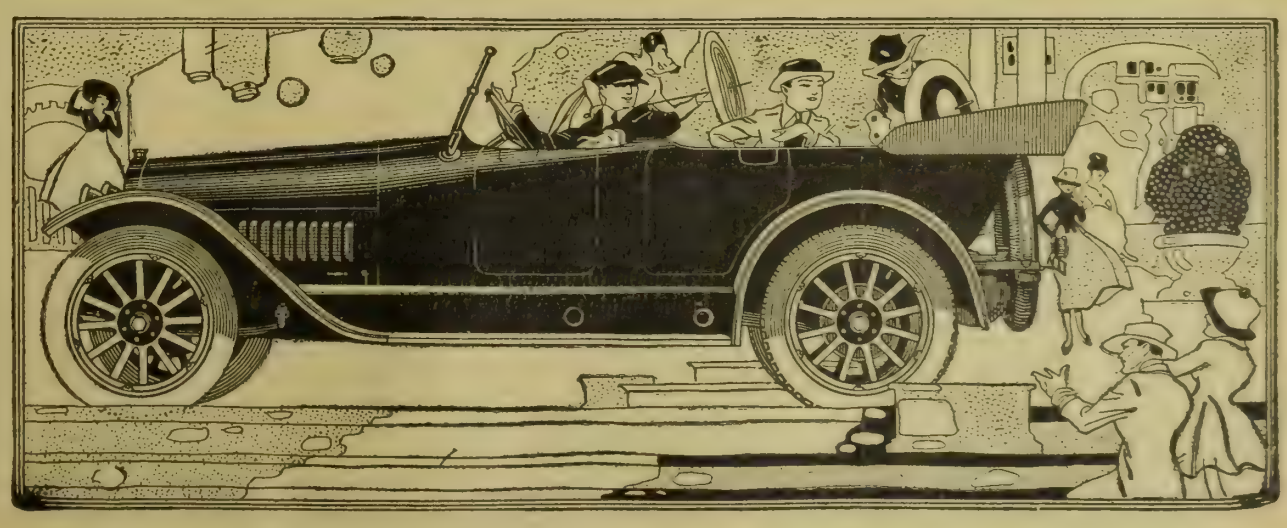
Also all styles of enclosed and convertible bodies. Also demountable tops.



ALMONDS

18-Inch at 9c
60 IXL, 170 Ne Plus, 100 Nonpareil
24-Inch at 11c
450 IXL, 200 Ne Plus, 200 Nonpareil
36-Inch at 14c
80 IXL, 600 Ne Plus

WALNUTS

2½ and 3 Feet at 30c
300 Placentia, 75 Franquette
4 Feet at 45c
75 Placentia, 40 Franquette, 20 Neffs
All grafted on black root.

FIGS

16 to 24-Inch at 6c

White Pacific	White Adriatic
Panoche, striped	Cernica, black
White Smyrna,	Adriatic type
Rose Blanche	Brown Turkey
Celeste	Brunswick
Grisse, black	Verdal Longue

Many of Above, 30-Inch, 12c
3 Feet 15c

White Pacific and White Adriatic
4 to 6 Feet at 18c

QUINCES

4 to 6 Feet 12c

Van Deman Smyrna

Both are better varieties than either Pineapple or Orange.

SHADE TREES

7 to 10 Feet 20c

Catalpa	Box Elder
Tulip Tree	English Oak
Pagoda Tree	Elm
Sycamore	Linden

Note—Orders for less than ten trees will be charged 5c per tree higher. Select any assortment you wish to make 10 trees. To bona-fide nurserymen, 20 per cent discount.

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Dept. 5 Monrovia, Cal.

POTATOES

9 4-5 Bushels from One Pound of Seed

Three potatoes, planted in 56 hills in Huron Co., Ohio, yielded this amount. The seed, the planting, and the crop harvested are matters of county record. You can do as well or even better by following my instructions. It is not a matter of variety of seed, or soil, or fertilizer used, important as each of these matters is, but it is the selection and cutting of seed and treatment. It was these elements that enabled me to produce the yield of 552 lbs. of potatoes from one pound of seed. Full information as to how it was done, the seed used, the soil, the fertilizer employed, the tillage and the methods of producing this large crop will be sent for One Dollar. Send your order now and grow more potatoes from less seed. Any one who feels too poor to spend a dollar to learn how to increase the yield in raising potatoes send me your name and address. Planting time is near. Send your order today and raise more potatoes from less seed.

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meal, but the amount depends somewhat upon the number of squabs in the nests. A good rule is to watch the feeding trough. If a little is left after the feeding give less next time. If it is eaten up clean give a trifle more to make sure that the squabs do not go hungry. They have to depend on what the parents bring them, and if there is a shortage in the supply the older birds may feed themselves and let the squabs go without. Such treatment never produces plump squabs in four weeks.—J. A. K.

R. I. Reds

Where and how did the Rhode Island Red chicken originate? Was it from crossing several different breeds, and what were the crosses?—Subscriber, Madera.

The Rhode Island Red, it is generally believed, was developed from successive matings of Red Malay cocks with mongrel hens. The farmers of the Little Compton district in Rhode Island were accustomed to purchase these cocks and probably some others of Asiatic origin from sea captains who had picked them up on their voyages. They were mated to any sort of hen in the beginning, but mating the progeny of these miscellaneous matings back year after year to the same kind of cock bird finally developed a very prolific and increasingly popular breed.—J. A. K.

Carob Beans

Please advise if carob beans are grown on a commercial scale. Will they grow where there is heavy frost in winter? Where can the seed or young trees be purchased? If subscribers of the Cultivator have tried raising these for cattle or horse feed would like information as to yield, rapidity of growth of tree and whether stock will eat the beans readily.—Subscriber, Nordhoff.

There has been considerable interest in the carob. Waste hillside lands too steep for tilling have been planted. We do not believe anyone has used valuable tillable lands for growing the carob for stock feed. An excellent article on the carob was written for Cultivator readers by Horticultural Commissioner C. W. Beers of Santa Barbara County in the issue of April 9, 1914.

Lime-Sulphur Spray for Walnuts

Please say whether it will be injurious to walnut trees to spray with lime-sulphur after they have begun to leaf. Also whether the spraying is unquestionably effective for the control of the aphis? My neighbors do not intend to spray, and while I favor spraying I do not care to go to the expense unless I am quite sure of results. Can you give me the probable cost of spraying large walnut trees per tree or per acre? Can you give me any information as to where I can obtain lady bugs? Do the large, successful walnut growers, like J. B. Neff, spray their walnut trees? Has the experiment station issued any bulletins on this subject? We have the bulletin on walnut growing issued five years ago, but there is very little information regarding spraying.—Subscriber, Halcyon.

Lime-sulphur is not a safe spray to use on very tender growth but can be used if diluted with about 60 parts of water to one part of the stock solution. The best success in spraying walnut trees to control aphis has been by use of nicotine sprays combined with dissolved whale oil soap. A solution made of one pint Black Leaf 40 and four pounds whale oil soap to 200 gallons of water and sprayed on with 160 to 200 pounds pressure, using an M.A.C. nozzle, gave better results than any other combination. This will cost about one cent per gallon and it will require 35 to 50 gallons per tree having 30 to 40 feet spread of branches with the average height. Spraying has not been generally practiced by any walnut growers for the reason that it is not needed in some years and that it is not possible to get the apparatus and spray large orchards in the short time after the aphis appears in large numbers and the time when the damage is done. Some work has been done by the experiment station to determine methods of controlling the walnut aphis but there is room for much more investigation. Circulars No. 66, No. 107 and No. 131, relating to spraying walnut trees have been issued and can be had by addressing Director of Experiment Station, Berkeley, California.—J. B. N.

Weevil

I am sending beans filled with holes in which are insects. The beans have been stored since last year. What are these insects? Some of the beans are almost entirely destroyed.—Subscriber, Lamanda Park.

This is the common bean or pea weevil. When the beans were stored away they should have been treated with carbon bisulphide. Notwithstanding this many of these beans will grow where the weevil have not eaten into the germ. However, we would advise the carbon bisulphide treatment. We send copy of the Cultivator giving method of treating.

Snuffles in Rabbits

Can you advise what ails my rabbits? They appear to be dopy, watering at the mouth and some of them sniffle. Would like information as to the care of rabbits and their ailments.—Subscriber, Palm City.

This may possibly be slobbers, which often affects the youngsters. Clean and thoroughly dry the hutches and give twice daily a teaspoon of the following mixture: To a tablespoon of powdered ginger and a tablespoon of chlorate of potash add eight ounces of water. There is a possibility, however, that the trouble may be snuffles, which is more serious. The affected animals should be removed from the others and fed every other day lukewarm milk to which a few drops of sweet spirits of niter has been added. This disease is contagious and care should be taken to keep the healthy and diseased animals entirely separate when seriously affected.

Rose Scale

I enclose part of berry vine. Kindly advise what the trouble is and remedy for same.—Subscriber, Visalia.

This is the ordinary rose scale and may be controlled by spraying with almost any of the contact sprays. Lime-sulphur, if applied at once around the base and lower parts of the vines, will probably prove sufficient. Kerosene emulsion will also prove effective. We have even known of beneficial results from throwing on the canes of the vines a very strong stream of water. This will knock off many of the insects.

Worms

Please tell me cause and cure for worms in the flesh of chicken's gizzards.—Subscriber, Orosi.

Three varieties of parasitic worms inhabit the crops and intestines of domestic fowls. Round worms are from 1½ to 3 inches long, and very small, tapering at both ends. Tape worms, which are less common, are found in flattish segments, one of which, the head, attaches itself by hooks or suckers to the walls of intestine or crop. The third variety, which is known by the name, fluke, is small, flat and usually oval. Round worms,

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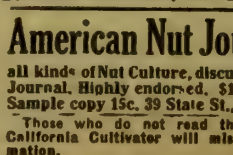

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Those who do not read the advertisements in the California Cultivator will miss a lot of useful information.

which are by far the most common, are passed from fowl to fowl in the droppings; tape worms are supposed to come from eating slugs, snails or earth worms; flukes no one seems to know much about, and they are of no importance, for they do not affect the health of the birds.

The chief drugs used for tape worms are extract of male fern, pumpkin seed, pomegranate root bark, turpentine, powdered areca nut and male fern. Either of these is best given while the bird is fasting and should be followed by a dose of castor oil two to three teaspoons). The dose of turpentine is one to three teaspoons; of areca nut, 30 to 45 grains mixed with butter and made into pills; of pomegranate root bark one teaspoon for 50 birds. The pumpkin seed may be chopped and the birds allowed to eat all they will. Male fern, which is considered one of the most effective remedies, may be used either in the form of powder (dose 30 grains to one dram) or of liquid extract (dose 15 to 30 drops). It is given morning and evening before feeding.

You will have to decide by careful examination to which class the parasites belong before you treat them, for remedies which are successful with one sort have no effect on the other. If they answer the description given above for round worms, and the birds seem sickly or unthrifty, you might try the tobacco treatment recommended by the experiment station at Berkley, Circular 150, which costs nothing and ought to be in the hands of all poultry raisers, gives full description of these worms and directions for treatment, which is briefly as follows: For 100 birds steep one pound finely chopped tobacco stems two hours in water sufficient to keep them covered. Mix this liquid with ground feed sufficient for half the usual feeding. Put the birds on half rations the night before and on the day of treatment feed nothing till 2 p. m., when the medicated mash is given. Two hours later give half as much mash made with water in which Epsom salts (11 ounces to 100 birds) has been dissolved. Repeat in seven days. Chicks may be treated in the same way, the amount of mash being in proportion to age.—J. A. K.

Permanganate for Roup

Would like to ask you a question concerning potassium permanganate as a cure for roup. Several of my Leghorns have it, and I have been dipping their heads in warm water in which has been dissolved the permanganate, as per J. A. K.'s advice on page 97, January 27 issue of California Cultivator. What effect does this have on the disease and should it be repeated each day until a cure is effected?—Subscriber, Folsom.

Potassium permanganate can hardly be called a roup cure. It is an antiseptic, and its main virtue is that when used as recommended, the head of the bird being held in the solution for a few seconds, it washes out the nostrils and eyes, ridding them of the secretion and giving nature a chance to do her own curing. The treatment should be repeated morning and evening, the solution being prepared fresh each time till all symptoms have disappeared. In light cases a few days' treatment, if the bird is in sunny, dry quarters, will usually effect a cure. In severe cases, where there is high fever and depression, or where the disease attacks the throat or forms deposits of cheesy matter below or about the eyes, it is of little if any value. In the case of cheesy deposits the only treatment seems to be to open the swellings and remove the deposit, afterward washing with peroxide of hydrogen or a five per cent carbolic solution. The permanganate treatment is recommended because it is the cheapest and easiest. If massage is applied to the nostril before the head is submerged, the operator pressing upward several times with thumb and forefinger to loosen the discharge, and then the head kept under as long as the bird can bear it, the treatment usually has excellent results. It must be remembered, however, that no treatment for roup will have lasting results unless the cause (dampness, filth, exposure, overcrowding, poor ventilation or draughty roosts) has been removed.—J. A. K.

COMPLIMENT TO CALIFORNIA'S HORTICULTURAL COMMISSION

"The service of the supervision of fruit orchards concerning injurious insects and plant diseases has been remarkably well organized under the general direction of the horticultural commission, and we must admit that in this respect no country on earth is better protected."

With this direct and forceful comment, Dr. Paul Marchal, distinguished authority of the National Agronomical Institute, Paris, pays tribute to California's horticultural commission in his recent work, "The Biological Sciences Applied to Agriculture, and the Struggle Against the Enemies of Plants in the United States."

Dr. Marchal was in California the guest of Dr. Howard, chief of the bureau of entomology, United States department of agriculture, and through the efforts and solicitation of Dr. Howard the eminent authority was authorized to make a study of horticultural conditions in the United States for the Carnegie Institute.

The book is thoroughly comprehensive and crisp and unerring in detail. Dr. Marchal, in grasping so quickly the conditions in California, is entitled to unstinted credit. First he depicts the magnitude of the fruit industry in the state, and then pictures in a vivid manner the process of protecting this vast asset from the ravages and pests peculiar to various trees and vines described.

George P. Weldon, the entomologist and horticulturist, H. S. Smith, of the insectary, the commissioner and those interested in the field work in the various counties are all complimented for their successful team work.

It is plain that Dr. Marchal was interested in the work of gathering and distributing the Hippodamia convergens, or ladybird. Other insects calculated to destroy pests peculiar to the fruit industry are also listed among the features of the work.

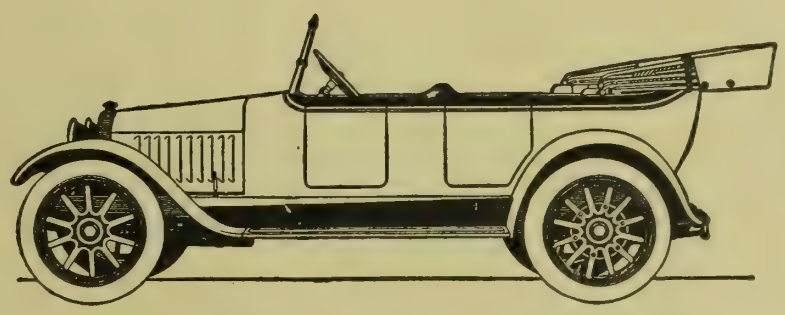
Apparently the successful effort to control the San Jose scale by means of lime-sulphur treatment appealed with particular force to Dr. Marchal, for in paying another compliment to the commission, he says: "It is also due to this same organization that one is able, after a comparatively brief period of experiments, to be master over such a redoubtable pest as the San Jose scale."

Many compliments are paid the work of the quarantine division of the commission, under the efficient direction of Frederick Maskew, chief quarantine officer, and attention is called to the theory of applying a preventive in order to avoid troublesome conditions.

NO CITRUS CANKER

G. H. Hecke, state commissioner of horticulture, feels a decided relief since he received word that samples sent to the pathological station did not show evidences of having citrus canker.

The appearance of these samples sent the commissioner from Southern California indicated the presence of canker. Fearing that it was this, no time was lost in forwarding them to Florida where experience with the disease has made the growers and horticulturists familiar with it. Strict quarantine regulations are in force to protect the citrus growers of California, and orders have been sent out that these regulations must be rigidly observed. Only by drastic methods and eternal vigilance can the canker be kept out.



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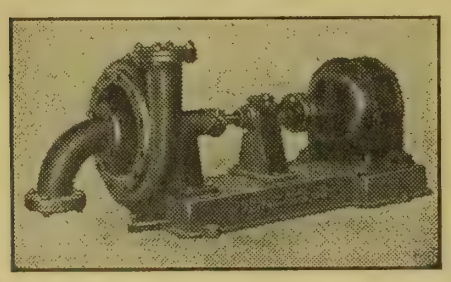

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The Tractor and Its Prospects

PROBABLY no agricultural machine developed since the early days of the self-binder has been the subject of as much study and inquiry on the part of the farmer as the farm tractor," writes H. R. Brate in Farm Implement News. "From an annual sale of a little over 1000 five years ago the tractor trade has grown to a business of great proportion and possibilities, so that the sales last year, 1915, reached 22,500 machines, while this year it will go beyond the 50,000 mark. A few years ago the tractor, which then weighed from eight to 12 tons, was adapted only for breaking the tough, virgin sods of our Northwestern states, as well as those of the great Canadian Northwest, while the tractor of today is adapted to our smaller farms, and has correspondingly decreased in weight.

"One of the very important reasons why the tractor has found such a ready sale, and why it is going to be necessary for our farmers to employ more mechanical help than they have been doing, is the fact that more of our unimproved land must be brought into a state of cultivation as the average increase of improved land per farm during the ten years, 1900 to 1910, was only three acres, which is not enough to keep pace with our steadily increasing population nor to pay the farmer a fair return upon his investment; for farm values have more than doubled during the past ten years; the average value per farm being nearly $7,000.

"The last census shows us that to every 100 food consumers there are only six food producers, so it is apparent that farming has not been overdone, neither as to product nor intensity of cultivation. To be sure, there are years when we have locally an overproduction of some certain crops, but when we take the averages for the entire country we find that it has been largely a matter of faulty marketing and distribution. To show at what rate the number of food consumers is increasing, we find that our urban population, that is, the inhabitants of incorporated places of 2500 or over, increased during the last census period at the rate of over a million a year, 34.8 per cent, during the ten years, 1900 and 1910, while during the same period the rural population, which the last census placed at 49,000,000, increased only 11.2 per cent. Of this total rural population only one-eighth, or about 6,000,000, are farmers. Furthermore, the farmers of this country must furnish food for a greater part of Europe, which with devastated fields, would find it impossible to feed herself, even should the war stop this very moment. She will be dependent upon America for foodstuffs, for cattle and horses, and for tools for several years to come. The American farmer has had a great responsibility forced upon him in furnishing food to so many hungry mouths, and the only way he can meet it is to increase his acreage of improved land and the yield per acre.

Sugar Beets Require Deep Plowing

By Prof. G. E. Bensel in Sugar

PREPARATION of the land to be cropped to sugar beets is a very important operation, and many past failures can be attributed to the lack of sufficient attention given to the plowing.

If a sugar beet raised from high-pedigreed ancestors, well-shaped parents with a pivoting root, will encounter a compact soil lacking porosity, viz.: difficult to penetrate, it is easy to understand that the shape of the young plantlet will differ from its inherited tendency, and that its development, its form, its richness, will be strongly modified.

The object of the thorough preparation of the soil is to furnish to the sugar beet a medium in which it can freely develop all the qualities transmitted by its ancestors.

Deep plowing is the first principle of successful beet culture, because the root is thereby enabled to penetrate the sub-soil with no obstruction, thus preventing its growth out of the ground, and also allowing it to extract considerable nourishment from the soil.

Deep plowing means a deeper and better feeding surface for the beet. By plowing deep we pulverize a greater quantity of soil, bringing to the surface a large portion of dormant plant food, which, by the action of atmospheric agents such as air, moisture and light, will soon become available and consequently increase the fertility of the soil.

Furthermore deep plowing will considerably increase the water storage capacity of the soil, which is a very important work, especially in the semiarid regions where the average rainfall does not exceed 16 inches, and where the precipitation only occurs during the winter season.

By plowing deep the water will percolate better and more moisture will be stored. By deep plowing is meant 14 to 18 inches depth which should be reached gradually by increasing the depth two to four inches every year until the desired depth is obtained.

If the land has been plowed only eight inches deep, the next season it should be plowed ten to 12 inches, and so on. Unbroken land (or grain land), which has been plowed only very shallow should be plowed about eight inches the first year in order to avoid bringing up to the surface a too large amount of dead soil. New and unbroken land can be plowed 16 to 20 inches deep for the first time, if the land is to remain fallow for one year. During this time the air will bring life to the virgin soil by transforming the insoluble plant food into a soluble form, which will also stimulate the bacterial activity and leave the ground in an excellent condition for the sugar beet crop.

Deep cultivation not only increases the fertility of the soil but opens the land to the atmosphere; it facilitates the penetration of the oxygen, the absorption of the air moisture and helps the decomposition and assimilation of nutritious elements.

Besides all the above mentioned advantages, it has a destructive action on the larvae of injurious insects. Furthermore the spores of the leaf-spot will be killed if plowed under at a depth of 12 inches. Deep plowing is the most practical remedy against the leaf-spot; therefore all fields that were affected by this fungous disease should be plowed as deep as possible.

If the land was farmed to sugar beets the previous year, and by plowing out the beets the ground was left in a very rough condition (as often occurs in heavy soil), it is very advisable to have the land rolled and disked before plowing in order to prevent the turning under of big clods which will create open spaces in the subsoil which are so detrimental to the sugar beet.

All the land to be farmed to beets should be plowed as early as possible—this does not mean that the land should be planted early, as the date of planting depends greatly on the nature of the soil, its chemical composition, etc. Four to six weeks should elapse, at least, between the plowing and planting, especially if a new soil is brought to the surface by deeper plowing.

With the daily increasing use of the mechanical tractor in the sugar beet fields, the growers have intensified their method of farming by plowing their lands deeper and quicker, which means a greater storage of rain, a larger feeding surface for the root system, a better supply of plant food and more efficient action of the atmospheric agents, all conditions which will considerably increase the growers' profits.

SUGAR BEET SEED, 1916

Preliminary returns indicate that the area used for growing sugar beets for seed in the United States in 1916 was 5268 acres, and that the production of seed was 5,211,000 pounds, an average yield per acre of slightly less than 1000 pounds. The three states o

Colorado, Idaho and Utah contained nearly 5000 acres and produced approximately 5,000,000 pounds of seed. The above estimates are subject to revision.

Area and production of sugar-beet seed in the United States, 1916:

States.	Beets grown for seed. (Preliminary.) Area. Acres.	Production. Pounds.
California, Idaho and Utah	2,178	1,628,000
Colorado, Kansas, Montana and Nebraska	2,725	3,455,000
Michigan and Ohio	365	128,000
Total	5,268	5,211,000

The annual imports of sugar beet seed for the five years ending June 30, 1916, averaged 12,275,330 pounds, valued at $1,075,207. The imports increased from 11,389,394 pounds in 1912 to 15,882,661 in 1915, but decreased to 9,052,490 in 1916. The average import price per pound was 9.7 cents in 1912, 7.2 in 1913, 7.8 in 1914, 8.9 in 1915, and 11.5 in 1916. For the four years, 1912-1915, Germany supplied nearly 80 per cent of the sugar beet seed imported, or slightly more than 10,000,000 pounds annually; but for 1916 Russia was the source of about two-thirds of the imports, or 5,382,000 pounds.—Sugar.

WASCO FARM CENTER

We have the following news letter from the Wasco farm center:

"This is the largest in Kern County and still growing. In less than a year this center has increased its membership over 100, giving it at present 131 paid up members. Besides being the largest in the county we belive it to be the only one in the state that has a brass band of its own. The band has 20 members, all of whom live in or near Wasco.

"Our purchasing committee is another important factor, ordering various supplies in car load lots, thus making a big saving to its members. On five tons of alfalfa seed alone they saved over $700, and another $200 on a car of spuds. The monthly auction sales held here by the farm bureau are bringing very satisfactory prices for the farmer. It sure looks as though the only one not benefited by the farm center is the middleman.

"The Wasco center is planning a picnic in May and the band intends giving a concert in the near future.

"Owing to the interesting talks given by our farm adviser, George Kreutzer, the regular monthly meetings have an average attendance of at least 250."

MOTOR TRUCK SHOW

What is expected to be the largest motor truck show ever held west of Chicago is the Commercial Motor show, which is scheduled to occupy the Exposition Auditorium in San Francisco from April 3 to 7 and which will take up every inch of the more than 51,000 square feet of floor space available there. In addition to trucks there will be exhibits of attachments and accessories.

FAIRS AND EXPOSITIONS

Butte County Fair and Spring Exposition, E. J. Falk, secretary Chico, May 21-26.

Alameda County, W. J. Dakin, secretary, Pleasanton, July 4-7.

Monterey County, John J. Kelly, secretary, Salinas, July 11-14.

Hollister Fair, Hollister, July 18-21.

Petaluma Fair, Petaluma, July 25-28.

Mumboldt County, R. H. Smith, secretary, Ferndale, August 1-4.

Ukiah Fair, Ukiah, August 8-11.

Sonoma and Marin District Fair, Donovan Bros., Santa Rosa, August 15-18.

Solano County, A. C. Madden, secretary, Dixon, August 22-25.

Yolo County, Woodland, August 29-September 1.

Yuba County, Marysville, September 4-7.

California State, Chas. W. Paine, secretary, Sacramento, September 8-15.

Riverside County, C. H. Lewis, president, Riverside, September 17-22.

Ventura County, L. P. Hathaway, secretary, Ventura, September 24-29.

Glenn County, E. A. Kirk, secretary, Orland, September 26-29.

Fresno County, C. G. Eberhart, secretary, Fresno, October 1-6.

Kern County, T. F. Burke, secretary, Bakersfield, Oct. 1-6.

Kings County, E. Gravatt, secretary, Hanford, October 8-12.

Orange County, Dr. H. J. Stevens, secretary, Santa Ana.

San Joaquin County, John P. Irish, Jr., secretary, Stockton.

University Farm Picnic, Davis, April 28.

NEW TREES AND PLANTS FOR AMERICA

A wide variety of promising foreign plants is now being propagated and tested by the government in the plant introduction gardens maintained by the United States department of agriculture in Florida, California, Washington, and Maryland.

These gardens may be called the "Ellis Islands" of the plant immigration service. In them plant immigrants are carefully studied in order to make sure that they carry with them no disease and only those which are known to be desirable additions are permitted to make a home in this country. The plants which have successfully passed this scrutiny are distributed to the state experiment stations and to thousands of experimenters and breeders throughout the country.

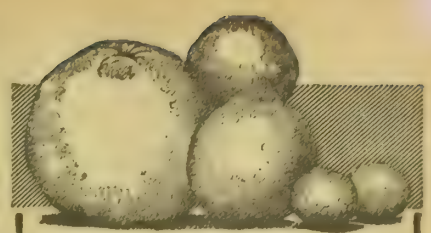
MARKET DIRECTOR'S REPORT

The first annual report of the state market director of California has been issued by Director Weinstock and contains much of interest as to investigations of marketing conditions in this state. From the report it is seen that the conditions are not satisfactory to the producer. We hope another report will show wherein the state has greatly improved these conditions.

FEEDING DEMONSTRATIONS AT FARM PICNIC

At the university farm picnic at Davis on Saturday, April 28, there will be demonstrations of experiments now being made to prove whether the most economical and efficient way to feed milo to swine is to feed it with the heads, to thresh it, or to feed it threshed and soaked in water. Pens of hogs are being fed in these three different ways. To find the value of rice as a stock feed is another experiment to be demonstrated.

The California State Fish, Game and Forest Protective League is the name of an organization which is pushing for senate bill No. 708, which abolishes the fish and game commission and transfers the duties and powers of that body to one commissioner and provides that neither such commissioner nor his deputies or assistants shall be members of any gun club. Matter issued by this league sets up the claim that every member of the present state fish and game commission is a member of a gun club and that the laws of the state are enforced so as to discriminate against hunters who are not members of clubs. The statement is made that the sum of $1,948,000 was spent by the fish and game commission during the past four years. If this is true it means that $250,000 a year is being spent by this commission, and this amount is vastly more than is spent by the state horticultural commission, which protects the greatest producing interests of the state.



PROFIT comes from fruit, not foliage. On Citrus fruits use immediately available

Nitrate of Soda

It works while the fruit buds are forming.

"Orange Culture" is a valuable book I will send to you Free if you will but ask for it. Send post card.

DR. W. S. MYERS
Chilean Nitrate Propaganda
25 Madison Avenue, New York City

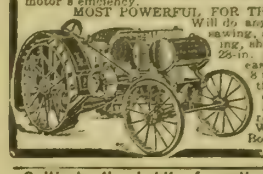
GALLOWAY TRACTORS

Square pulling, easily started, four wheels 12 h.p. at draw bar, with surplus of 4 h.p. by actual dynamometer test. 20 horse power on belt. Four cylinder, water cooled, long stroke, modern motor. Transmission a unit with motor. By actual test requires only 13.3 per cent of motor's power to propel itself, delivers at the draw bar 86.7 per cent of the motor's efficiency.

MOST POWERFUL FOR THEIR WEIGHT

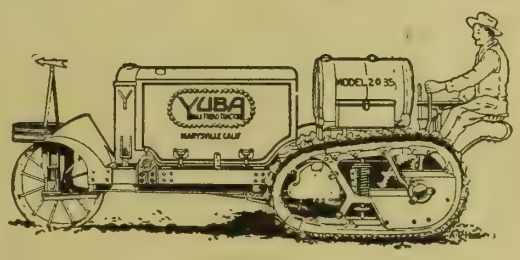
Will do any portable engine job, sawing, silo filling, corn shredding, shredding; easily handles 28-in. grain separator; pulls easily three 14-in. bottoms 6 to 9 in. deep in clover or timothy sod. Unexcelled for road building. My new 1917 catalog is ready. Ask for it today.

WM. GALLOWAY CO.
WATERLOO, IOWA



Cultivate the habit of reading advertisements and get the news of the manufacturing world

What will it do for me?



Yuba 20-35

It will plow 15 to 20 acres per shift.

It will disc 35 to 40 acres.

It will haul 20 tons on high speed on a reasonably good road.

It will operate a 32-inch separator.

It will pull an independently operated combined harvester with a 20-ft. cut.

It is powerful enough for any job—small enough to go almost anywhere—simple enough for any one to drive.

It is the ideal machine for the wheat farmer, the rice grower, the bean raiser and the contractor.

BUY A YUBA

Which size is best suited for your needs?

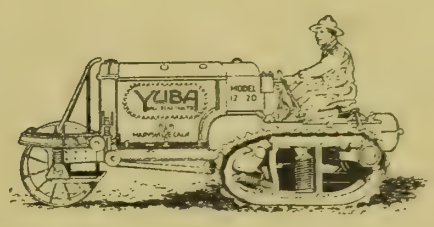
Yuba Manufacturing Company

(*Formerly The Yuba Construction Company—change in name only*)

433 California Street
San Francisco

Factories at Marysville and Benicia, California

What will it do for me?



Yuba 12-20

It plows 10 acres, cultivates 25 acres, and hauls 12 tons per shift.

It will operate a 6-inch pump.

It is narrow enough to go in 7-ft. hop rows, or 7-ft. vineyards.

It is the right design for beet growers who plant in 20-inch rows.

It is the only tractor for the asparagus grower.

The Model 12-20 and the Yuba plow form a one-man outfit—even in the orchard.

An all around machine—though it was designed especially for the orchard.

BUY A YUBA

Yuba Manufacturing Company Dept. B8
433 California St., San Francisco, California

Gentlemen: Kindly send me catalog and prices on the Yuba Ball Tread Tractor.

I am interested in Model 12-20____ Model 20-35____

Name_____

Town_____ State_____

P.O. Box_____ Size of farm_____

[Check main crop raised]

____Fruit ____Rice ____Grain
____Grapes ____Hops ____Alfalfa

and there have just been issued new Pump and Plow Catalogs which we will be glad to send prospective buyers.

Established 1888. Twenty-eighth Year.

The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, March 24, 1917

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

The importance of the nursery business in California is shown in the leading article of this issue and in the illustration on the cover page. Hundreds of thousands of deciduous nursery trees and vines were in the yards of the Fancher Creek Nurseries at Fresno at the time this photograph was taken. Most fortunately for the welfare of California a photograph taken today would appear vastly different for these yards are now practically empty, and many hundreds of acres have been planted to orchards which will prove profit bringers to California.

In output of nursery trees California now leads the world; New York and Texas rank second and third.

PURCHASING COOPERATIVELY

The farm adviser of Kern County states that one farm bureau in that county has saved over $900 to members through buying seeds, posts, cement, potatoes and other commodities in car lots. Purchasing committees in other centers are likewise saving large amounts to members. Every day sees advancement in cooperation.

J. A. DRIFFIL

Major J. A. Driffil, manager of the American Beet Sugar Company's plant at Oxnard, died during the past week. Major Driffil was one of California's pioneers, locating in Pomona more than 30 years ago. He was at one time manager of the Chino sugar factory and since the construction of the great plant at Oxnard in 1898 has been its manager. This plant is the second largest in the United States and has been one of the most successfully managed.

"TEMPUS FUGITS"

The "American Motorist", in calling attention to the fact that the world does move and improve, says that today one could hardly believe it was only a score of years ago, or in 1896, when it was necessary that all motor cars on the highways of Great Britain should be preceded by a man on foot waving a red flag.

When one reads of the accidents caused by speed maniacs it seems as if a return to the old time methods might be necessary even yet. However, the world is moving more swiftly.

IN OPERATION

In another column announcement is made of the officers and directors of the new federal farm loan bank at Berkeley. Dr. Elwood Mead of this state is one of the directors. We doubt not this institution will be ready within a very few weeks to advance funds.

Almost daily there is inquiry of the Cultivator as to steps necessary to secure these loans. This information has been given in our columns, but in a word the first step is to organize a local association and write at once to either Dr. Mead at Berkeley or the secretary of the farm loan board at Washington for blanks and information. Every community which would borrow must have an association of at least ten members who shall borrow $20,000 or more.

DIM THE HEADLIGHTS

Careful autists are hoping for more rigid enforcement of the law as to dimming glaring headlights. The law enacted in 1915 has never been enforced as it should be. An excellent suggestion is made by the American Automobile Association, with the following recommended legislation:

"Glaring Headlights: It shall be unlawful to use on a vehicle of any kind operated on the public highways of this state any lighting device of over four candlepower equipped with a reflector, unless the same shall be so designed, deflected, or arranged that no portion of the beam of reflected light, when measured 75 feet or more ahead of the lamps, shall rise above 42 inches from the level surface on which the vehicle stands under all conditions of load. Spot lights shall not be used except when projecting their rays directly on the ground and a distance not exceeding 30 feet in front of the vehicle.

PREPAREDNESS

If there was ever a time when preparedness in agricultural practice was of value it is at the present moment. Not in many years has the natural food supply been so low. Reports from the department of agriculture show that in storage and in warehouses of all the states potatoes, refrigerated meats, wheat—everything eatable—show a shortage of from ten to 50 per cent.

There have been some doleful predictions as to America starving unless an embargo is laid on foodstuffs, but with the new harvests as close as they are and as abundant as they give promise of being, we believe there is no danger of hunger. The problem is not so much an embargo on exports as an embargo on the methods of food speculators.

The situation calls for serious thoughtfulness and affords an opportunity for the farmers. If given a good season we believe this year's business will be the best this country has ever had. There will be better cultural methods followed; so far as possible there will be more use of fertilizers; more effective marketing organizations will aid producers in securing just returns. It has been charged that the farmers have organized to unduly boost prices. This is not true. The farmers have organized and demanded just returns for their labor, which have not heretofore been given them. Yet there was no call for aid from women's clubs or other organizations, but the moment speculators boosted prices beyond reason the clubs took hold of the situation and demanded justice. As one paper has suggested, these organizers of boycotts should look at the farmer's side of the question as well as their own. However, the movement may result in calling attention to abuses of the middleman, and there may be less loss between producer and consumer.

In any case produce more and produce better and be prepared for any condition which may come. We are now importing potatoes and onions from Japan. Home grown ones will taste better.

TO MEMBERS OF COW TESTING ASSOCIATIONS

COW testing associations are increasing; their work is invaluable and dairymen are richer because of it. In the state dairy cow competition the Cultivator is endeavoring to advance the work of these associations by offering prizes for highest testing herds. At first the announcement was made that these tests should be under the direction of a man from the state university who should make regular monthly inspection and tests. This made the cost to each competitor too great, as the competition covers a period of 12 months, and so a change was made, and Prof. Woll, who has this competition in charge, ruled that "the terms for the award of the three prizes of $100 each (offered by the California Cultivator) for the highest average production of butterfat for one year by herds owned by members of a cow testing association, have been modified so as to leave the certification of the yearly reports in the hands of the officers of the association. No monthly test checks will be conducted by the college of agriculture in herds competing for these prizes, as will be the case for cows in cow testing associations competing for other prizes, for records by individual cows or by groups of cows in the same herd."

This ruling was not understood by many dairymen who now express a desire to enter the competition. To encourage the industry and these dairymen the time for entry has been extended to May 1. This can only be taken advantage of by those who have been members of associations and whose records have been kept by the regular cow tester of the association, for while entry may be made as late as May 1, the records upon which the competition will be based may begin any time between November 1, 1916, and March 1, 1917.

There are now entries in all of the three classes, that is, dairies of ten to 25 cows, of 26 to 50 cows, of over 50 cows. Remember the winner in each one of these classes, at the completion of the contest, March 1, 1918, will receive the Cultivator's check for $100.

Write at once to Prof. F. W. Woll, University Farm, Davis, for entry blanks and information.

Agricultural Notes

The National Swine Show will be held at Omaha, October 3-10.

There are now only about 30 co operative bull associations in the United States.

The number of ships which passed through the Panama Canal in 1916 was 1253, or 83 more than the number making the transit in 1915.

Shipments of frozen eggs to the United States in 1916 from Nanking, China, amounted to 6,000,000 pounds nearly tripling the shipments in 1915.

British Columbia potatoes were sold for the first time in New York, Missouri, Kansas, Minnesota, California, Washington, and other states during 1916.

The extermination of ground squirrels from approximately 209,000 acres of government land was accomplished last year by the United States biological survey.

Brazil is encouraging extending the cotton industry. So far no use has been made of the oil or hulls, and special effort is being made to develop manufacture of these by-products.

Potatoes may now be imported into the United States from the following countries under permit: Denmark, Holland, Belgium, Cuba, Bermuda, the Dominion of Canada, and Victoria, Australia.

The New Zealand government has several experimental farms. One near Hamilton, about 86 miles south of Auckland, is the most important and contains 914 acres, most of it being under cultivation and grazing.

Government crop report.—Estimated stocks of barley on farms in California March 1 this year 3,000,000 bushels, compared with 5,127,000 a year ago and 5,468,000 two years ago. Price March 1 to producers, 113 cents per bushel, compared with 71 cents a year ago and 76 cents two years ago.

A. R. Gould sends the Cultivator a letter received by him from the director of agriculture of the Gold Coast Colony of West Africa, stating that "the production of cocoa for the year 1915 was 80,000 tons, or one-third of the world's production. He says that last year (1916) would be even more. This is the result of agricultural education amongst the natives."

Greatly increased production of potash in this country during 1916 is reported. The total production of potash salts and potash products in the United States in 1916 represented about 10,000 tons of potash with a net value at point of shipment of at least $3,500,000, figured at the prevailing selling prices. This is ten times the value of the 1915 production.

Bills limiting the length of freight trains have been introduced in the state legislatures of Missouri, Iowa, Kansas, Colorado, Utah, Nebraska, Texas, New York and Oregon. The bill introduced in the Missouri legislature limits the length of local trains to 30 cars and through freight trains to 45 cars. The provisions of the bills introduced in the other states differ as to details but are all alike in principle and purpose.

Chinese peanuts are said to average 46 per cent oil. The oil is extracted and exported in large quantities for use in cooking, as a substitute for olive oil, and largely in the manufacture of soap. The value of peanut oil exported in 1915 exceeded by more than 50 per cent the value of all peanuts shipped. After the extraction of the oil the product remaining is formed into cakes which are used as fodder, poultry feed, or fertilizer.

Agricultural News Notes of the Pacific Coast

Northern California

Pear growers are getting ready for the fight against thrips.

The planting of sugar beets has begun at Meridian, Sutter County.

Some experiments will be made with cotton growing in Colusa County this year.

Many farmers of Butte County are convinced that they should have a farm adviser.

Cottonseed meal is being fed by sheep men of Klamath (Oregon) and Lake Counties.

Twenty-four carloads of rice left Colusa last week, most of it going to New England markets.

Sutter County peach growers have hopes of securing as high as $42.50 a ton for this year's crop.

Butte City and Biggs report brisk sales of rice at $1.91. One firm reports the sale of 13,000 bags.

The pig club of the Chico high school has begun its feeding contest. A $70 registered pig will be a first prize.

Farmers of Glenn County are talking of the necessity for securing a squirrel destruction ordinance in that county.

Some peach orchardists of Bogue, Sutter County, report signing contracts for their crops for ten years at $30 per ton.

Cooperative purchase of 75 tons of commercial fertilizer has been made by members of the Eldorado Potato Growers' Association.

The Eldorado County Standardized Fruit Alliance has declared its opposition to the fruit standard bill now before the legislature.

A Grass Valley rancher has been trapping wild animals, securing bounty for their pelts and cooking the carcasses for poultry feed.

Northern California is discussing the advisability of celebrating rice week in connection with the Butte County Spring Exposition.

Dr. J. W. Hendry of the state university advises the planting on bean lands of winter crops, such as horse beans, field peas, garbanzos and lentils.

Plumas County supervisors have gone on record as favoring a law to make all non-navigable streams public highways for the purpose of public fishing.

The Oroville Register reports arrest of a Biggs rice grower who shot wild ducks that were eating his rice. The rice was headed out low and being used for hog pasture.

Influenced by the wonderful showing made by university steers at the recent Chicago international the state board of control has recommended that the legislature give a substantial appropriation to aid the animal husbandry division of the university in carrying on further experiments in raising beef cattle and sheep.

A meeting of the California Jersey Breeders' Association was held in Loleta recently. The main object of the meeting was to give official support to the state dairy cow competition. The following were made members of the association: S. J. Damon, John Trigg, Jr., Bernard Crowley, of Ferndale; W. H. Perrott of Loleta and C. W. Ward of Eureka.

Central California

Tulare County has voted $2,200,000 roads bonds.

Great preparations are being made for Raisin Day, March 30.

Heavy blossoming of apricot trees is reported in Tulare County.

Vineyard workers of Fresno have established an employment bureau at Fresno.

Three thousand acres are now being planted to alfalfa at Oakdale, Stanislaus County.

Owners of land in Kings River bottoms are planting an unusually heavy acreage of potatoes.

Fruit canners are reported to be making peach contracts in Santa Clara County at $40 a ton.

Fresno County supervisors have appropriated $2000 for the maintenance of a farm adviser's office during the next year.

The Pacific Pea Packing Company at Oakdale, Stanislaus County, will this year can hominy, beans, and pork and beans.

The Lindsay Ripe Olive Company is considering adding equipment which will enable it to handle tomato canning this summer.

Three new sugar factories are announced for San Joaquin County at Tracy, Manteca and Stockton. All are to be $2,000,000 plants.

There are 25,000 dairy cows enrolled in cow testing associations in this state. Four thousand of them are in the one county of Imperial.

A new packing house has been announced for Lindsay. It controls about 1000 acres, equally divided between navels and Valencias.

The chamber of commerce of Coallinga has requested the Tulare County supervisors to assist in having made a soil survey in their district.

At the sale of fat hogs at Wasco March 10 members of the Kern County farm bureau secured an average of $19.70 per head on the five carloads sold.

The Miller & Lux corporation has signed an agreement with the Madera irrigation bureau to join in the formation of an irrigation district in Madera County.

Poland-China breeders formed a state association at Hanford last week with W. Bernstein of Hanford as president and R. H. Whitten of Los Angeles, secretary-treasurer.

The great Woodward reservoir, east of Stockton, will be dedicated in May. This reservoir will store 35,000 acre feet of water for summer irrigation of the South San Joaquin district.

The Poplar district of Tulare County raised its first crop of beans in 1916, amounting in value to $32,000. Dealers are now reported offering contracts at seven cents for next year's crop.

Supervisors of Merced County have passed a weed eradication ordinance and have also authorized the purchase of one and a half miles of wire fence for construction of a portable rabbit corral to use in rabbit drives.

The biological survey has sent a squirrel extermination expert to Fresno County to aid the farmers in their ground squirrel campaign which has been started under direction of Neil Anderson, county ground squirrel inspector.

Southern California

Fishing is reported good at Lake Elsinore.

Cotton planting is beginning in Imperial.

Beet planting is practically finished in Orange County.

The packing house of the El Cajon Growers' Association employs about 30 people.

Apricot growers of Perris report no injury to apricot blooms from the recent frosts.

Kansas City packers are seeking for feeders amongst Southern California swine raisers.

Riverside sent out 5000 sample boxes of oranges as part of its Orange Day celebration.

Citrus growers met in Pomona last Friday and discussed improved frost fighting methods.

Contracts for 1917 limas are reported being made by the Lima Bean Association at eight cents.

A state dairy inspector has been going over dairies in the section about Oceanside, San Diego County.

Chino is discouraged over the prospects of securing a cannery of the San Antonio Growers' Association.

Cotton growers of Imperial Valley are planning to put in at least 115,000 acres of long and short staple.

Trustees of Redlands are discussing advisability of hiring a gunman to dispose of the pest of sparrows.

Governor Cantu of Lower California has issued a quarantine against all unmanufactured cotton products .

According to report of Commissioner Beers of Santa Barbara County the mustard crop amounted to 2000 bags.

Ventura County reports "bean picking" or the sorting of the mature beans in warehouses as practically ended.

The new olive plant at Fallbrook has shipped out its first carload of olive pickles, the shipment going to New York.

Bean growers of San Luis Obispo County are sending requests for large shipments of lady birds to control bean aphis.

Supervisors of San Diego County have voted $1000 to be used in cooperating with the forest service in protection from fire.

The management of the National Orange Show at San Bernardino reports attendance of 25,000 on Saturday afternoon, February 24.

Japanese growers of chili peppers at Garden Grove have demanded a five dollar increase in price as condition of planting this year.

For the benefit of growers of Egyptian cotton the quarantine has been lifted against importation of seed from Maricopa County, Arizona.

At the last meeting of the Beaumont Fruit Growers' Association a marketing committee was appointed to decide on plans for the coming season.

The Poultry Producers of Southern California, the newly organized poultrymen's association, has notified subscribers that its stock books will be closed April 1.

The rains prevented shipment of some citrus fruits to fill the market for Orange Day. This is regrettable and has resulted in some dealers holding for stiff prices.

The Coast

Sugar beet growers of Grants Pass, Oregon, have formed an association.

The agricultural extension service of the University of Arizona is starting a boys' cotton contest.

A committee of wool dealers is conferring with the United States quartermaster department in regard to filling army contracts.

Two mountain lions were killed by a Mexican on the Dumbell ranch of J. W. Stewart near Simmons, Arizona. The lions measured nine feet from tip to tip.

The American Shorthorn Breeders' Association is making known the merits of its breed by exhibiting picture films made at the Chicago International last fall.

The campaign of the board of agriculture of Hawaii to eradicate tuberso successful that it is now stated that 90 per cent of the herds are entirely free from infection.

Stock feeders in the district about Meridian, Idaho, have organized the Boise Valley Grazing Association, which will cooperate in hiring men to take care of cattle on government range.

A "wool car" from Washington, D. C., has been secured by W. S. Thornber, director of the extension department of Washington State College, to tour Washington the latter part of March.

The Caldwell (Idaho) Horse and Mule Market announces that a sale will be held every month. At a recent sale prices were good, some of the animals bringing as high as $270, with an occasional team running as high as $475.

Arizona cattlemen attended the eleventh annual session of their state organization at Globe March first, second and third, many of them going from there to El Paso to attend the annual of the Southwestern Stockmen's Association March 6, 7 and 8.

A class of 100 farmers scattered throughout the farming sections of Yamhill County, Oregon, have been enlisted in a farm management project. The work consists of taking an inventory of all live stock, feed, machinery and tools on hand March 1.

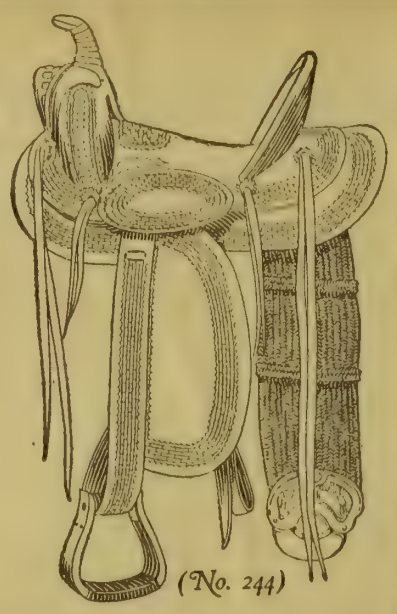
The number of dairy cows in Arizona increased 40 per cent during 1916 according to the figures recently made public by the United States department of agriculture. Montana increased 15 per cent, New Mexico 12 per cent and Wyoming ten per cent.

Forest Inspector Hense of Arizona is recommending that a large area infested with loco weed on the north side of the Chiricahua Mountains be fenced to keep cattle off, as it has already caused the death of hundreds. The loco weed is the only green thing on a tract of 20,000 acres.

The Whatcom County (Washington) Dairymen's Association has been considering the problem of pooling their product with a view to economizing in market methods and receiving greater consideration at the hands of the buyers. A similar plan is being worked out in Snohomish County.

A bill is before the Arizona State Senate, making it possible to borrow money from the state on unimproved lands for the purpose of improving the lands. No loan is to be made on land worth less than ten dollars per acre, and the amount of the loan shall not exceed one half the value of the land, and may not be more than $5000.

HERCULES SADDLE



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STOP LOSING CALVES

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Choice breeding stock, both sexes, from Panama-Pacific International Exposition prize winning strain. 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to

M. Bassett

Hanford, Kings County, Cal.

Butter and Cheese Scoring

By H. S. Baird

THIRTY cubes of butter and cheese were entered in the first scoring of the 1917 educational scoring contest. A few buttermakers were present and went over the butter with the judges after it had been scored. We hope that this feature of the contest will grow and that we may have more present at future scorings. We are holding the scorings in different parts of the state in order to afford butter and cheese makers this opportunity and it is hoped that they will take advantage of it.

P. Peterson of the Valley Flower Cooperative Creamery of Ferndale received the highest score on butter with 94¼. The high scores on cheese were as follows: Cheddar, Arthur Schoenrock, White & Terry Cheese Factory, Galt, 94; California (Granular), Silvia Guidici of Santa Cruz, 94; Jack, Rufus Steele of Swanton, 93.

The scoring was done by T. J. Harris, official inspector of the San Francisco Wholesale Dairy Produce Exchange, H. S. Baird and S. L. Denning of the dairy division.

Butter of Good Quality

S. L. Denning, who was one of the judges, makes the following comment on the butter: "The butter in this scoring was the best that has been received for some time, the average score being 92.38. This is higher than the average for any one contest of 1915 or 1916. Of the 30 cubes, 12, or 40 per cent, scored extras or better, and 26, or 86.6 per cent, scored 92 or better. There was only one score below 90. It is encouraging to have so large a percentage of the entries scoring well up into the grade of extras. The most common criticism on flavor was that of feed. This is a very common defect at this time of the year due to the green feed. Aerating the cream during pasteurization will help a great deal to eliminate the feed flavors. Some samples were criticised for an unclean flavor. In practically every case of unclean flavor the buttermaker reported the use of cream which was two to nine days old. Too much emphasis cannot be laid upon the value of cream grading; one can of poor cream can throw off a whole churning.

"A large number of the samples were very high in salt. It seems to be the practice of the buttermaker to try to obtain more overrun by increasing the salt content of the butter. When the salt content gets too high the fine, delicate flavors are covered up and lost. Several of the cubes would have received a higher score had the salt content been lower. The body of the butter showed a wide variation. A few of the entries from the northern part of the state where large amount of dry feed is still being fed, showed a typical winter body. On the other hand, a large number of the entries had a very weak, leaky body. This leakiness is probably caused by the buttermakers not lowering their churning temperatures enough to suit the season, which results in the butter coming very soft. The working of this soft butter in the presence of excess water very often results in a weak, leaky body. By carefully regulating the churning temperature and the working a great deal of this leakiness can be avoided."

Few Cheese Entered

There were 16 entries of cheese, representing ten factories. (Some factories entered in more than one class.) The small number is due largely to the fact that many factories had not opened for the year. The dry winter has resulted in late pastures, which in turn has caused the large spring cheese make to be late. The average score of all cheese entered was 91.12. It will be noted that this average is 1.26 lower than the average score of the butter, which is probably a fair comparison of the qualities of these two dairy products of California. California is importing more than twice as much cheese as she is making, and if the quantity of cheese which is now being imported is to be supplied by home factories, it will be necessary to raise the quality of our cheese. The average scores of the different classes of cheese were as follows: Cheddar 92.2; California (Granular) 91.5; Jack 89.3. The main criticism on the California (Granular) and Jack cheese was the bitter flavor. This flavor can be overcome by better curing of the milk and the use of commercial starter. Several of the Cheddar cheese were criticised for being sour. This flavor may be caused by a poor starter or the retaining of too much whey in the curd. Several entries in this class were criticised for being too open in texture.

It is still possible for cheese makers who have not entered to secure a Grade A certificate. For buttermakers who did not enter the first scoring it is possible to secure a Grade B certificate if entries are sent in for the next five scorings. Those desiring further information may secure same by writing to the Dairy Division, University Farm, Davis.

Poland-China Association

Mr. Briggs gave to Cultivator readers in last week's issue information regarding the organization of the Poland-China breeders of California. These breeders are determined to make known the merits of their favorites, and to that end the secretary, R. H. Whitten, proposes plans of work. From his opening address at the organization meeting we quote:

"In putting the Poland-China to the front in this state and keeping him there, there is a great deal to be done, yet it can easily be accomplished if we work together. It's like the remark of the Irishman to his companion as they were traveling along on foot and came to a guide board which read '10 miles to Boston.' 'Come along, Mike,' he said. 'That's aisy. It's only five miles apiece.'

Really, there is a great deal of philosophy in that remark. Think of what the Holstein-Friesian Association has done for its breed. Irrespective of the merits of Holstein cattle, do you think it would be possible for bull calves to sell for $20,000 at public auction, and cows for $10,000, if it were not for the wide-spread publicity given to the breed by this organization? Impossible. For nowadays merit must be coupled with publicity to win attention. This association spends thousands and thousands of dollars in advertising, to keep before the public the good qualities of the breed, and thousands more in prizes to encourage record making. Furthermore, it is so wide-awake that it makes a booster of every member, which is pretty nearly the same as saying every breeder of registered Holsteins.

"These Wisconsin breeders certainly are boosters. Only yesterday I clipped one of their ads. 'Buy them in Wisconsin where Holsteins thrive. Four thousand pure-bred herds in the state. The Holstein-Friesian breed has made Wisconsin the leading dairy state in the Union. It is supreme in Wisconsin. Our free booklet proves this claim. Write for a copy.' That is the way we ought to be boosting the Poland-China in this state.

"We want a state organization of broad scope. We want a department to govern the public sales, passing upon the animals entered and seeing that no faking is allowed. And we want another committee to encourage live-stock exhibitions, to interest breeders in showing, to help them select their animals and condition them. We want to get behind the banker-farmer movement, working with the banker to get him to loan money to farmers for the purchase of registered Poland-Chinas, and with the farmer to get him to borrow in order to make the right start. We want to get behind the Pig Club movement. There are 10,000 members of Pig Clubs in the United States today, and the number is doubling every year. We want a publicity committee. Then we should have a service department that will give any member any kind of information, advice or assistance he needs."

Hanford Poland-China Sale

Written for California Cultivator By C. A. Briggs

A MOST satisfactory consignment sale of Poland-China swine of high quality was held at Hanford on March 7. Eighty-two head of hogs found new owners who parted with $3932.50 to secure them. Seventy-five mature animals brought an average of $51.17.

Thos. Carlyle of Sanger was the largest buyer with a total of 33 hogs for which he paid nearly $1300. G. H. Loughery, Visalia, paid $200 for the boar, Panama Silver, bred by F. D. Ross and $150 for John Bernstein's sow, Effie B. These were the top prices obtained. Two sows of W. D. Trewhitt breeding at $125 each were bought by the Tagus Ranch. Number 32 in the catalogue, "Pride of Kings", a December sow pig bred by W. F. Bernstein of King's Wonder, Candy Kid and President lines was offered to the bidding of women only. Spirited bidding between Mrs. R. F. Guerin, Mrs. W. D. Trewhitt and Mrs. T. J. Gilkerson, resulted in Mrs. Gilkerson getting the coveted scion of royal families at a price of $85.50, or exactly $1.65 a pound.

The sale opened promptly at 10 a. m. with Col. Ben Rhoades of Los Angeles as auctioneer, assisted in the ring by W. F. Bernstein and T. J. Gilkerson.

At the noon hour everyone ate roast pork of the registered Poland-China kind. This is the third sale of the Kings County Poland-China Breeders' Association and the third success, prices ruling higher than at previous sales.

The consignors were M. Bassett, W. F. Bernstein, J. A. Crawshaw, John M. Bernstein, T. J. Gilkerson, F. D. Ross, W. D. Trewhitt and Oscar and Clarence Dimmick.

The buyers were: Thos. Carlyle, W. T. Dice, L. M. Essick, H. D. Eberle, R. F. Guerin, A. T. Lewis, G. H. Loughery, O. L. Linn, H. I. Marsh, J. K. Macomber, W. F. Mitchell, F. Mathos, H. L. Stephens, Vossler Bros., Geo. T. Farmer, Frank Johnson, W. C. Ramos, W. Bernstein, C. F. Starr, F. D. Ross, Mrs. T. J. Gilkerson, J. A. Crawshaw, S. D. Crum, W. S. Hubbard.

Start Your Show Herd Now

Written for California Cultivator By F. R. Steel, President Western Berkshire Congress

The one great Berkshire show of the West in 1917 will be the Western Berkshire Congress Show held at Salem, Oregon, in conjunction with the 1917 Oregon State Fair. These congress shows are probably the strongest factors for the progress of the Berkshire breed in the West. Certainly they are the greatest institutions in the West for spreading a general knowledge of fine qualities of the great breed of swine. Just as certainly these swine shows are an education to both visitors and still more so to exhibitors. In order to be successful in the sale of his output every breeder of pure bred stock simply must bring the good qualities of his product before the buying public. There is no way in which this can be done in Berkshires as well as by exhibitors showing at these Congress shows.

You should begin picking out and fitting your show herd now. Select the one or two most promising March or April boar pigs of this year's farrow with three or four or perhaps five of the best sow pigs of the same age and push them along on full feed as best you can for the "Under Six Months" or "Junior Pig" classes. One boar and three sows of this age can be entered as an "Under Year Herd," and if four of them are by one sire they can enter again as "Get of Sire"; and if four are out of one sow they can also be entered as "Produce of Dam." These group and herd entries give an exhibitor a chance for more winnings at no greater transportation, feed or care expense—a more efficient show herd. Just the same thing can be done in the "Under Year" class, pigs farrowed after September 1, 1916. This same sort of line up can be well followed in the older classes, showing one boar, either an aged, senior yearling, or junior yearling; and three sows of one or more of these classes, and then bringing in the four as a senior or "Over Year" herd. If bred by the exhibitor all the herds may be again shown as "Herds Bred by Exhibitor."

It is better to show all sows one year old or over in pig if possible, as they show better in this condition; and any danger of the show condition causing future barrowness is thereby entirely avoided.

Field Notes from the Live Stock Men

Top Notch Durocs.—A corking good lot of registered Duroc-Jersey hogs recently came into California from some of the leading herds of the Middle West. In the lot is the line bred Golden Model sow Model Lady 501842 bred to King's Col., the great boar formerly owned jointly by H. H. Koenig and W. M. Putnam & Son, the latter finally buying Koenig's half interest in the boar for $1,000. King's Col. is considered by competent judges to be one of the greatest living big type Duroc boars. In the shipment also were six gilts that go to the Hawaiian Islands. Five of these gilts are by Shego, son of Illustrator, the $1,815 boar that was Grand Champion at Illinois state fair. The other is a Golden Model gilt that goes to the herd of Spalding & Co. in Glenn County. Then there is a Uneeda Crimson Wonder sow bred to E. A.'s Crimson Echo; several daughters of King's Col; some line bred Crimson Wonder's and Golden Model's; and a line bred Ohio Chief sow bred to a son of King's Col., Giant Col., a first prize boar at Nebraska state fair. In the same shipment there came out a registered Berkshire sow from the herd of Prof. C. F. Curtiss, Ames, Iowa. This good sow is bred to Rival's Champion's Best, and goes to A. Pelko, Glenn County. The entire shipment consisted of 30 head and was selected and brought out by Clayton Slocum, junior member of the firm of H. P. Slocum & Son, proprietors of Uneeda Duroc Herd of Willows.

Good Records at Millbrae.—Two more good A. R. O. records were recently hung up in Millbrae Herd of registered Holsteins, owned by The Mills Company Inc., Millbrae. Truly of Millbrae completed a 7 day official test with 27.53 pounds butter to her credit, and Kentra of Millbrae made 23.78 pounds butter in the same period. Neither of these were given any special preparation for test and Truly of Millbrae displayed such a fussy temperament about her food that she made a 27 pound record on a particularly scant diet. Both of these young cows are by Napoleon of Hopland, sire of Angelina of Millbrae, who made 31.86 pounds butter last season as a 4 year old.

Palo Alto Stock Farm is coming to the front with some mighty interesting records in both the registered Holstein and registered Guernsey herds. A very good lot of short time official records have recently been completed by the Holsteins. Heading the list is Jennie Terzool Hicks 4th, who made the nicely balanced record of 600 pounds milk and 32.7 pounds butter in 7 days. Four daughters of King Pontiac Butter Boy performed well in this group. Of the four Neva De Kol Posch 4th made 26.89 pounds butter, Lady Genevieve Ormsby made 26.80 pounds butter, Neva De Kol Posch Pontiac made 19.36 pounds butter, and the 2 year old Gold Leaf Pontiac made 17.98 pounds butter in 7 days. Other 7 day official butter records made in the herd include the 3

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Santa Anita Rancho

Anoakia Breeding Farm

ARABIAN-THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned Imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent Santa Anita, Cal.

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Hardy, prolific sows of best blood lines and breeding. Strong, upstanding, prepotent boars. In short the best possible specimens of the Berkshire breed. We plan to do this by breeding large numbers and from them making a rigid selection.

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Use Tuberculin Tested Sires in Your Herd

WE HAVE A NICE LOT OF SHORTHORN BULLS and HEIFERS THAT WILL SELL FAST WHEN THE SPRING FEED COMES. SELECT YOURS NOW FROM THE BRIGHTON FARM HERD.

H. L. & E. H. Murphy, Perkins, Cal.

Tulare Guernsey and Holstein Farm

Guernsey herd of A.R. cows headed by DAIRYMAID'S PRINCE 26352, whose sire is a son of Dairymaid of Pinehurst, A.R. record 17,285 pounds milk and 910 pounds butterfat in one year. His dam is POLLY'S BEAUTY, A.R. record 16,629 pounds milk and 774 pounds butterfat in one year as a 4-year-old.

Holstein herd of choicely bred females, many with good A.R.O. records, headed by PRINCE RIVERSIDE WALKER, whose sire is Prince Gelsche Walker, and whose dam is Aaggie Acme of Riverside, 808.82 pounds butter in one year, and she has a 3-year-old daughter that made 1095.1 pounds butter in one year.

CHOICE BULL CALVES OF BOTH BREEDS FOR SALE.

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on dairy and stock farms is one of the largest expense items. Light and sanitary barns are as necessary as proper feeding to get the best from your herd. You can paint the inside of your buildings as white as snow and with the same operation, at no extra cost for labor, thoroughly disinfect them against the diseases that affect your livestock and poultry by using

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A mineral paint combined with a germicide 20 times stronger than carbolic acid, but harmless to man, beast or fowl. Kills lice, mites, fly-eggs, etc. Comes in powder form. Ready when mixed with water to put on with brush or sprayer. Will not spoil by standing. Get some today from your dealer and have it handy for the first chance you get to try it.

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10 lbs. (10 gals.) $1 and postage. 20 lbs. (20 gals.) $2 delivered.
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Trial package (covers 250 sq. ft.) and booklet "The Disinfectant That Paints" for 25 cents and dealer's name.

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Famous Blackhawk Shires

AGAIN demonstrated their superiority by their winnings at the 1916 California State Fair.

At this fair Blackhawk Shires won all first prizes except two, and in one of those classes had no entry.

A mare bred and developed at Blackhawk Ranch won Grand Champion.ship over imported mares of the first quality, thus demonstrating the quality of stock e are breeding right here at home.

Anwick Arthur and his get again won the California Stallion Registration Board Special, for stallion and three of his get, over al breeds.

Do not Forget that Blackhawk Shires Won 68 Prizes at the Great Exposition Show at San Francisco in 1915.

If you need a first class Shire stallion or mare we can please you from a wide selection that have weight, quality and right draft type.

Our Shires are bred and raised under good healthy breeding conditions—they are not pampered—and we deliver to you horses in breeding condition that will breed, and at a price well within their value. Correspondence invited. Visitors welcome.

Blackhawk Stock Ranch
Easton & Ward, Props. Burlingame, Cal.
Write for Photografic Catalog of Blackhawk Shires

BIG TYPE

POLAND CHINAS

Strong, vigorous, prolific.
The half ton kind with quality.
Open and bred gilts.
Service boars for sale.

H. L. Marsh, Modesto, Cal. Route A, Box 348

Berkshire Hogs—Milking Shorthorns

Breeding Stock For Sale

G. A. Murphy - - Perkins, Cal.

When writing advertisers, mention the Cultivator.

year old Lily Wayne Pauline, 21.90 pounds; the 3 year old Roxy Pel Netherland 4th, 24.3 pounds; Roxy Pauline Burke Hengerveld, 26.3 pounds; Buckeye Pietertje Maid, 23.7 pounds; the 3 year old Blue Belle Hengerveld Clothilde, 22.32 pounds; Mousie De Kol Lady 2nd, 24.48 pounds; Athalvia 2nd, 25.01 pounds; the 3 year old Pietertje Sadie Vale 2nd, 19.14 pounds; and the two 2 year olds Thelma Horlog Sunderland and Pearl Boone Colantha made 18.36 and 18.6 pounds respectively. There are some mighty promising members of this herd just fresh or about to freshen and there is reason to look for some big records soon. The great 32 pound cow Laurameka is just fresh and looks fit to increase her record. But the Holsteins can not claim all the production honors at this big breeding farm. There are four good registered Guernseys on yearly test, all making over two pounds of butter fat per day. The leader is Imp. Miss Jane of Lewiston, now in milk for three months, and the day the writer saw her she milked 72 pounds and she is testing right up around 4.75 per cent. Work is just fairly started in putting the Guernseys on yearly test, but before long there will be a nice string going. M. H. Tichenor, the resident partner, is whipping the big breeding farm and the certified milk producing plant into smooth working form and from now on this herd is bound to be heard from. In the handling of the test work he has an able assistant in Jim Andersen, who recently came out from one of the leading Minnesota establishments, and who had charge of the cattle during the time the recent tests were made.

Fred W. Kiesel, president of California Holstein-Friesian Association, is giving liberally of time and thought in mapping out a constructive program for the rejuvenated organization. One of the most useful activities of the association will probably develop out of the plan to hold a series of meetings at various points throughout the state. The first meeting scheduled will take place at Modesto on the evening of April 18, which is the evening preceding the H. E. Cornwell sale. The second meeting will take place at Napa on May 5, when the association will be the guests of Mr. Owen Duffy, business manager of Napa state hospital. Another meeting will be held at Chico during the week of the Butte County Spring Exposition, and another meeting will be held at University Farm, Davis, possibly on Decoration day during the big Farmers' Week, and the day before the big Holstein sale to be held under the management of California Breeders' Sales and Pedigree Company. These meetings should prove of great benefit to all Holstein breeders throughout the state, in bringing about a better acquaintance among them and providing a meeting place where the discussions are bound to be mutually helpful and interesting.

Registered Holstein Bulls were never in such great demand throughout California as they are today. The writer has recently covered California from Sacramento to San Diego twice, and not for two or three years has he seen so few bulls of service age on hand on the breeding farms. And this in spite of the fact that there is a considerable increase in the number of purebred herds. Not a single herd visited had any number of year old bulls on hand, and practically every one was selling calves down to six and even four months old. All of which means that the bull crop is rapidly moving into grade dairy herds, where its good blood will further stabilize and make more profitable the dairy industry of the state.

J. L. Gibson Co., Williams, has recently sold bulls to E. W. Stanton Jr., San Joaquin Valley Land Co.; and Roebel Co. Mr. Gibson now has 16 cows on yearly test. He has increased the farm's silo capacity to 450 tons.

The Melone Co. report the following sales of pure bred Chester-White hogs raised at the Oak Knoll Ranch, Napa: Niebaum Estate, boar; Henry Harris Estate, boar; Karl Pauley, sow; C. Bentley, sow. This breed of hogs is new to California, but those trying them have found them most profitable especially on years when feed is high. Their very rapid growth and quick development on probably the smallest amount of feed required by any breed of hogs brings them up to market requirements at the smallest expense.

Elmer Lamb of Ceres reports sales of pedigreed stock since the state fair last September: To C. J. Boyd, two bred gilts; John Estillarte, two gilts and boar; Sadie B. Fowle, boar; Sydney Smith, bred gilt; E. W. Beebe, two gilts; D. Power Boothe, bred gilt; H. J. Sherwin, sow and seven pigs; Andrew Schendel, service boar; J. H. Layman, two gilts and boar; Jack Mongovan, boar and gilt; Clifford Farms Co., service boar; F. E. Dickie, three bred gilts; F. S. Ingram, boar; H. P. Jorgensen, bred gilt; Geo. E. Spencer, one bred gilt, two open gilts; Berglund & Sundstrum, service boar; L. A. Welch, service boar; S. P. Summers, gilt; Chas. L. Metzger, boar and bred sow; L. S. Pardee, sow and nine pigs; V. C. Hague, gilt; A. J. West, gilt; A. R. West, gilt; C. J. Bucholz, three bred gilts; Ralph Lockie, bred gilt; Dr. Geo. A. Spencer, bred sow; Earl N. Dargitz, bred sow; Nicholas G. Jesch, service boar.

SAN JOAQUIN COUNTY COW TESTING REPORT FOR FEBRUARY

The noticeable feature of the report for February is the high averages obtained by F. J. Kell's herd. This is the result of better feeding together with fresh cows and milking the heavier producing cows three times a day.

Two of the members of the association have entries in the California state dairy cow competition, namely, the M. C. Gammon Estate and F. J. Kell. We are looking to these people to help put this county on the map in the dairy world.

Following are the five leading herds in butterfat production for the past month, giving name of owner, nummer of cows in herd and average pounds butterfat: F. J. Kell, 13, 37.8; R. W. Fisher, 19, 28; M. C. Gammon Estate, 26, 27.1; J. L. Bruml, 17, 25.7; C. H. Keyes, 13, 25.5.

Following are the five leading herds in milk production for the past month, giving name of owner, number cows in herd and average pounds of milk: F. J. Kell, 13, 1048; M. C. Gammon Estate, 26, 751; County Farm, 30, 721; C. H. Keyes, 13, 704; E. B. Goodwin, 51, 702.

FAT HOG AUCTION AT WASCO

By Farm Adviser Geo. Kreutzer

ON March 10 the second fat hog auction sale was held at Wasco under the auspices of the farm bureau. In all about $9,000 worth of fat hogs were sold, being a total number of 450, or about five carloads. The top price for these hogs was $12.70 per hundredweight in carloads, and others sold at $12.62½, $12.60 and $12.50. A few very light hogs brought less than 12 cents.

The idea of this auction is to bring all the hogs to a common point, within driving distance of the farms, have cars ready for shipment, and notify the buyers to come where they are given an opportunity to purchase competitively. We believe the auction was a success in every way, that the prices realized were satisfactory to the farmers, and that the buyers got stock that was desirable for the prices given.

refund, to those who sold fat stock.

It is the intention of the farm bureau to spread this system all over the county, providing it meets with the success in the future that it has in the past two sales. It seems to be a system in which a minimum of trouble is involved and where stock are sold purely on their merits and in accordance with supply and demand. As soon as possible we are going to try and do some real, careful grading in order that the fine stock will be separated from the others, and in that way the men who produce some of the good articles as well as some that are not so good will see how the buyers discriminate in prices between the two kinds, and thus serve as an education in stock feeding.

We will probably hold our next sale at Wasco on April 14, and perhaps one other point where sufficient stock may be obtained to make carload lots.

CHANGED DATES

Sale dates of Stephenson Holstein herd, Lake Mills, Wisconsin, April 6 and 7. Lake Mills Holstein Breeders' Consignment sale May 8 and 9.

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PERCHERON SOCIETY ELECTS

At the last annual meeting of the Percheron Society of America the following directors were elected: C. F. Curtiss of Iowa, W. S. Dunham of Illinois, U. L. Burdick of North Dakota, and Arthur Colegrove of Girard, Kansas. E. B. White was re-elected president, U. L. Burdick, vice president, and C. M. Jones, treasurer. Wayne Dinsmore continues as secretary.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Skin Disease in a Horse

I have a mare that rubs her mane and tail very badly. Every spring and during the summer her neck, breast and belly get almost raw. She is only rid of it about three or four months in the year. Have fed her sulphur and used sheep dip with very little effect. —Subscriber, Fresno.

Such cases as you describe usually require both internal and external treatment. Give the mare a handful of epsom salts in her feed once a day for three or four weeks. Also get a quart of Fowler's solution of arsenic and give one ounce once a day while it lasts. Better begin by giving half ounce doses for the first few days and end in the same manner. For the external treatment scrub the irritated parts once with soap and warm water and rinse the soap out with clear water. Then wet the parts once a day with a solution of chloride of zinc, one and a half ounces to the gallon of pure water. Better warm the amount of the lotion that you use each day just before applying it.

When to Castrate Pigs

When is the best time to castrate pigs; before or after weaning?—Subscriber, Wheatland.

A good time to castrate pigs is when they are about three weeks old or any time up to the time they are ten or 12 weeks old. If done while they are running with the sow they seem to mind it less.

Feed for a Calf

Is a mixture of beet pulp and bran good for a calf when it begins to eat grain and hay, and if so what proportion of bran should there be to the beet pulp?—Subscriber, Wheatland.

A little beet pulp and bran, equal parts, might be all right to feed a calf, but much of it would probably cause indigestion and scours.

Fitting Stallion for Service

I have a stallion that I wish to feed up preparatory to the breeding season. He is fat and full of life, but does not seem to be just right for service, being a little sluggish. What shall I give him in the line of medicine and feed? —Subscriber.

It is rather late in the season to begin to fit a stallion for breeding services but here in some general advice that will help some now and do more good for the next season. There is no medicine that will adjust things at once because the whole system must be right first. You say he is fat and I take it for granted that he has had very little exercise, for that is the usual way of caring for stallions. These very conditions cause many stallions to fail in the breeding season. Poverty and hard work precede the strongest generative activities in all animals. I realize that the men who have mares to breed want to take them to a fat, handsome horse; and no horse is handsome unless he is fat, so you must have him in good condition, but the flesh must be put on while he is sparingly fed and accompanied with plenty of hard work. I think you will see the point and realize that it can not be done in a few days. A stallion should have an acre paddock to run in all winter or have a brisk drive of at least ten miles a day and be well rubbed down when he comes back. The best feed is; not too much hay and a liberal amount of oats, say one pound of oats for each hundred pounds of the weight of the horse every 24 hours. There is no feed for a horse that is equal to oats.

Now for your horse, do this. Commence driving him a few miles every day, and in a week get it up to about ten miles a day. Rub him out well on his return and cool him out carefully so he will not get sore muscles nor catch cold. For feed give him two pounds of hay in the morning and at noon and ten pounds at night and oats as suggested above.

To get his system in good shape quickly give him this physic: Aloin three drams, powdered nux vomica two drams, turpentine two ounces and raw linseed oil one pint. Mix and give at one dose. Do not drive him for two days after giving the physic or it may work too strong. Also give these powders: Gentian four ounces, nux vomica three ounces, sulphate of iron one ounce and farina eight ounces. Mix. Divide into 32 powders, giving one in the feed morning and evening. If you will break a raw egg and mix it shell and all in his feed morning and evening I think it will pay well. Try it.

Heaves

I have a mare nine years old that I think has the heaves. She eats well but breathes hard and coughs a great deal. She is in the pasture during the day and is fed wild oat hay, and twice a week is given a bran mash. She does no work except driving and that not often. After being driven she finds it difficult to breathe and is obliged to stop to get her breath. Have been giving her some oil of tar but would like to know if there is any cure, and what it is.—Subscriber, Porterville.

Heaves is uncommon in California but a few horses have it very hard. Avoid as far as possible working her on a full stomach. Give the heaviest feed at night and light feeds during the day. Get these powders of your druggist and feed them carefully as directed: Powdered belladonna leaves four ounces, powdered digitalis leaves four ounces, powdered nux vomica two ounces, ground gentian four ounces, arsenious acid two drams and farina six ounces. Mix. Give a heaping teaspoon morning and evening. Mix the medicine with some kind of ground feed.

Fails to Breed

My three-year-old heifer came fresh last June and is doing fine, but after breeding her twice she still comes in heat every four weeks. Please tell me what to feed her to bring her around right and if it will hurt her if she should be with calf.—Subscriber, Alpaugh.

[Advertisement.]

Cows Retain After-Births

Can Be Made to Clean Easily and Promptly Without Manual Labor

When cows do not clean after calving, you think of two things, and you should suspect another—more serious.

You will think first of the dirty job on your hands, then that you may lose your cow. It also indicates a germ infection that is likely to run through your entire herd with serious losses.

Our Government and other authorities agree that retention of afterbirth, premature calving, sterility, contagious garget, calf scours and calf pneumonia, are symptoms indicating presence of germs which cause abortion. They agree, also, that the infection can be controlled—the loss of calves and damage to cows stopped.

This can only be done by the use of a safe, powerful, non-poisonous, powerful germicide, Bacili-Kil, (B-K for short). It dissolves the slimy, albuminous matter in the uterus, brings the afterbirth, destroys the germs and bad odors, heals the tissues, leaves everything clean.

B-K is scientifically correct for this work. It does not irritate, but is soothing and healing to the torn membranes, and does not cause straining. Other things, such as carbolic acid, cresol, and other coal-tar products, iodine, etc., tend to irritate, do not dissolve the slimy albumins, but tend to coagulate or thicken them, thereby preventing destruction of the germs and cleansing of the infected tissues. B-K may also be used freely in the drinking water. It helps to destroy accumulating germs in tank, also disinfects mouths, throats and digestive tracts.

The remarkable germ-killing strength of B-K is printed and guaranteed on every package. B-K contains no poison, acid, nor oil. B-K is handy. You have in one jug, always ready by just mixing with water, your treatment for cows, bulls, and calves; also, the cleanest, safest and best disinfectant for general use. No mixing of various ingredients—saves trouble and mistakes, insures promptness, accuracy, convenience, successful results.

Leading breeders bear ample testimony of the valuable aid received from B-K in treating retained afterbirths and similar ailments of cows. One breeder says, "I have found B-K the greatest thing ever for cows that do not clean readily. This is a job I have always had to do by hand, but now by injecting B-K dilution, never knew it to fail to bring all things right before the fourth day.

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Write us for additional testimony from users, and the reasons why B-K is so uniformly successful in this work. Send for bulletin

Bulletin No. 52 Contagious Abortion—Prevention and Control

Bulletin No. 136 Calf Scours—How to Save Every Calf.

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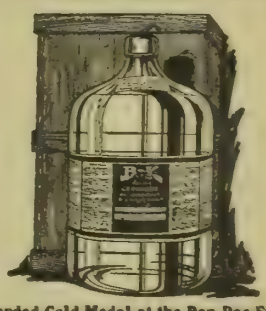

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Feed her light on any feed that you may have and give these powders: Powdered gentian three ounces, powdered nux vomica two ounces, sulphate of iron two ounces and farina five ounces. Mix. Give a large tablespoon of the medicine in the feed twice a day. Give her a drive of several miles to get her well warmed up just before breeding her next time.

Loss of Flesh

We have a seven-year-old mare that is very thin in flesh. She has a good appetite but what she eats does not seem to do her any good. She was formerly a good traveler, but now seems to have no life nor energy. Am feeding her alfalfa and wheat hay and also giving her bran twice a day with some stock food in it. For a while she passed bloody urine but have seen nothing of that for quite a while. What is best to do for her?—Subscriber, Tulare.

First give her a physic of aloin half an ounce, powdered nux vomica two drams, turpentine two ounces and raw linseed oil one pint. Mix and give at one dose. Follow this by giving these powders. Powdered gentian four ounces, powdered nux vomica two ounces, nitrate of potash four ounces, powdered rosin half an ounces and farina six ounces. Mix. Give a tablespoon of the medicine in the feed morning and evening. Bran is not good feed for horses. Rolled barley is much better.

Drying Off Cow

Cow had calf nine days ago, after being dry for some two weeks. When I commenced to dry her up she was giving about two gallons a day and I got her down to half that amount and then stopped milking her. She had milk in her bag all the time but not enough to cause her any discomfort. Since calving she has not given as much milk as she did before, only about a gallon and a half a day. She seems healthy, has a good appetite. About two-thirds of the milk comes from one quarter of her udder, the rest being soft and empty. She has ample udder for a three or four-gallon cow. This is her second calf. I am feeding about ten pounds of ground beans and oats a day. She is out on good green feed and has a little hay and all the bean straw that she can eat. Would you expect her to come up to a normal flow or is she apt to be no good for the balance of this milking? Is there anything that I can do to bring her up to what she should be?—Subscriber, Ventura.

For several years the writer of this column has advocated milking a cow that wants to give milk right up to the time of coming fresh again. For years the efforts of the dairymen have been to raise cows that would give a large flow of milk and keep it up for a long time. They have so far succeeded that some cows are veritable milk machines and once started can hardly be stopped. Most cows will stop giving milk for some time before coming fresh in spite of all efforts to keep up the flow, but in all cases it is quite a shock to the system to change the flow of blood from the uterus, where it has been going to supply the circulation of the calf, to the udder to supply food for the new-born calf. If the flow of milk continues right through the period of gestation why not encourage it and thus avoid at least a part of the shock that must come. When a stoppage is forced, as in this case, we often see bad results such as you describe. Some cows stand the sudden change all right but others can not. Now to try to get the flow of milk started again; feed plenty of sloppy feed and milk regularly. Rub and manipulate the udder for some time before and during the milking. Medicine will do very little good in her case.

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F. D. ROSS Hanford, Cal.

Artificial Lighting of Laying Pens

By J. E. Dougherty, Professor of Poultry Husbandry at University Farm, Davis

FOR some time requests have come to the poultry division of the University of California for information as to the real value of artificial lighting upon egg production when such lighting is used to prolong the working day of laying fowls during the short days of winter.

The idea of using artificial lights is based upon the following beliefs:

That other things being equal and making due allowance for the effect on production of the spring breeding season and the molting period, fowls of good egg producing ability exercise, consume feed, and lay eggs approximately in proportion to the length of the working day.

That if the working day in summer is a criterion, artificial light might be used to advantage in winter to make the winter working day equal in length to the summer day.

A number of successful poultry farms were visited where artificial lighting was evidently giving good results. Finally, at the poultry division of the University Farm at Davis a pen of 123 S. C. W. Leghorn one and two-year-old fowls was started on a preliminary test on November 19, 1916 to determine if an extended investigation of this sort would be worth while.

The lights were first turned on at 5 p. m. November 19 and thereafter lighted at 5:15 a. m., turned off at daylight, lighted again at dusk, and put out at 9 p. m. daily. The following table clearly shows the effect that the use of artificial lighting has had upon the pens in which it was used:

	Percentage—					
Two week period ending	Dec. 3	Dec. 17	Dec. 31	Jan. 14	Jan. 28	Feb. 11
Lighted pen No. 1	6.75	52.1	63.7	56.9	53.1	57.8
Lighted pen No. 2		2.7	35.3	55.4	54.7	57.6
January pullets	28.2	30.9	45.4	39.4	45.0	67.0
February pullets	32.3	25.6	37.6	31.0	37.7	61.7
March pullets	21.0	27.0	35.8	28.7	42.4	61.5
Average of flock of 1700 layers omitting lighted pens	9.0	14.0	20.1	20.2	23.3	40.0

Began using electric lights in lighted pen No. 1 November 19, 1916. Began using electric lights in lighted pen No. 2 December 12, 1916.

Because of the remarkable increase in egg production from week to week following the use of electric lights, it was thought advisable to check the results secured with the first lighted pen by lighting another similar pen in the same way. So on December 12, 1916 another pen of 94 S. C. W. Leghorn hens two to four years of age was lighted artificially before daylight and after dark with the results as clearly set forth in the above table.

The only facts brought out by our investigation to date are that the use of electric lights has increased production as shown in the table with small increase in feed consumption. Using two 50-watt Mazda lamps for 100 fowls for an average of six hours per day at four cents per kilowatt would cost 2½ cents per day.

An increase from 20 per cent to 60 per cent production, with eggs selling at 40 cents per dozen in December would mean an increase in gross income of 41 cents per hen, or $41.33 per 100 laying hens. From this gross income would have to be subtracted the cost of lighting and the additional feed consumed. The latter has not been determined as yet, but would undoubtedly be considerably less than the value of the increased egg production.

While the preliminary results of an investigation of this kind as set forth here cannot be taken as in any way conclusive, yet they not only furnish much food for thought but amply justify further extended investigation as to what effect artificial stimulation will have on the normal egg production for the rest of the year.

Yet to be determined are the following points:

If increased egg production induced by artificial lighting will have an injurious effect upon the health of the fowls or upon the fertility and hatchability of the eggs set, as well as the strength and vigor of the resulting chicks.

If the use of artificial light only before daylight, or only after nightfall, will give as good results as such lighting both night and morning.

How many and what hours each day and for what period of time artificial lighting can be most profitably used.

If artificial lighting can be safely used to stimulate the laying of breeding hens whose eggs will be used only for the early hatches.

How soon after beginning the use of artificial lighting in any given winter the hatching eggs begin to show the injurious effects of such lighting.

Rice as Poultry Feed

ANSWERING a question of a Cultivator subscriber, W. E. Lloyd, of the Poultry Husbandry Department of the University Farm, Davis, writes:

"Rice analyzes from 1:12 to 1:14, that is rice contains one part of protein to from 12 to 14 parts carbohydrates and fat. This is what we call a wide ration and means that the amount of carbohydrates and fat is very high.

"For laying hens the ration is entirely too wide and would necessitate balancing up by some high protein feed. In addition to the large amount of carbohydrates the grain is very hard and would seem to be a better feed if it were soaked or cooked for the fowls. The rice as it comes from the field, known as paddy rice, contains a very large amount of crude fiber in the form of hulls. In addition to the crude fiber there is a large amount of silica. This is said to do considerable damage to the digestive system of certain animals.

"We have not experimented as yet with rice here at the station, but expect to do so within a short time. We know of some poultry men who are feeding rice in the proportion of one part paddy rice, one part wheat and one part barley, as a grain mixture, and seem to be getting good results. However they are running no checking pens and do not know what the effect really is.

"Paddy rice, rice screenings and unpolished rice might be advantageously used in a laying ration to the extent of not more than one-third by weight of the grain mixture, if such rice can be bought at low enough prices to more than compete with common poultry grains.

"Rice bran containing no hulls and not less than ten per cent crude protein and six per cent fat and not more than 20 per cent fiber (guaranteed analysis), as well as rice polish and ground rice, may also be economically added to the mash mixture if it can be purchased at less cost than similar and more common feeds during periods of high prices. Such rice feeds should not be used to a greater amount than 20 per cent (25 per cent maximum) of the total grain and mash ration, or 20 per cent of the mash alone.

"Rice feeds are very starchy and quite fattening in character. They have a high oil content and ground rice feeds are apt to turn rancid in a short time. They must therefore be handled and fed with care.

"Pure rice bran and rice meal do not moisten readily when spread on the surface of water. If, however, they are adulterated with hulls, the hulls will soon sink to the bottom. Such hulls are practically worthless for poultry feeding."

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Well, here we are again, and our No. 20 catalogue is now ready for you. It's a HUMDINGER, and if you are interested in poultry you should have it. It's full of splendid information about brooding in bunches from 300 chicks on up with the brooder stove system. If you are satisfied with your present brooding system, get our catalogue and learn how you can BEAT IT. If not satisfied, GET OUR CATALOGUE No. 20, it will put you RIGHT. We also have a splendid HOT WATER SYSTEM, but we can't tell it here, so Get our CATALOGUE No. 20. IT'S FREE FOR ASKING.

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Thirty-One Cents Profit per Hen in February

By C. T. Patterson, Director Missouri Poultry Experiment Station

WE often hear the question asked, "What can be made from poultry?" In answer to this question we give the results for February from a commercial viewpoint of the egg laying contest conducted by Missouri Experiment Station at Mountain Grove.

The results of five previous contests indicate that the average production for February is the average per month for the year. While the price of eggs was above the average, price of feed was correspondingly high.

As one man does all the work in the contest, it furnishes a basis for finding the relation between cost, labor, profits, etc. In doing the work of feeding, watering, trapnesting, etc., the man passes through 756 gates and doors each day, as well as keeping 58 mash hoppers in repair, cleaning 58 droppings boards, and keeping the litter in order in 58 houses. Thus it will be seen that the man has a maximum amount of labor, and as he has charge of 58 pens of six hens each, five competing and one substitute, 348 hens, he has a minimum number of hens, and as February is the shortest month of the year, we believe the profits to be below the average.

The feed for February cost $71.34, or 20.5 cents per hen, and 16 egg cases at 25 cents each cost four dollars, making a total cost of $75.34. Five thousand five hundred and twenty-eight eggs were produced which sold at an average of three and one-third cents each, or $184.26, leaving $108.92 for labor. This is an average of 31 cents per hen, which was more than one cent profit per hen per day.

One man can care for three or four times as many hens where they are kept in larger flocks, which makes the profits greater.

We believe proper feed and care is partly responsible for large egg yields. We have no secret formula for feeding, but have published our feed ration through these columns and will send circular entitled, "Balancing the Ration for Egg Production", free upon request.

The Contest

The 290 competing pullets produced 4732 eggs during February, or an average of 16.3 eggs per hen, which is the best average ever produced at this place during February—12.8 eggs was the average for the five previous contests.

A pen of Buff Rocks from Kansas won the cup for February by laying 106 eggs.

The pens occupying the five highest places for February are as follows: Buff Rocks, Kansas, 106 eggs; S. C. W. Leghorns, Pennsylvania, 103 eggs; White Rocks, Missouri, 100 eggs; S. C. Reds, Missouri, 98 eggs; Partridge Rocks, Ohio, 97 eggs (tie); White Wyandottes, Missouri, 97 eggs (tie); Columbian Wyandottes, New York, eggs (tie).

A White Wyandotte hen holds the highest record to date by laying 103 eggs in the four months.

The ten highest pens to date are as follows:

White Wyandottes, Missouri, 393 eggs; R. C. Rhode Island Whites, New Jersey, 386 eggs; White Wyandottes, New York, 351 eggs; Buff Orpingtons, Missouri, 343 eggs; White Orpingtons, Missouri, 338 eggs; S. C. White Leghorns, Missouri, 330 eggs; R. C. Reds, Missouri, 327 eggs; S. C. Buff Orpingtons, Missouri, 320 eggs; R. C. Reds, Missouri, 318 eggs; S. C. Reds, Iowa, 309 eggs.

Preserving Eggs Satisfactory

The waterglass method of preserving eggs is proving entirely satisfactory. Eggs have been kept in the solution for three years without any observed deterioration.

Directions

The waterglass, or sodium silicate, can be secured at any drug store. Some of the cheaper grades contain free alkali which gives a tinge of pink to the whites of preserved eggs, therefore effort should be made to secure the best quality of sodium silicate from a reliable dealer. The usual solution is made of one part of waterglass to twelve parts of water and the water should be boiled before making the solution as the freshly drawn water contains quantities of carbon dioxide. The boiled water and water glass are thoroughly stirred and set aside to cool when it is ready for use.

Containers

A recent circular published by the Washington experiment station gives the following table of containers, number of eggs held and amounts of waterglass solution required.

Any receptacle that is impervious to and does not corrode in water is suitable for holding the eggs and water-glass solution. Generally, glazed earthenware jars, galvanized tubs or buckets and wooden tubs or kegs are used. In case of wooden receptacles it is desirable to let them stand filled with water several days, then empty and scald before using.

The size of the container will depend upon the number of eggs to be preserved. The receptacle should be just large enough to hold the eggs submerged in the water-glass solution. A larger container means an unnecessary expenditure and wastefulness in the use of the water-glass solution.

Container	Will Hold	Water-glass Required
1 gallon....	40 eggs....	3 pts., 10 ounces
2 gallon....	80 eggs....	7 pts., 3 ounces
3 gallon....	120 eggs....	10 pts., 13 ounces
4 gallon....	160 eggs....	14 pts., 6 ounces
5 gallon....	200 eggs....	18 pts., 0 ounces
10 gallon....	400 eggs....	36 pts., 0 ounces

Water-glass appears to have modified the albumen to a slight extent, but not to such a degree as to be undesirable for good purposes. With the exception of poaching, such eggs can be used instead of fresh ones, for frying, boiling, scrambling, cooking, as well as various other ways. When it is desired to boil them, a pin-hole on the blunt side of the egg should be made, because of the fact that the shell openings are all closed by the sodium silicate in this solution, together with the pressure developed within the egg during the process of boiling, causes the shell to break. In all instances, wash the eggs in water before using.

All Northwest Egg Laying Contest

The state college at Pullman, Washington, which is conducting the All Northwest Contest, has sent out summary of winter egg production of pens in the contest, up to February 28, 1917:

"The birds have laid 5007 eggs. The average winter egg production has been 50.07 eggs per bird. The average egg production has been 36.5 per cent. The profit estimated over feed has been $1.30 per bird. The breeds are White Leghorns, White Orpingtons, Rhode Island Reds, White Wyandottes, White and Barred Rocks and White Minorcas.

"Our 20 best hens laid 1512 eggs. Their average winter egg production has been 55 per cent. Their average winter egg production has been 75.6 eggs per bird. The profit (estimated) has been $2.24 per bird."

Feeding Bees

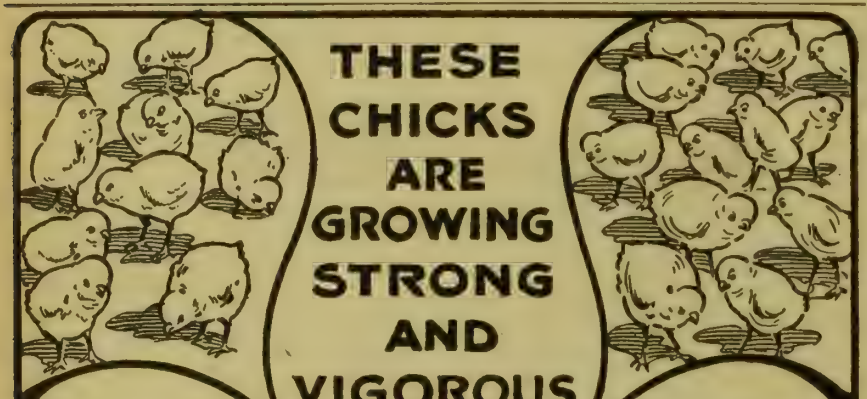
Written for California Cultivator By G. W. Bercaw

FEEDING bees is a necessity sometimes in order to carry them through an apparent honey famine. There are many plans put forward as to how to feed bees without serious results from outside bees or from robbing. It is difficult to lay down any fast rule; experience along this line coupled with good judgment will be one of the very best teachers. A person must be extremely careful in feeding and not expose feed of any kind so as to start robbing. A good plan is to put an extra super on the colony and set your feeding pan on the inside, taking care that it is perfectly tight. Do this along towards evening, putting some small pieces of wood in the pan for support for the bees. A good feeding syrup can be made with two quarts sugar to one boiling water, thoroughly dissolving the sugar by stirring; adding a small amount of salt, very little; the amount to feed will depend upon how much they need. The beekeeper will have to be the judge, allowing the bees any benefit of doubt.

The Italian Bee

That the Italian bee is the best strain or race of bees for honey gathering qualities, gentleness, prolificness and disease resistance, is becoming well known among our scientific beekeepers. The Carniolan, which is of a grey color, would be equal to the Italian if it were not that they are more inclined to swarm and often breed up when there is no honey flow. The writer has tried both the Carniolan and the Caucasian, having imported a Carniolan queen two years ago from upper Carniola, Austria, but is thoroughly convinced that the Golden Italian bee is the best all purpose bee.

The last few years, having kept a few colonies of the three races of bees I have mentioned, I am thoroughly convinced that the Italian bee is the best all purpose bee we have. I quite often hear a beekeeper say the moth bothers his bees. I will say I do not remember ever seeing or hearing of a colony of full-blood Italians ever being destroyed by moth. They keep the colony not only healthy but full of bees and will not hesitate to tackle a full grown moth when she comes near the entrance of the hive.—Beekeepers Review.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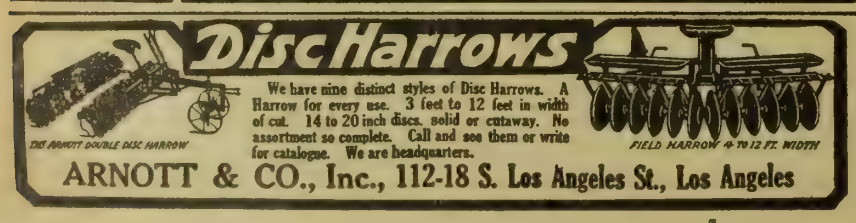
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CALIFORNIA BEE NOTES

By Chadwick in Gleanings

If no moths are allowed to hatch in neglected combs they will get pretty scarce in a short time.

It is a great deal better to have a lot of supplies ready that you do not need than to need a lot that you do not have ready.

A man who can be trusted to do the right thing when no one is looking at him is the kind of man to have at an out-apiary.

There was less pollen brought into my hives during December and January than at any time for 13 years during the same months.

January ended the fourth consecutive month with the mean temperature below the average. It was even colder than December. There were 24 days when the minimum reached below 40 degrees; ten days when the minimum was down to the freezing-point and below, and 20 days when the maximum did not reach 60 degrees.

If you find a colony destitute in cold weather, do not try to feed the bees thin honey or syrup, but give them pure thick honey or very heavy syrup. They have to put in a lot of work on thin feed, reducing it, and that makes undue excitement, which is not desirable in cold weather. Thin syrup is all right for stimulating—the thinner the better so long as they will take it up.

The county bee inspector of Los Angeles County has been placed under civil service, and all deputy inspectors must pass an examination. This seems like an excellent idea, at least so far as getting competent inspectors is concerned, provided the examination is up to a high enough standard. It won't put "pep" into an inspector, however, and that is really an important qualification for this office.

During March the apiary should be carefully inspected to locate any disease that may appear. If a few colonies are found that show disease, make them safe by leaving only a very small entrance until they can be cared for. If American foul brood appears, melt up the combs at once, and be sure that the bees do not get into other hives before you kill them. If it is European foul brood, and there are only a few colonies, it is cheaper to melt them up also. If a number of colonies have it, then treatment may be the most desirable. If you do not know disease when you see it, get your inspector to help you. He will willingly do it, for that is his business.

There seems to be an impression prevailing that a queen raised under swarming conditions, which may be said to be natural conditions, is superior to one raised through other inducement. Personally I cannot see why that should be the case. If larvae are transferred at the proper age, and a colony given cells after all of their brood has been removed, the nurse bees will literally flood them with royal jelly, give them every attention desired, and draw the cells out long enough for the most particular persons. It must be true that the majority of queens sold on the market are raised outside of the swarming season, yet the beekeeping public seems to be very well satified with them, and they seem to be giving good satisfaction.

Many beekeepers are waking up to the fact that their bees have consumed more than the average amount of honey during the past four months, while many colonies were left with only the average amount to begin with. The result is what might be expected—reports of heavy losses from various localities, which losses are due entirely to the lack of sufficient stores to feed them properly. It should be an object lesson to those who have been the sufferers; but the chances are they will soon forget and be caught in the same trap before many years pass by. Better think the following over and write it on the honey-house door: "Nothing is lost by leaving plenty of honey in the fall; for if your bees do not need it, it will be there the following spring, and you will get it anyway. If they do need it, they need it bad."

WHAT TO WEAR IN THE BEE-YARD

Do you wear black in the apiary during the hot weather? Try wearing a pair of white overalls and jacket and note the comfort. I have learned that the wrist is a bad place to get stung, and I avoid it entirely by wearing a sort of sleeve protector made from eight or ten-ounce canvas which extends from the palm of the hand to the elbow. I make it to fit snugly about the palm with a slit for the thumb. I fasten it with a safety pin to the sleeve.

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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Unsigned communications receive no attention.

Life Estate

M has taken care of A for six years under the understanding that upon death of A, M would receive all of her property. Wills and a deed to that effect have been made by A, but the deed has not been recorded. A is becoming childish and is giving away things she really needs to keep. A also claims the right to do as she pleases with her property. What means has M to protect herself?—Subscriber.

Cases such as the above are really quite difficult to handle unless the party desires to take action to enforce her rights. You are, of course, entitled to bring action in the appropriate court setting forth the contract which has been made, demanding the judgment of the court to enforce said contract. In the contract as established, as stated above, A has no interest in or to her property other than a mere life interest. The reversion of the real property and the title to the personal property in a measurse is vested in M subject only to the use thereof by A during her lifetime. If it is your desire to take proper legal proceedings, you can adequately protect your rights. Otherwise, it would be difficult to do anything other than inform the people to whom these gifts are made or promised of your rights in the matter. If the deed has been executed to M it would be only prudence to have it recorded.

Second Mortgage

I gave first mortgage on my farm, which became due January 1, 1915. The mortgage was foreclosed and property sold under execution June 1, 1915. The year of redemption right ended June 1, 1916. I had also given a second mortgage on the same property, therein stating that it was subject to the above first, which became due Aug. 1, 1915. No action was taken toward collecting the second mortgage although the security was worth far more than the amount necessary to redeem from the sale under foreclosure of the first, and the security was cut out by the first mortgagee acquiring title by court decree. Can the second mortgagee take judgment after making no effort to realize on his security?—Subscriber.

It undoubtedly would have been possible for you to have required the second mortgage to make due appearance in the foreclosure suit and have the property sold for the benefit of both, but at the present time it is exceedingly doubtful if anything can be done. However, the second mortgagee would be entitled to bring suit on the note, to secure the payment of which the mortgage was given, and take judgment thereon.

Husband's Debts

Husband bought life insurance stock, giving note for same. Wife has considerable property and husband none. Can company levy on wife's property for payment even if husband manages wife's ranch?

If property was deeded to wife by the husband prior to the execution of the note and the husband was solvent at the time, or if the property was acquired by the wife from other sources, the wife could not be held, as the husband in managing the separate property of the wife acts merely as her agent, and persons dealing with him are bound to take notice of his authority as in case of other agents; and the wife cannot be held for any contract made by him beyond the apparent scope of his agency.

Wife's Property.

A wife's father left her 400 acres of raw land. Husband placed mortgage on a small piece of it, took this money and went to work, developed water, built home, barns, etc., brought the land to a high state of cultivation. He also induced one of the big oil companies to develop oil on it. Now is it possible for wife to make a will, cutting him out of everything?—Subscriber.

In its inception the property was, of course, the separate estate of the wife, as to which the husband had no claim whatsoever. In some cases it is held that where the husband acts as agent for the wife in regard to her separate property he is entitled to reasonable compensation, the same as any other agent. In other cases it is held, however, that if the husband voluntarily gives his time and skill to the management of his wife's separate estate, or bestows his labor thereon, there will be, in the absence of any express agreement for compensation, no obligation on her part to pay him. It depends entirely upon the exact facts in each case, and the statement given is not, nor can it be in an opinion of this character, sufficient to give an adequate answer to a question as important as that to the parties involved. The wife, of course, is entitled to make a will devising all of the property to whomsoever she may desire. The only question would be as to the right of the husband to compensation for his efforts spent in the development of the property.

Community Property

Husband buys a piece of land and sells without his wife signing the deed. Can his wife get half of the land, or what part of it can she get? There were three children of age at time he signed quit claim deed.—Subscriber.

All property acquired after marriage by either husband or wife is community property. The husband has the management and control of the community property with absolute power of disposing, other than testamentary, as he has of his separate estate, provided he cannot make a gift of the community property or convey the same without a valuable consideration, unless the wife consents thereto in writing. Under the above provision it is legally unnecessary to obtain the signature of the wife to any deed to the community property and she is entitled to no portion of it during the lifetime of the parties or until the dissolution of the marriage either by death or divorce. The title companies, however, usually request the signature of the wife upon any deed for their own protection.

Property of Unmarried Woman

Am told that an unmarried woman holding property in California can't bequeath her property to other than immediate heirs and that a portion of her property passes to the state. What are the rights in this case?—Subscriber.

An unmarried woman is entitled to bequeath her property to anyone whom she may desire, either immediate heirs or those who stand in no relation whatsoever to her. No portion of her property passes to the state unless she dies without leaving a will and has no heirs.

Right of Way

A owns 20 acres of land, has four neighbors surrounding him, and to get to the county road has to pass over one of his neighbor's land. Now the neighbor whose land he has been passing over has built a fence and

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warned A not to trespass. What can A do to get in and out of his place? Can the neighbor stop A from driving across his land to the county road?—Subscriber.

When there is a conveyance of land and there is no means of access thereto or egress therefrom except over the remaining land of the grantor, a right of necessity over such land is granted by implication of law. The general principal under which this right operates in case the grantor has conveyed away the land surrounding the enclosed piece is based upon the presumption that the grantor intended to reserve a right of way of ingress and egress to the enclosed land over the piece last conveyed. This is subject to the modification that where an easement was in use over other lands even though conveyed prior to other lands of the grantor. It is also, of course, possible that a right of way has been obtained over certain lands by prescription, in which case the owner of such lands would not be entitled to bar the way.

Collecting Wages

A buys retail dairy of B, giving deed of trust and $1700 borrowed of C, which is secured by chattel mortgage on the 18 cows and the deed of trust. A soon has no money, credit or hay and gives C a bill of sale for the cows and business. C buys the hay and keeps things going with A in charge. At the time A gave C the bill of sale for the cows he owed D $130 wages for milking. Later A paid D with C's money. D continued to milk. When C had owned cows 60 days he refused to pay D his wages, saying that any of his money paid to D by A must be credited to him (C). Can D force C to pay him? A judgment against A would be worthless as he has nothing. —Subscriber.

It is probable, from the facts stated, that A was continued in charge of dairy as the general agent of C, and as such he, of course, had the authority to employ C. In fact, from the circumstances, it appears that such employment was to an extent ratified by C. Such being the case D would be entitled to judgment against C for the value of his services. C, in order to relieve himself, should have properly notified D, but from the fact he did not he apparently encouraged D to continue work.

TYPHOID FLY FACTS

The following questions and answers are sent out by the Missouri College of Agriculture.

1. Where do young flies live? In filth and manure.

2. Where do flies first dirty their mouths and feet? In every kind of filth imaginable.

3. Is anything too dirty or bad smelling for flies to eat? No.

4. Where does the fly go when it flies from the vault, the manure pile or the spittoon? (a) It may wipe its feet upon the clean lips of your sleeping baby; (b) It may carry germs into the open wound on your hand; (c) It may track over the butter, the meat, or take a bath in the milk.

5. Is the fly merely a nuisance? No. It is very dangerous.

6. Why is the fly considered dangerous? It is man's worst pest. It is more dangerous than rattle snake or tarantula. It carries deadly infectious diseases.

7. What disease does the fly carry? It carries typhoid fever, tuberculosis, and various intestinal diseases.

8. How does the fly carry disease germs? The germs stick to its legs, mouth-parts, hairs, wings and feelers.

9. What is the correct name of this human pest? The Typhoid Fever Fly.

10. Has it ever caused anyone's death? It killed more American soldiers in the Spanish-American war than all the weapons of the Spaniards. It has killed thousands of soldiers during the present European war.

11. Why is typhoid fever so prevalent during the summer and fall? Because flies are most numerous during those seasons.

12. Why is typhoid fever common in one community and not in another? Largely because the common house fly is abundant in one locality and is controlled in the other.

13. Where are flies most abundant? Where there is most filth.

14. How shall we kill the fly? (a) Destroy all filth about the house and yard; (b) Put lime into the vault and over the manure; (c) Trap all flies before they enter your home by using wire fly-traps; (d) Kill all flies, large or small, with a "swatter"; (e) Use sticky fly paper or fly poisons around places where the fly may rear its the house or store; (f) Pour a borax solution over manure, filth or other young.

A few apricot orchards in the Banning district are reported to show frost damage, but most of them are unhurt.

SELLING THE COW

"She's an awf'ly good old cow. Our children think the world of her. You'll like her immensely."

"And how much milk does she give"

"Don't know exactly, but she's a nice cow—first class."

"Well, you must have some idea—does she give a gallon at a milking?"

"Never kept very close track."

"But you must have a rough notion about it. Does she give as much as half a gallon a day?"

"Couldn't say definitely. She's an awf'ly good, kind old cow, though. If she's got any milk she'll give it to you."

A SMALL PATTERN

She had been sitting in the furniture shop for nearly two hours inspecting the stock of linoleums. Roll after roll the perspiring clerk brought out, but still she seemed dissatisfied.

From her dress he judged her to be a person of wealth and thought it likely she would have a good order to give. When at last he had shown her the last roll he paused in despair.

"I'm sorry, madam," he said, apologetically, "but if you could wait I could get some more pieces from the factory. Perhaps you would call in again."

The prospective customer gathered her belongings together and rose from the chair. "Yes, do," she said with a gracious smile, "and ask them to send you one or two with very small designs, suitable for putting in the bottom of a canary's cage."

A teacher was one afternoon examining a class of young boys in geography. He said:

"Now, boys, what do you think that Noah did while he was in the ark?"

After waiting several minutes he saw one hand go up, and the little chap on being asked what he thought Noah did replied:

"Sir, I think that he might have fished some."

"Yes," said the instructor, "that is possible; he might have fished some."

Presently another small hand went up. The teacher asked this one also what he thought about it.

The small boy said: "I don't think that he fished very long, because he only had two worms."

DUNHAM CULTI-PACKER

TRADE MARK REG.

10 Jobs for a Culti-Packer

Mulches Surface
The front wheels make ridges and the back wheels split these ridges and stir them over and over.

Firms Loose Soil
Wheels cut through top soil firming out air spaces in soil below. Moisture stays better in firm soil.

Crushes Lumps
Curved wheels crush the hardest lumps. Back wheels come half way between front wheels --no lumps missed.

Saves Moisture
Packs new furrows and stirs top soil to prevent evaporation

Stops Winter Killing
In early spring it settles down the heaved soil, resets the plant and fills up frost cracks.

Cultivates Crops
Firms soil about roots, stirs surface, breaks crusts. Wheels detachable for straddling corn.

Starts Seed
Firms soil around seeds to attract moisture and make them sprout quickly.

Retards Blowing
Ridges at right angles to prevailing winds retard wind from blowing the soil.

Hinders Weeds
In newly seeded fields will set back little weeds, giving crops a good start.

Levels Soil
Tears down high spots, builds up low places, making field smooth for harvest.

More Than A Clod Buster

The Culti-Packer with its two rows of heavy semi-steel wheels crushes the worst lumps into a fine mellow seed bed, but that is only *one* of *ten* farm jobs that it will do equally well.

The farmer who uses it right will have it in the field from early spring till late in fall for one purpose or another. He will use it on every crop he grows---for preparing the seed bed, starting the seed, cultivating the growing crop, breaking crusts, saving moisture.

Read this list of Culti-Packer jobs and see what noted farm authorities have to say about it---then go to your dealer and get acquainted with this tool.

Expert Opinion

Alfalfa
"On ordinary well plowed ground, the plow, spring tooth harrow and Culti-Packer are all that are needed to prepare a perfect seed bed. The Culti-Packer greatly excels any other implement we have ever used for this purpose."
Chas. B. Wing, Alfalfa Expert

Corn
"Every one about the farm is extremely enthusiastic over the use of this tool. We used it on corn ground after the corn had been planted. It seemed almost an ideal tool for this purpose."
Ohio State University

Wheat
"Rolling in the spring will compact the soil about the plant root and add vigorous growth of wheat. Since the Culti-Packer has come on the market we have come to favor it. During a period of four years, rolling gave an average increase of 5 bushels per acre."
Nebraska College of Agriculture

Oats
"Compacting is usually done with a smoothing harrow. A much better tool is the corrugated roller (Culti-Packer) which can be used instead of the harrow after disking and seeding."
Frank I. Mann

General Crops
"We are using the Culti-Packer on the experiment field here. It certainly is one of the grandest tools I have ever used on a farm."
Kentucky Experiment Station

"We have used one of your Culti-Packers with good satisfaction. In fact for certain conditions of soil it is one of the finest machines for preparing a seed bed we have ever come across."
N.Y. State College of Agriculture

Be Sure It's A Culti-Packer

The genuine Culti-Packer has the three features listed below:

1 **Quick Detachable Wheels** can be removed from axle in one minute, leaving a gap for straddling corn rows.

2 **Wheels Always Split Ridges;** an arm keeps the wheels of back gang in position to split ridges left by front gang.

3 **Dunham Roller Bearings.** The axle turns in steel roller bearings making the Culti-Packer pull easily with the average two horse team.

"SOIL SENSE" FREE BOOK

48 pages of fine soil photos and information on Root Growth, Seed Beds, Soil Moisture, Crop Cultivation, and special hints on many different crops.

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Classified Liners

The direct selling method from producer to consumer, and a clearing house for over 31,000 readers, weekly.
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TREES

For Sale — Washington and Thomson Navels, Valencias, Seedless Grapefruit, Eureka, Lisbon, Villa Franca and Seedless Lemon, Harman Avocados. Buds were selected from the best bearing trees and will yield bumper crops. Also 40,000 Mission and Manzanillo Olives. The above stock is growing in Rialto, Whittier, Glendora and Fallbrook. Budding cloth 30c yard, post paid. No frost damage. We solicit your patronage. Prompt replies to inquiries. Cyrus W. Wilhite, P. O. Box 154, Glendora, Cal. Phone 303.

For Sale—Several thousand very choice lemon, orange and several hundred grapefruit trees. If you prefer to plant an orchard, large or small, it will pay you to get our prices. Would be glad to have you visit our nursery. Write now. U. Togawa, Box 17, Nursery on Hardison Ranch, Sespe, Cal. Phone Sunset 20J5.

Citrus Trees—All leading varieties. Large line, Lisbon & Villa Franca Lemon and Washington Navel trees. All first class and clean. Special prices to dealers or in carload lots to growers. Randall Bros.' Nurseries Co., Whittier, Cal.

6500 Washington Navels, 7000 Late Valencia Orange trees ¾ up to two years old. Buds carefully selected. Stock thrifty. 30c each open roots, 38c balled f.o.b. Glendora. Wilbur K. Howard, Box 464.

Broad Leafed Mission and an extra early strain of Manzanillos. If you want the early ripening and early bearing kinds, we have them. Every tree guaranteed. Olives exclusively. H. Detmers & Son, Exeter, Cal.

Citrus Trees—Fine stock, no frosted trees. Best root system. Any size desired. Get our prices on large or small orders. Nurseries at San Dimas. Main 3604, Smith Citrus Nurseries, F2729 315 Marsh Strong Bldg., Los Angeles.

For Sale—Valencia, navel oranges and Eureka lemons, 2-year-old good stock. Write or call for prices to Nursery on North Azusa Avenue between 11th and Sierra Madre Ave., K. Minabe, Azusa, Cal.

Walnut Scions—26 varieties. Guaranteed true to name and from bearing trees. Good firm grafts sent. Our walnuts win first prizes at all state fairs and wherever they are entered. Tribble Nurseries, Lodi, Cal.

For Sale—Washington navel and Valencia late orange trees. Eureka lemons. Marsh seedless grapefruit, kumquats, avocados. Strictly first class trees. H. H. Ford, Redlands, Cal.

For Sale 6000 Valencia Trees—One year old this spring. Buds from Performance Record trees in one of the best groves in the state. Write today. L. V. W. Brown, Riverside, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

Apricots and Olives—Royal Blenheim and Tilton apricots. First class trees. Large stock of Mission, Manzanillo and Ascolano olives. Balled or open root. No scale, no defoliation. C. F. Mover, Hemet, Cal.

For Sale Citrus Trees—Valencia, Navels, Grapefruit, Seedless Lemon, Villa Franca and Eureka; also Manzanillo olive and walnut trees. W. W. Burns, 631 Security Bldg., Los Angeles. F-3110.

Roses 50 cents per dozen. Apple trees $6.00 per 100. Olives $4.00 per 100. Big stock fruit and ornamental trees and roses. Write for catalogue. Kavan Nurseries, San Bernardino, Cal.

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Apricots Apricots Apricots
5c up, 5c up, 5c up, 5c up, 5c up.
The largest in the state to select from. Carsten Truelsen, Nurserymen, Hemet, Cal.

For Sale 23,000 trees. Valencia oranges, 18,000; Eureka lemons, 5000, all two years old, extra fine this spring. Frank R. Baxter, R. F. D. 1, Fullerton, Orange County, Cal.

For Sale—6000 fine thrifty two-year-old Lisbon lemon trees. Bud selection the best. Address Chas. Story, Rivera, Cal. Phone Whittier 4721.

For Sale—Excellent citrus trees, principally Eureka lemons and Marsh grapefruit, 2 years old. B. C. Dodson, Glendora, Cal.

Novelty in Eureka Lemons—Write your bid for open roots f.o.b. Glendora. Any quantity. If right, trees are yours. E. J. Vander Sluis, Glendora, Cal.

Mission Olive Trees—Raised from my own bearing trees. This is only sure way to get what one wants. W. A. Havne, Box 461, Marysville, Cal.

Olive Trees—Mission, Manzanillo, Ascolano. Propogated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, Cal.

Valencias, one and three years old. Eureka lemons, three years old. Selected stock. May A. Miller, Glendora, Cal.

Budded Avocados—All leading varieties. Address Mather's Avorado Nursery, 137 N. Fair Oaks Ave., Pasadena, Cal.

Citrus Trees—All kinds, any quantity. Butler's Morning Side Nursery, Lamanda Park, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Quality Trees—Prune trees 10c each. Cash Nurseries, Sebastopol, Cal.

TREES

For Sale—Two-year-old Navel-Valencia lemon and grapefruit trees. Choice stock of best quality. Geo. M. Pearson, Riverside, Cal.

HOGS

Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

Make Big Money with our famous Whitten Ranch Big Type Poland-China. Prolific breeders and profitable feeders. Grow rapidly, fatten quickly. Top the market at 225 lbs. in six months. Make greatest profit for feed consumed. Prices reasonable; satisfaction guaranteed. Send for free illustrated book, "Hogs for Profit". Finest ever issued. Packed with valuable information; tells how to become successful. Ranch in Tulare County, but address owner, R. H. Whitten, 610B Security Building, Los Angeles.

The Billiken Herd of Chester Whites. The type that is ready for the market in from 6 to 7 months. Twenty bred gilts due to farrow in May and June. Four young service boars. Forty pigs, four months old, both sexes. Pork is going up every day; brood sows will be high priced by the middle of June. No advance in prices as yet; get busy and order now. Write for booklet, etc, C. B. Cunningham, Mills, Cal.

Large Number of excellent young boars ready for immediate service. Weanlings of either sex. Sired by Joker, first prize boar at Wisconsin State Fair 1915. Sows and gilts, sired by Iowa Wonder and bred to Joker and Sunnydale's Chief. For prices and further information write to Geo. A. Smith, Corcoran, Cal.

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Registered Duroc-Jersey weanlings every month in the year, $10; 3 for $25. Specials for March and April, 1 mature boar, prize winner at Marin-Sonoma Fair, 2 gilts ready for breeding. Satisfaction guaranteed. Red Rock Ranch, Glen Ellen, Cal.

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Wanted to Buy 75, 100 or 125 ewes, healthy and in good condition for breeding purposes. Answer soon. G. Holst, Redwood City, Cal.

The Best By State Fair Test Percheron stallions, mares and first and second prize filly colts for sale. H. G. Learned, R. 4, Box 22, Stockton, Cal.

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East Side Poultry Yards, established 1904. Our object, egg type and size for ideal utility stock, thoroughly Hoganized, baby chicks, correctly hatched, dozen or thousand. White Leghorn 10c, R. I. Reds 13c in February. After that cheaper. Satisfaction guaranteed. 255 S. 18th St., San Jose, Cal.

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Baby Chicks from mothers with 180 to 240 eggs each per year. S. C. White Leghorns, the best ever, $10.00 per 100, $90 per 1000; also Mammoth kale plants for sale 35c a hundred—$2.50 a thousand. Delivered free. A. P. Ward & Son, Box 100, Calistoga, Cal.

200-290-Egg Leghorns, Rocks, Reds, Buff Wyandottes, Buff Orpingtons, Anconas. Special sale week March 31-April 7. Ranch, Lincoln and Piedmont. Visit or order. Eggs, chicks, breeders, everything reduced. C. Beeson, Pasadena, Cal.

Baby White Leghorns—Hatched from high producing utility and ribbon winning matings. Booking orders for baby chicks, pullets, cockerels and hatching eggs. A. D. Roberts Poultry Yards, Box 566, Ceres, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

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Baby Chicks—White Leghorns, Brown Leghorns, Reds, Barred Rocks, Black Minorcas, Anconas. Prices on application. Orland Hatchery, Orland, Glenn Co., Cal.

Rainescourt Reds—Eggs from prolific laying strain and exhibition winners from $1.50 up. Day old chicks $15 per 100. Rainescourt Poultry Ranch, Zel ah, Cal.

"Eastman's Bred-to-Lay" Barred Plymouth Rocks. Chicks and eggs. We Hoganize and trapnest. Fairmead Poultry Farm, Fairmead, Cal.

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Extra Quality White Leghorn Chicks 12c each until March 1, then 10c. Carefully line bred from MacFarlane, Young, Cyphers and Martin strains of foundation stock. Eggs $1.50 per 15, $2.50 per 30, $5.00 per 100, $50 per 1000. Acres of free range connected with our breeding pens, 20,000 feet under roof. Only Jubilee incubators used, disinfected every hatch. Don't save 2c per chick in buying and lose a dollar per pullet in raising, get the best and succeed. Newton Poultry Farm, Dept. 3, Los Gatos, Cal. Catalogue free.

Roofden Ranch Chicks are well hatched from first class utility breeding stock; money making egg producers our aim, and the prices are right. 7 to 14c, depending on breed, month, quantity (dozen to thousands). White, Buff, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks. For Dollars and Sense. Send card for circular. Roofden Poultry Ranch and Hatchery, Campbell, Cal.

The J. K. Bigelow Poultry Ranch and Hatchery, 300 acres devoted to superb vigorous selected White Leghorns. The greatest egg farm in the West. Bigelow chix are incomparably superior to the product of commercial hatcheries. Price same as former seasons, 10c each till April 1, 9c during April and May, 8c thereafter. Shipped on approval; examination before paying. The Bigelow Poultry Ranch, R. R. No. 2, Sonoma, Sonoma Co., Cal.

Highest Class—Winners at State Fair, Oakland, Modesto, Reno—White Rocks and White Leghorns. Incubator chicks. Rocks $25 per 100; Leghorns, $10 per 100. Hatching eggs $2.00, $5.00 and $10.00 per 15, according to quality. Rock eggs $10 per 100. Leghorn eggs $6 per 100. From range flocks. The best of stock and a fair deal. Mahajo Farm, P.O. Box 597, Sacramento, Cal.

Baby Chicks and Eggs for Hatching from pure bred McFarland strain of carefully culled and Hoganized stock; bred-to-lay S. C. White Leghorns, $8.50 per 100 and $80.00 1000, shipped on approval. Sonoma Valley Hatchery and Poultry Ranch R. F. D. 2, Sonoma, Cal. Box 48.

Farmers, sell your scrub stock and order some thoroughbred White Leghorn or Rhode Island Red Chicks from us. Leghorns $10 per 100, Rhode Island Reds $12.50 per 100, from March 20 to July 1. Brooke Farm (Rancho Del Paso), Office 807 J Street, Sacramento.

Our White Leghorns made official 202-egg records, pen average, in a state college test last year. Oregon agricultural college purchased two of these hens. Eggs $6.00 and $8.00 per 100 from trapnested layers. O. Hudson, Escondido, Cal.

Baby Chicks from White Leghorns, that are the result of severely Hoganizing for the last six years. Our Barred Rocks are thoroughly Hoganized, none can be better. April, May and June Hatchings. Atterbury Poultry Farm, Route No. 1, Box 183, Turlock, Cal.

Book Your Order for White, Buff or Brown Leghorns, Anconas, Barred Plymouth Rock or White Wyandotte chicks with Kokohi Hatchery, 19 Center St., Watsonville, Cal.

Baby Chicks from select free range White Leghorn stock. Place orders now for early delivery. Prices on application. Western Hatchery, Petaluma, Cal. W. S. Waldorf, Proprietor.

Petaluma Hatchery, Established 1902. Capacity 16,000 chicks a week—the kind the hen hatches. Five varieties. Send for free circular. L. W. Clark, Petaluma, Cal.

Selected S. C. White Leghorn and Barred Rock eggs for hatching, from hens typed to lay 200 to 260 eggs per year each. $6.00 per 100, $1.50 for 15. Jay Maxwell, Madera, Cal.

Hatched Chicks For Sale—Barred Rocks, R. I. Reds and White Leghorns. Strong vigorous chicks. Send for circular. G. L Hawley, Madera, Cal

Eggs for Hatching—Ancona eggs $1.50 per 15, $6.00 per 100. Barred Plymouth Rocks. Eggs $2.00 per 15. H. A. Lowd, Winters, Cal.

Rhode Island Reds—Dark red, vigorous, heavy layers. Eggs by setting or hundred. John Reed, Route C, San Jose, Cal.

Baby Chicks—White Minorcas and Golden Buff Leghorn. Two popular breeds. Cockerels for sale. Sandridge Hatchery. Kerman, Cal.

Earl E. Sanders, Modesto, Cal., breeder of M. B. Turkeys, S. C. White Minorcas, S. C. Black Minorcas and S. C. Barred Plymouth Rocks. Nothing but the best.

Chicks and Settings from Prize Winners—Houdans, Barred Rocks, S. L. Wyandottes, Black, Buff, White Orpingtons, Reds, Black Langshans. C. L. McGee, 1635 Julia, South Berkeley.

Incubators—Essex Model Incubators at factory prices. Write Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco. Poultry supplies.

Barred Rocks, eleven grand pens. Quality and satisfaction assured. Mating list on request. Cameron Bros., R. D. 4, Box 76, Sacramento.

For Sale—S. C. White Leghorn Chicks and hatching eggs. Monitor Egg Ranch, R. 1, Box 211, Inglewood, Cal.

Hatching Eggs and Chix—Thoroughbred Hoganized White Leghorns; eggs $4 per 100; chix, $10. D. Clayton, Modesto, Cal.

Silver Campine Setting Eggs. Utility stock, $2.00 for 15. B. W. Taynton, 3022 Shattuck Ave., So. Berkeley, Cal.

AGRICULTURAL IMPLEMENTS

Large Assortment slightly used and agents' sample plows, harrows, cultivators, wagons. Call and see them before buying. Save 50 per cent on some. Four floors. Largest stock. Arnott & Company, Ranchers' Supply House, 112 to 118 South Los Angeles St., Los Angeles.

For Sale—5000 Mower and rake parts. Damaged by water. Good as new. Sections 50c box, guards 15c, sickles, pitmans, 75 sets. Rake teeth, $2.75, cost $7. Snap for dealer if he takes all. In ordering, send sample. Demmitt Co., 120 N. Main St., Los Angeles.

FARM LANDS FOR SALE

Apricots Net $200 an Acre Annually in the foothills of Pajaro Valley. No irrigation, no frosts. We have to offer 200 acres ideal cot land, 2 miles from town and R. R. station; all now in two-year-old, thrifty apricot trees and adjoining full bearing cot orchards that have netted yearly for the past 8 years an average of $175 an acre. We can sell this in lots of 20 acres or more at $125 an acre and on easy terms. Nothing can beat this as an investment. It's better than life insurance. Write for full details, government soil survey, etc. Farm & Forest Realty Co., Watsonville, Cal.

For Sale—Orange County ranch, 167 acres with good improvements and in good state of cultivation. Water conditions excellent. Artesian wells and pumping plant both. Located ¾ mile from village of Westminster and ¼ mile from Orange County's fine highway running from Long Beach to Santa Ana. Property clear and title perfect, but on account of peculiar circumstances of ownership this land is for sale under value just now and never offered before. W. F. Marks, 226 S. Main St. Phone Main 1499, Los Angeles.

Attention, Mr. Dairyman—If you own a herd of good dairy cows and are now renting your land, we will sell you good alfalfa land, WITH NO PAYMENT DOWN, and with interest at 6 per cent payable annually. Water in abundance. Rental $1.00 an acre for season. Lands are U. S. Government irrigated, at Orland, Glenn County, California. A. B. Aitken (Selling Agent). (A resident of the valley since 1858). Dealer in Sacramento Valley Lands. 1701 "J" St., Sacramento, Cal.

For Sale—80-acre improved foothill ranch, 12 miles east of Porterville. 30 acres citrus land now in wheat; 15 acres alfalfa land; hog fencing; pasture; timber; river; railroad adjacent. Modern new house (furnished if desired), gas plant, furnace, etc. Five outbuildings; implements; live stock. Nothing delapidated. Ideal place for country life. Sacrifice $25,000. $17,000 will handle. Address New, Box 3, California Cultivator.

Oregon & California Railroad Co. grant lands. Title to same revested in United States by act of congress dated June 9, 1916. Two million three hundred thousand acres to be opened for settlement and sale. Power site, timber and agricultural lands. Containing some of best lands left in United States. Large sectional maps showing lands and description. Price $1.00. GRANT LANDS LOCATING CO., P. O. Box 610, Portland, Oregon.

For Sale—Beaver Valley land at Malone, Utah, the Salt Lake Railway Company's experiment station. 240 acres of fine grain, alfalfa, beet, celery, onion or potato land. Water within 10 feet of surface. Snap at $30 per acre. Parkford Realty Co., Ontario, Cal.

For Sale—20 acres orange land in Tulare County. Ten acres two years to late Valencia and 10 acres ready for planting or will exchange for good general farm land in suitable location. San Luis Obispo County preferred. Address P. O. Box 45, Soldiers' Home, Cal.

Sonoma County, the home of the satisfied orchardist, chicken rancher and diversified farmer. Best markets, best climate, best land. Satisfactory terms. L. J. Lowry, Santa Rosa.

For Sale—12 a. 17 miles east of Los Angeles. 9 a. alfalfa. Independent pumping plant. Plenty water, $6500. $2500 cash, balance terms 6 per cent. M. Everham, 725 Laurel Ave., Pomona.

Up-to-Date Poultry Plant—Near Laveaga Park. Write owner for particulars. No agents. Address Box 595, Santa Cruz, Cal

Free New Blue Booklet—State, government and Indian lands. Bargains overlooked. Joseph Clark, Sacramento.

Stock Ranches — All sizes and prices. Write Low Priced Land Co., Pacific Grove.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit". It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

Second Hand Pipe For Sale—All sizes standard water pipe and screw casing, half inch to ten inches. Also valve and fittings. Guaranteed good as new. Cheap for cash. Write for our prices. Weissbaum Pipe Works, 169 Eleventh Street, San Francisco.

For Sale—Good used automobiles, all makes, all prices. Write for our complete list and details of the fairest selling plan in the state. Butler-Veitch, 425 19th St., Oakland, Cal.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St. San Francisco.

Flood Control—Plans and estimates. Consult Geo. Ian Maxwell. Phone Sunland 82, R. R. 11, Box 463, Los Angeles.

All Kinds 2nd Hand Harness, pipe collars and harness to order. D. Hurton, Mission and 8th., San Francisco, Cal.

DUCKS

Buff Ducks—Weigh like a Pekin, lay like a Runner. White egg strain. Winners at the best Western shows for past three years. Eggs, settings and small incubator lots. Ducklings in early April. Mating list. The Ferris Ranch, S. Reservoir, Pomona, Cal.

FARMS WANTED

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

SEEDS AND PLANTS

• • SEEDS • •

Don't You Want pure home grown seeds? Of course you do. Ours are all tested and are good enough for anybody Prices, information, samples, etc., upon application. Write, wire or phone V. A Peterson Alfalfa Seed Co., Arbuckle, Cal. • • MAKE OUR SEED YOUR SEED • •

• • ALFALFA SEED • •

As has been our custom in the past, we are offering alfalfa seed both retail and wholesale. This is tested stock and up to our usual high standards. Samples, prices, etc., on application. Wire, write or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

• ALFALFA SEED OUR SPECIALTY •

Alfalfa Seed—Common variety, Smooth Peruvian and Hairy Peruvian, good quality, excellent color, high germination test, grown in Arizona under ideal conditions. Do not buy until you have compared my samples and prices with seed others offer. E. F. Sanguinetti, Yuma, Ariz.

Seed Beans — We sell direct to the grower. Buy now before the advance. Our stock is carefully selected. Satisfaction guaranteed. Tell us the nature of your soil and we will suggest the best variety. Modesto Farmers' Union, Modesto.

Giant Winter Rhubarb Plants. Big profits. From ⅝ acre first season after planting I sold 675 boxes rhubarb, receiving $673.70. Grand prize San Diego Exposition. Big discount on plants for prompt orders. Booklet Free. W. A. Lee, Covina Cal.

Strawberry Plants, fine northern grown stock; to close out a surplus 25c per dozen, $1 per 100. Marshalls, Nick Ohmers, Klondykes, Brandywine, Gold Dollars. Ask for rates on larger quantities. H. A. Hyde, Watsonville, Cal.

ALFALFA SEED
Leo Turner, Yuma, Arizona

Cory's Mammoth Thornless Blackberries. Orders are being booked now for February delivery. Prices and other information upon application. Ekstein Nursery Co., Sole Distributors, Modesto, Cal

Florida Sour and California sweet seedling orange seed from cultivated Florida and California groves. Order early Milo Hunt, Whittier, Cal.

Mr. Alfalfa Grower—Permit me to send you samples and prices of alfalfa seed common and Peruvian. Best seed at lowest prices. O. C. Nordahl, Bard, Cal.

The "Himalaya", best blackberry; enormous bearer. Splendid shipper. Strong plants 50c dozen, postpaid, $20.00 per 1000. Louis Bahrs, Loomis, Cal.

Alfalfa Seed—The very best, guaranteed 16c. Wm. Stuthman, 1239 West Pico St., Los Angeles, Cal.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

Wagner's Giant Crimson rhubarb roots $2.00 per 100, 5c each, small lots. Currier Bulb Co., Seabright, Cal.

Strawberry Plants—Everbearing, Northern grown, strongly rooted. Price list free. F. I. Moffet, Ellensburg, Wash.

For Sale—Ettersburg Strawberry plants $2.25 per 1000; guaranteed to reach you in good shape. Parker Bros., Hemet, Cal

Sudan Grass—Pure, recleaned seed (no Johnson grass) any quantity; prices right. B. E. Miller, Carlton, Texas.

Sudan Grass Seed—100 per cent pure, state analysis. Kelly's Nursery, El Centro.

Alfalfa Recleaned—Old tested kind, 14c pound in ton lots. Grown by me. H Garrison, Murrietta, Cal.

MACHINERY

FOR SALE—USED RANCH TOOLS
Material guaranteed. Save half. Why buy new? It's second-hand after used few times, but not necessarily worn out.
WINDMILLS TANKS WINDMILLS
8-ft. windmills, $21.50; 10-ft., $29.50; 12-ft., $45 to $55; 16-ft., cost $250, for $125; 1000-gal. new galv. tanks, $29.50; 2000, $39.50. Big stock used galv. and redwood tanks, all sizes; 100,000-gal. fine redwood, $400; 3400-gal. heavy corrugated galv. tank like new, cost $103, for $60.
ENGINES PUMPS PIPE
Most all sizes—in good shape.
CENTRIFUGAL PUMPS—2-in. $24; 3-in., $35; 4-in., $45; 5-in., double runner, $95; all size plunger pumps, $5 up; new pump jacks, $12.50; double-acting No. 2 Ames deep well pump, $125; No. 3 Ames pumps, 30-in., $175 cost $660; Means double-acting deep well pump, $350, pumps 50 inches; single 24-in. stroke, heavy duty Stearns jack, like new, $95.
BRASS CYLINDERS—ALL SIZES
Plunger rods, pipe, pipe fittings.
RANCH MACHINERY SUNDRIES
Walking, riding plows, $15 to $22.50; fine 2-gang large mouldboard plow, $45; 3 or 4-gang disc tractor plow, $55; alfalfa renovator, $28; manure spreader; fine BULL TRACTOR, $295; cement mixer, $35; sprayer, $19.50; mowers; buck rake, $25; fine horsepower baler, $75; 250 feet 7-in. irrigating pipe, 16½c; bone grinder, feed cutter, 1000 feet 4-in. riveted pipe, 9¾c, corn sheller; 12 ft. grain drill, $75.
Want to buy first class material. No junk wanted. Pioneers in our line. Trade us your machinery and little cash for what you need. DEMMITT CO., UPSTAIRS, 120 N. MAIN, LOS ANGELES.

One Aspinwall Potato Cutter, one Superior potato planter, both for quick sale for $50. In good working order. Planter used for only about 60 acres. Ship either railway. Cash with order. K. B. Norswing, Fullerton, Cal.

Several new and slightly used engines at a bargain. Best makes. 1 to 35 h.p. Arnott & Company, Wholesale Machinery and Implements, 112 South Los Angeles St., Los Angeles, Cal.

For Sale—Bull tractors, on time payments; best small tractor made for all farm purposes. P. J. Weisel & Co., Anaheim, Cal.

For Sale—38 H.P. "Otto" gas engine in good shape, at a bargain. E. A. Hayes, El Monte, Cal. Phone 48 R.

WANTED

Wanted—Man in each California county to represent established California company. Should have rig or auto to get around. Good pay and several weeks' work to right parties. Address J. H. Yetter, Sales Department, 810 Santa Marina Building, 112 Market St., San Francisco, Cal.

Wanted—By "Easterner", position on ranch, fruit or poultry farm. American, single, 38 years. Not as rugged as some and wish place where work isn't extra hard. Don't drink, chew or smoke. Can furnish reference as to perfect honesty. Raised on farm in Illinois. Try me. Jay B. Finch, Jefferson, Ohio.

Wanted—An experienced herdsman for a pure bred Holstein herd. Must be thoroughly familiar with dairy and A.R.O. work. Single man preferred and must furnish references. F. W. Kiesel, California National Bank, Sacramento.

Wanted—Partner with Ford or $400 cash to work this district. Good chance for right man. I have the goods and am established. For particulars apply J. H. Smith, 1131 Garden St., San Luis Obispo, Cal.

Who Will Stock My Place on Shares? Have 600 acres excellent mountain range; access to 1000 more adjoining. Ideal climate. Reached by auto. Spend a day with me, and we'll talk it over. Address Mac, care Cultivator.

Wanted—Lowest price on 2000 to 3000 Citrus Trifoliata Seedbed Stock. Give size, age and condition. Address Box B, Cultivator office.

Thoroughly Competent Orchardist wants position as working manager; energetic, trustworthy. H., care Cultivator.

PATENT ATTORNEYS

Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS"

TOO MUCH SALT MAY KILL ANIMALS

Since salt is necessary to life and is in universal use it is difficult to realize that in large amounts it is poisonous. Many cases of poisoning in chickens have been reported and occasionally in larger animals. In one instance salt was by mistake used instead of sugar in making a cake. The cake was given to the chickens and killed all of them. Chickens are very susceptible to salt poisoning and, while the amount that it takes to kill a horse or cow is considerable, this sometimes occurs when these animals are especially salt hungry.

When animals have not had access to salt for a long time it is safer to give it to them sparingly at first.—I. E. Newsom, Colorado Agricultural College.

DAIRY CATTLE CONGRESS

The 1917 Dairy Cattle Congress will be held October 1 to 7 inclusive. Since its initial bow into the realm of dairying eight years ago, each succeeding year has witnessed a larger and more imposing exhibit of dairy cattle, dairy equipment, machinery and supplies.

The show will take place on its permanent grounds at Waterloo, Iowa, which has acquired the reputation of being one of the most important dairy centers not only of the Mississippi Valley, but the United States. The Dairy Cattle Congress is primarily an educational institution. Unlike the average fair, it has only one purpose, which is the development of the dairy industry.

FIRE AND WATER

The Morris & Snow Seed Company of Los Angeles suffered during the past week a serious loss through fire and the flood of water poured in by the fire department. Tons of high-priced seeds are now soaking in a basement full of water and other seeds and plants were destroyed by the flames. The firm has, however, transferred such goods as were saved to 526 South Main Street, Los Angeles, within a block of their former location. Before these words are read the new business will be in full swing again. Very fortunately all orders for goods were saved and customers are assured that they will be filled with only slight delay.

CITRUS TREES SELLING

There is brisk demand for citrus trees this year. The Wallace Nurseries, with office in the I. W. Hellman Building, Los Angeles, says that large orders are being received from all sections. Especially heavy orders are coming in from Ventura County. It is thought this will be one of the best planting seasons for years.

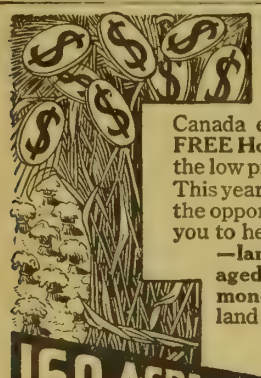
"Young man, the best tonic for you is the right kind of food. I suggest for Breakfast

Ghirardelli's
Ground Chocolate

It's easily assimilated — it's extraordinarily nutritious — and it is supremely delicious."

It comes **PROTECTED**—as all chocolate should—in ½-lb., 1-lb. and 3-lb. hermetically sealed cans.

Since 1852 D. GHIRARDELLI CO. San Francisco



Raise High Priced Wheat on Fertile Canadian Soil

Canada extends to you a hearty invitation to settle on her **FREE Homestead lands of 160 acres each** or secure some of the low priced lands in **Manitoba, Saskatchewan and Alberta.** This year **wheat is higher** but **Canadian land just as cheap,** so the opportunity is more attractive than ever. Canada wants you to help **feed the world** by tilling some of her fertile soil **—land similar to that** which during many years **has averaged 20 to 45 bushels of wheat to the acre.** Think of the **money you can make** with wheat around **$2 a bushel** and land so easy to get. Wonderful yields also of **Oats, Barley and Flax. Mixed farming** in Western Canada is as **profitable an industry as grain growing.**

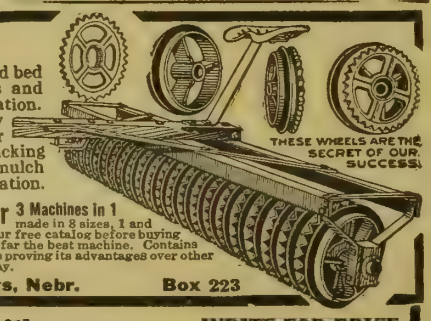
The Government this year is asking farmers to put increased acreage into grain. Military service is not compulsory in Canada but there is a great demand for farm labor to replace the many young men who have volunteered for service. The climate is healthful and agreeable, railway facilities excellent, good schools and churches convenient. Write for literature as to reduced railway rates to Supt. of Immigration, Ottawa, Can., or to

160 ACRE FARMS IN WESTERN CANADA FREE

Gilbert Roche
Canadian Government Exhibit, San Diego, Cal.
Canadian Government Agent.

WHEAT, ALFALFA

and other grains yield more where a perfect seed bed is prepared. The **Western** pulverizes, packs and mulches—makes a perfect seed bed at one operation. Saves seed, time and horse power. Is especially adapted for breaking crust on winter wheat or other grain or in orchards after irrigation or packing rains. It forms the hardest crust into a granular mulch without hurting the grain, and prevents evaporation.



Western Pulverizer, Packer and Mulcher 3 Machines in 1 made in 8 sizes, 1 and 3 sections, prices $20 and up. We want every farmer to have our free catalog before buying a roller or packer. It proves we can save you money and have far the best machine. Contains full description, price direct to you, letters from many farmers proving its advantages over other makes, and much other valuable information. Send for it today.

WESTERN LAND ROLLER CO., Hastings, Nebr. Box 223

Western Pulverizers in stock with WRITE FOR PRICE

ARNOTT & COMPANY, Inc.
112-118 South Los Angeles Street LOS ANGELES

Fancy Recleaned German Millet and Amber Cane Seed

Samples and Prices on Request

Western Seed Co.
116 E. 7th St. - - - - Los Angeles, Cal.

Household Department

MY TREASURE

I sold my conscience to the world;
The price I thought was good.
My conscience—'twas a useless thing;
I needed clothes and food.

But when 'twas gone my joy went, too,
And peace had flown away.
The things the world gave in its place
Were broken in a day.

And then the way grew steep and dark,
My feet began to slide,
I did not know which way to go,
For I had lost my guide.

I bought my conscience back again—
My conscience worn and old!
The world demanded thrice the price.
Since I to him had sold.

Just all I had I paid for it,
And took the poor thing back,
And turned me to my empty home,
Yet did not feel the lack.

It nestled in my heart again,
And held my life as true,
And showed me right and wrong as clear
As if it had been new.

I have my conscience back again,
The world may keep its gold,
For peace and joy have flown back, too,
And never shall be sold! — Ellen Wilson.

THE HONOR OF THE HOUSE

By Harriet Prescott Spofford in Youth's Companion

BEFORE the low fire sat Allan McGregor, with an envelope in his hand, from which he had lately withdrawn a document.

His forebears had been wealthy folk, but he himself had only what was left of their splendor—some old furniture and pictures and the ancient house to which he returned from the city every night by trolley. He was a broker, in not too large a way; and when his income warranted, he would marry Hester, who wore his betrothal ring—a much more expensive ring than he had the moral right, perhaps, to give. But then, it would be an heirloom.

Allan McGregor knew that he was an honest man; it was impossible for a McGregor to be otherwise. That was a matter of family belief.

If the McGregors had ever married into families less strict than themselves, the force of the McGregor strain had overcome anything less worthy. So the document in Allan's hand should have been not in the least attractive.

Yet another man might call it, in a way, inviting. It offered him an opportunity to divide a million dollars with the writer. But the transaction was shady, and although it offered the two principals perhaps a fortune, it involved possibilities, if not probabilities of loss to others.

Allan read the paper again. Yes, it was certainly inviting. There was barely one chance in a thousand of harm to others, he argued. Dividing a million dollars with one other man meant that soon he would be a very rich man himself. And with but the half of a million dollars he could restore the old place; he would be marrying Hester while yet her beauty was resplendent; they would have travel, art, luxury, and all the enjoyment of life. For a little while he sat picturing to himself the way he might live with Hester on that great sum of money. Yes, yes, it was a wonderful scheme; it was tempting—at least, it would have been tempting to any one but a McGregor.

And yet not every drop in Allan's veins was McGregor blood. There was the gay lady, his great grandmother, whose portrait hung in the high panel above the mantel now. She was a Fairweather, and the Fairweathers were easy going people. Great grand-mother herself had loved the pomps and vanities, had bewailed her loss of them, and had effected a loan through which the family fortunes were restored by pretending an interest in an old lover. Great-grand-father had never quite understood that business; he was too upright and downright for that. But great-grandmother was a complex character, and congratulated herself on getting something for nothing. Plainly, if Allan McGregor found this proposition which he had been asked to consider, too tempting, it would be the fault of his great-grandmother.

He looked up at the portrait, its gleams evanescent in the firelight—the lovely, laughing lady in her paduasoy and pearls, with her fan of white peacock feathers. Her eyes, that had the sparkle of black diamonds, seemed to glow and darken in the flickering light, and her smile was like a thing alive. That portrait was painted when she was in her glorious prime, and the changing play of the flame brought all her sweet archness and gaiety into being again. So joyously in love with life did she seem that it had always been a pleasure to him to look at this portrait. Here was something that declared what the family had been.

As he glanced up, in a new outburst of the fire on the hearth, the lady seemed to be moving toward him, smiling upon him with a thousand meanings, as if—it all at once occurred to him—she had something to say about the document in his hand. What would she say to it?

He knew very well what she would say! For how had she conducted herself in the great trial of the family fortunes which had occurred a hundred years ago, during those sad days of the embargo in the second war with England?

On a great adventure overseas had the fortunes of the McGregors been embarked. All their resources except what, in case of disaster, would afford a bare livelihood, were engaged in the fleet of ships led by Capt. Roderick McGregor of the Albatross, the son of this lovely lady, and of her husband, old Allan McGregor. The adventure had not been to the far East, but to a British port of the West Indies, and Captain Roderick had taken out clearance papers before knowing of the embargo which confiscated all ships hailing from a British port. He had been delayed by opposing winds. Many and many a ship's master, learning the news of the embargo from passing craft, had put into a neutral port of the French or Danish West Indies, and had taken out false papers, sailed home, and saved ship and cargo. What Captain Roderick would do was a problem with which all the people of the little home port concerned themselves.

He was a young man with a wife and children who needed all he could make. Would he enter a neutral port and clear from there? It was surely stretching a point to say he had no right to do so. Or would he stand by his colors and hail from the port where he had taken cargo? There was hardly a dissenting opinion among the people—only enough to make assertion lively. Those who had known Roderick McGregor before he ever trod a deck believed in his inflexible honesty, and felt he would trust in the good faith and comprehension of the government when it should be shown that the vessels had cleared before knowledge of the embargo.

In the McGregor mansion there was much anxiety. It was high time the Albatross and her fleet came in. Old Sandy, the serving man, had been up on the roof with his spy-glass for hours each day for a week or more.

The lovely lady had a way, in any stress of bad weather or ill fortune, of arraying herself in gay colors and ribbons and her best paste buckles, in order that, if everything else was sad, some brightness should be present. She sat now opposite her husband, her little foot in its high-heeled slipper tapping the floor impatiently. She was dressed for dining in splendid state if Captain Roderick should make port that day. Sandy had gone down for his afternoon gossip on the wharves.

"You are gay," her husband said, as she spread out her gown—it might have been this very peach-bloom and silver gown of the portrait.

"And why not?" she answered him, beaming upon him as he sat bound to his chair with his troublesome gout.

"Why not, indeed?" he answered, half sadly. "But our old ways will ill consort with the new conditions, where we shall have to make one dollar do the work of $50."

"Oh, no!" she said, lightly. "Want is never to be our master, Mr. McGregor."

"You would say—"

"I would say that my son Roderick is no man's fool. He is not sacrific-

The Cultivator Patterns

8229—Ladies' Clothespin Apron. Cut in one size. The apron is cut in one piece and slips on over the head.

8258—Girls' Dress. Cut in sizes 6 to 14 years. The dress closes at the back and has a skirt with a one-piece gathered flounce.

7263—Ladies' Dress. Cut in sizes 34 to 44 inches bust measure. The blouse is plain and the skirt is cut in three gores.

7843—Ladies' Waist. Cut in sizes 36 to 42 inches bust measure. This waist slips on over the head and may have long or short sleeves.

7475—Boys' Dress. Cut in sizes 1, 2 and 3 years. For very little boys, this is a practical and pretty dress.

8272—Ladies' Skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in four gores and has a slightly raised waistline.

8263—Ladies' Dress. Cut in sizes 36 to 40 inches bust measure. The dress is cut in one piece and the sleeves may be long or short.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH.

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Write your name and address plainly in full, give correct number and size of each pattern you want, and send ten cents in coin or (1 or 2c) stamps for each number. In order to furnish our readers with the very latest New York City styles, all pattern orders are filled in New York City. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

Pattern Department

California Cultivator

Los Angeles

ing his advantage, our advantage, for any air-drawn scruples!"

"Madam, I know not what you mean!" exclaimed the indignant husband.

"I mean, as I have said before, that our affairs are entirely safe. Roderick is not my son for nothing."

"I fail to understand—"

"Oh no, you don't, my dear, not at all. You understand perfectly. Roderick is of such sturdy common sense that we are not only safe, but sure of profit. Roderick will have gone into St. Thomas, Cuarcao, Basse Terre—any port that has escaped the British lion's paw, and will have cleared from there."

"You forget, madam, that that means the taking of a false oath with his clearance papers."

"It does? The recording angel will blot it out. It is for his home, his family, his house. He will not betray them. I have no fear of Roderick. He is my son." And she fanned herself slowly, shedding about her the fragrance of the Tonga beans among which her fans reposed.

"And my honor?"

"A fig for your honor!"

"Madam,"—her husband shook his stick in the air,—"Roderick may be your son; but he is my son, too. He is my son, too. I tell you! I, also—I—gave him life. It is my blood as well as yours that flows in his veins. He bears my name. My honor is in his keeping. My son will not be false to my blood. He will not disgrace my name. He will not betray my honor. He will never be false to the honor of the McGregors!"

She made no reply, but sitting back in her chair, swung her fan in leisurely fashion.

It was at this moment that Sandy, forgetting his respectful usages, ran up the steps and through the hall, and stood breathless in the doorway of the drawing room—this very room where Allan McGregor, the younger, now sat over the fire, and where the lady's portrait hung. "The ship Albatross, Captain McGregor, is in the offing," he cried, "waiting for wind and tide! She flies the British flag with ours, and hails from Barbados!" His tone was full of joy.

There was a moment of dead silence, on the lady's part perhaps of consternation. And then the tears fell, and she ran and hid her face in her husband's breast. "I am glad, I am glad!" she cried. "I thank God that he is your son!"

Allan McGregor, as he recalled this legend of the family, a hundred years old now, was looking up at the portrait. For an instant the lovely lady, in the flicker of the blaze, seemed to bend over him with tender questioning, and to smile with eyes that saw no one but him.

Mechanically, as he gazed, he slipped the document he held back into its envelope, and stooping to the coals, he stirred them to a blaze, took out his fountain pen and redirected the big envelope to its sender. "Neither will I betray the honor of the McGregors!" he said.

SARAH BERNHARDT'S TEN COMMANDMENTS

1. Have one chief, absorbing interest in life.

2. Have other interests, little interests, of life to keep you from becoming one-sided.

3. Decide what are the essentials of your life and concentrate upon them.

4. Be interested in everything that happens for the moment, but do not let the interest become too deep.

5. Eat what you like when you like, but not as much as you like.

6. Do not let the material profane the spiritual.

7. Drink much water and lemonade.

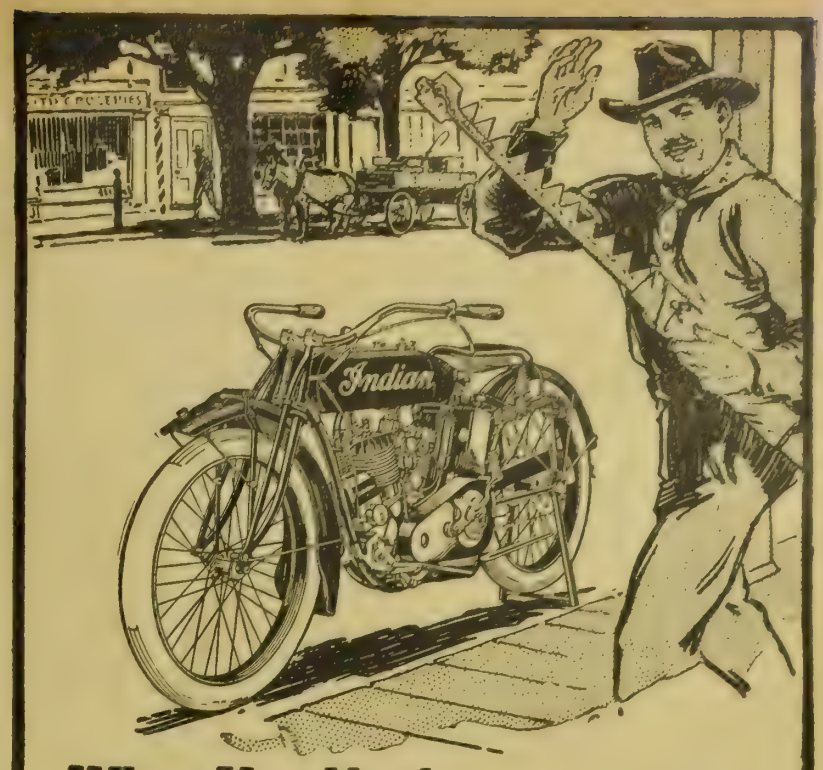
8. Sleep whenever and wherever you are sleepy.

9. Stop to rest for a minute, many times a day. These little rests prolong life.

10. Find your work, then regard that work as a pleasure, not a penalty.

DAILY THOUGHT

Whether you be man or woman you will never do anything in the world without courage. It is the greatest quality of the mind next to honor.—James Lane Allen.



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and the farm hands can't go ahead with their work until repairs are made, you can get to town and back in short order when you have a 1917

Indian Motocycle With Powerplus Motor

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are all made with Patented Tie-Protecting Shield and Graduated Tie-Space. 15c each. $1.75 per doz.

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PASADENA, CALIFORNIA

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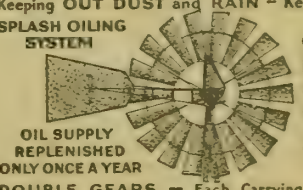
With INCLOSED MOTOR
Keeping OUT DUST and RAIN—Keeping IN OIL



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Los Angeles

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Makes and burns its own gas. Gives 300 candlepower of strong steady light. Can't blow out or jar out. Made of heavy nickeled brass. Mica globe. Guaranteed for five years. Ask your dealer—if not on sale in your town yet, write for catalog of 20 different kinds Gas Lanterns, Table Lamps, etc. Dealers or agents wanted in every locality.
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Answer the gardner's big questions: How can I grow plenty of fresh vegetables with my limited time? How can I avoid backache and drudgery? Use

IRON AGE *Wheel Hoes and Drills*

Do the work ten times faster than the old-fashioned tools. A woman, boy or girl can push one. 38 combinations—easily adjusted. Light, strong and durable. Prices, $3.25 to $15.00. Will help you to cut the high cost of living.

No. 1 Double or Single Wheel Hoe

Write us for free booklet today.

Bateman M'f'g Co., Box 40C Grenloch, N.J.

Dixon & Griswold General Agents, Los Angeles

AUCTIONEER

Will conduct sales anywhere in California. Pure bred live stock sales given special attention. For dates and terms address.

T. J. Gilkerson

Phone, Farmers 39 Lemoore, Cal.

Embedding for Callusing

Fig cuttings and grape cuttings are cut at uniform lengths and tied in bundles, then instead of placing in nursery row at once they are "callused" by being placed in trenches, tip end down, and covered with say four or five inches of fine soil. This layer of soil is soon warmed by the sun which, with the proper amount of moisture, puts the upper end—which is to be the lower end of the cutting when placed in nursery row—in a condition to callus ready for rooting. A few weeks later they are removed from this trench, the bundles broken and the individual cuttings placed in nursery row. From these calluses soon spring young rootlets, making in one year a tree ready for orchard planting.

PRODUCING MILLIONS

Continued from Page 343

Nursery legislation is now getting into a position which means a reasonably satisfactory solution for all, but we doubt not the question will always remain to a degree. The nurseryman, that is, the average nurseryman, is willing and even anxious to have proper legislation. In fact, one suggested enactment for the present legislature made by our best nurserymen is that all nurseries shall be registered with the state horticultural commission and that a certain regisraion fee shall be paid. This is favored for several reasons, among which we may mention this, that one of the objectionable practices of California "backyard farmers" is the production of a few nursery trees of a variety which happens to be in demand. These small supplies of nursery stock, practically unknown to the trade, yet are sometimes so generally planted that their coming on the market at the last moment often completely upsets and destroys the market for those particular trees. The nursery business is important enough and involves risks sufficient that the nurserymen feel that they are entitled to the protection which comes from placing their business on a legitimate basis.

But more specifically about the nursery business in Fresno, which is the center for thousands of acres of nurseries, there are three large nurseries; that of the Fancher Creek Company, the Fresno Nursery Company, and the Kirkman Nurseries, and while Fresno is the center from which the business of these great nurseries is directed, not only many acres of Fresno County are devoted to raising stock, but also many acres in Tulare, Merced, Madera, Sacramento and even one or two counties in Southern California.

The story of these nurseries we are telling this week more largely through photographs than through the written word, but the methods of handling this great industry are certainly most interesting.

Many trees, and even shrubs, require two to four years to prepare for the planter. In the case of deciduous fruit trees two years is the usual nursery life of the tree. The pit or the seed is planted either in the fall or the following spring; the budding is done the next fall or possibly grafting in the spring; then one year of almost continual care is given to the growing bud; often it is even tied to a stake and its growth watched inch by inch.

After the dormant period of the next fall the great nursery plows are put into the rows and the trees are "lifted" and taken to the packing ground where they are heeled in to be drawn upon when needed. The citrus tree spends one year in seed bed, one summer in nursery row as seedling, another or possibly two years after budding.

As the orders are made up deciduous trees are tied in great bundles with tules and moss for packing and protection. The packing in bundles is sometimes done with an ordinary windlass and rope, drawing the bale or bundle into the smallest compass. It is then tied with heavy cords and the package trimmed and made to look as neat as a bandbox, and these great bundles are then shipped to all parts of California and even to all parts of the United States. The larger nursery may be supplied with a power windlass which enables much more rapid baling.

The harvesting of the tules for packing calls for the work of hundreds of men in the marshy lands of the rivers of the San Joaquin Valley. They are hauled in the fall and stacked in bunches of hundreds of tons.

FEDERAL FARM LOAN OFFICERS

The federal farm loan board has announced the following appointments of officers and directors of the federal land bank of Berkeley, California: President and director, Burrell G. White, San Francisco; vice president and director, R. L. Douglass, Fallon, Nevada; secretary and director, S. A. Reed, Los Angeles; treasurer and director, Dr. George W. Thomas, Logan, Utah; director, Dr. Elwood Mead, Berkeley; registrar and attorney, Lysander Cassidy, Phoenix, Arizona.

Lifting and Bundling the Trees

Gang of workmen in Kirkman Nurseries pulling out, bundling and labeling trees. From these nursery rows the trees are transferred to the shipping yard where they are heeled in and used for filling orders, at which time they are tied in great bundles. The appearance in the yards is shown in the cover illustration, which gives a small section of Mr. Roeding's nursery in Fresno.

LAYNE & BOWLER PUMPS

It is surprising how few owners of pumping plants realize the enormous saving that an efficient pumping plant will make. The sinking of a well is the first cost, but the pumping cost is continual; therefore the question of selecting the right pump should be duly considered beforehand. Our Engineering Department is at your service to assist you in permanently solving your pumping problems. Write for free Catalog No. 30.

Layne & Bowler Corporation

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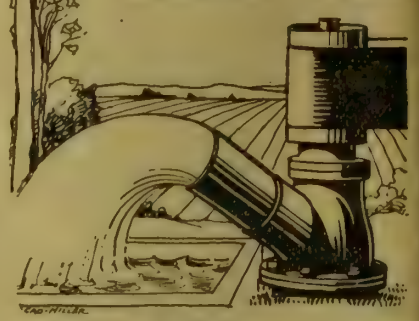

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Wouldn't it be a rather good plan after a prosperous year to replace your old uneconomical plant with a newer and better one? Let us furnish it. Or perhaps all your engine or pump needs is a good overhauling. Let us do that and we will do it right too.

SMITH-BOOTH-USHER CO.

Irrigation Machinery and Supplies

Los Angeles -:- California

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Answer the farmer's big questions: How can I have a good garden with least expense? How can the wife have plenty of fresh vegetables for the home table with least labor?

IRON AGE *Combined Hill and Drill Seeder*

solves the garden labor problem. Takes the place of many tools—stored in small space. Sows, covers, cultivates, weeds, ridges, etc., better than old-time tools. A woman, boy or girl can push it and do a day's hand-work in 60 minutes. 33 combinations, $3.25 to $15.00. Write for booklet.

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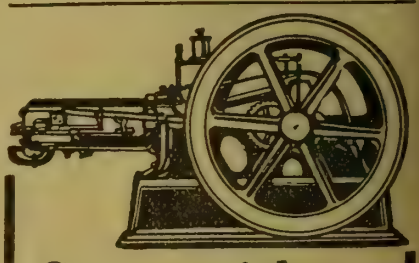

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Embody all that is best in pumping engine construction. GUARANTEED. Write for illustrated catalog.

Commercial Engine Co.

2416-32 Porter St., Los Angeles, Cal.
Branch: 1228 "H" St., Fresno, Cal.

Los Angeles Market

LOS ANGELES, Mar. 21, 1917.

BUTTER

Wholesale prices:
Rcts. wk. ending March 20, 359,945 lbs.
California extra creamery 33
Prime first 31
Extr. Cr'y Exch. past week.

Mar.	14	15	16	17	19	20
'17	33	33	33	33	33	33

CHEESE

Brokers' prices:
California flats, lb. 27½
Longhorn 28
Tillamook Triplets 25

EGGS

Exchange quotations:
Rcts. wk. ending Mar. 20, 3,871 cases.
Fresh extras 28
Case count 27
Pullet 25½
Fresh Ranch Exch. past wk.

Mar.	14	15	16	17	19	20
'17	25	26½	26½	28	27	28

POULTRY

We quote from growers:
Broilers 34
Fryers 34
Hens 22
Roasters 25
Geese, Young 22
Ducklings, lb. 22
Roosters, old 13
Turkeys .....24@30

LIVE STOCK

CATTLE—We quote cwt. f.o.b. L. A.
Beef steers, av. 1000 to 1100 lbs.....10.00
Heifers, good 8.00
Cows, good .....7.00@7.50
Fair .....6.50@7.00
HOGS—
Heavy, av., 175 to 250 lbs.....12.50
Mixed, av., 150 to 175 lbs.....11.00@11.50
Light, av., 125 to 150 lbs.....11.50
Rough, docked 20 lbs.; piggy sows, 40 lbs.; stags, 40%.
We quote per cwt. f.o.b. L. A.
Prime wethers .....9.50@10.00
Ewes .....9.00@9.50
Lambs 13.00
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:
Northern 4.25
Local 4.00
Oregon Burbanks 4.00
Idaho Russets 4.25
Sweet, cwt. .....5.10@5.25
New, lb. 8c
Seed: Early Rose, cwt. 4.75
White Rose 4.00

ONIONS

Wholesale selling price:
White 10
Brown, lb. 9½
Onion Sets, Brown 20
Garlic, lb. 8

VEGETABLES

Wholesale prices:
Artichokes, doz. .....85@1.15
Asparagus, lb. .....30@35
Brussels Sprouts, lb. 13
Beets, doz. bunches 60
Cabbage, lb. 4½
Red, lb. 5
Carrots, doz. 50
Chicory, doz. .....40@50
Cauliflower, doz. 1.25
Celery, cr. 9.00
Cucumbers, Hothouse, doz.....60@2.50
Horseradish, rt. lb. 12½
Lettuce, doz. 30
Leeks, doz. .....40@50
Mint 40
Onions, green, doz. 20
Oyster Plant, doz. 40
Peas, lb. 12
Peppers, Chile, 15; Bell.....55
Parsnips, lug 50
Radishes, doz. 25
Rhubarb—Crimson Winter .....1.35@1.50
Strawberry .....2.25@2.40
Romaine 50
Spinach, doz. 25
Turnips, doz. 50
Tomatoes, cr. .....2.15@2.25

FRUITS

Wholesale prices:
Apples—
Bellflower 1.50
W. W. Permain .....1.75@2.00
Newtown Pippin, Yellow .....1.60@2.00
Avocados, doz. .....5.00@10.00
Bananas, lb. 5
Pineapples, lb. 12
Pears—Winter Nelis, lug 2.00
Pomegranates, ½ bx. 1.35
Strawberries, basket 20

CITRUS

Navels .....2.25@2.75
Lemons .....1.75@2.75
Juice 1.25
Grapefruit .....2.50@2.75
Limes, basket 85
Tangerines, lug 1.25

NUTS

Prices named by Cal. Walnut Growers' Assoc.

	1914	1915	1916
No. 1	16.50	13.60	15.50
No. 2	12.00	10.60	12.50
Pkgs., 16 oz. Net.....		.....	16.50
Budded	20.00	17.00	19.00
Jumbos	18.50	16.60	17.50

HONEY

Wholesale prices:
Extr. lb. White 8½@9½c; A. 8½@9c; W.W. .....10@11
Comb., lb. W. 12½c; Lt.A.....12½@14c
W.W. 14½
Beeswax, lb. 32

BEANS

Wholesale Prices:
Lady Washington .....13.00@13.50
Limas .....13.00@13.50
Pinks 10.00
Manchurian Reds 8.50
Baby Mex. 7.90
Small White .....13.00@13.50
Blackeyes .....6.75@7.00
Tepary 8.50
Lentils 18.00

HAY

We quote ton f.o.b. L. A. to producers:
Barley .....16.00@20.00
Oat, tame .....17.00@20.00
Alfalfa, local .....18.00@21.00
Northern .....16.00@18.50
Stock .....12.00@15.00
Straw .....9.00@11.00

GRAIN

While we do not quote flour it may be interesting to note that with all the other advance it goes up 20c per barrel this week.

Wholesale selling price f.o.b. L. A.
Wheat—No. 1 .....3.35@3.40
Corn—No. 2 yellow, 2.80; white 2.90
Oats—California feed 2.80
Standard 2.40
Texas Red 2.90
Cal. Seed Oats 2.60
Barley—Recleaned 2.55
Milo 2.75
Egyptian Corn 2.75
Rye 3.25

FEED STUFF

Wholesale, cwt. f.o.b. L. A.
Alfalfa Meal 1.45
Bran, heavy 1.95
Shorts and Middlings 2.35
Alfalfa Molasses 1.50
Meat Scraps 3.60
Beet Pulp 1.60
Cracked Corn 2.85
Cracked Wheat 3.60
Cotton Seed Meal 2.30
Bone Meal 2.45
Feed Meal 2.90
Green Bone 2.25
Middlings 2.50
Oil Cake Meal 2.40
Fish Meal .....3.60@3 70
Rolled Barley 2.50
Rolled Oats 2.50
Hulled Oats 2.55
Scratch Feed, grit, in 10-sk. lots 3.05; 5-sk., 3.10; 1-sk. 3.15
Scratch Feed, 3.25, 3.30 and 3.35
Oil Cake Meal 2.40
Pigeon Feed 3.70
Chick Feed 3.70
Blood Meal 4.20
Cocoa Meal 1.85

San Francisco Markets

SAN FRANCISCO, March 20, 1917.

BUTTER

Dairy Exchange quotations, lb.:
Rcts. wk. ending March 19, 463,900 lbs.
Fresh extras 34¼
Prime firsts 34
Extr. Cr'y. Prod. Exch. past wk.

Mar.	13	14	15	16	17	19
'17	34	34½	35	34	34	34½
'16	29½	28½	28½	28½	28½	..

CHEESE

Dairy Exchange quotations:
Cal. Flats....20@21 Y. Am. ...22½@23

EGGS

Rcts. wk. ending Mar. 19, 22,268 cases.
Dairy Exchange quotations:
Fresh extras 26½
Firsts 25½
Select Pullets 25
Firsts 24½
Fresh Extr. Prod. Exch. past wk.

Mar.	13	14	15	16	17	19
'17	26	26½	26½	26½	26½	26½
'16	19½	20	19½	19½	20	..

POULTRY

We quote from producers, lb.
Hens, large .....23@25
Fryers, lb. .....28@35
Broilers .....30@40
Roosters, old..15@16; young .....26@27
Squabs, doz. .....3.00@3.50
Ducks .....21@23
Geese .....18@19
Turkeys, live .....22@24
Belgian Hares, live 13@14; dr.....17@18

LIVE STOCK

Prices gross weight:
Cattle:
Steers, lb., 8@9¾, cows and heifers, 5¾@8¼; calves, 6½@9.
4½@8; calves, 6½@9.
Sheep
Wethers, 11@11½; shorn, 1½@2c less; ewes, 9½@10; lamb, lb., 12½@13.
Hogs:
Hard grain fed, wt. 100 to 150 lbs., 12¼@12½; 150 to 300 lbs., 13½@13¾; 300 to 400 lbs., 13@13¼, undesirable, 8.

POTATOES

Wholesale selling prices at wharf:
Delta .....3.00@3.50
Oregon Burbanks .....3.25@3.75
Yakima Gems .....3.75@4.00
Sweet, Cellar 5.00

ONIONS

Wholesale selling price on wharf:
Onions, cwt. .....7.50@8.00
Garlic, lb. .....1@3

VEGETABLES

Wholesale selling price:
Asparagus, lb. .....10@20
Artichokes, doz., large 60-75; small, 35-40
Celery, cr., small, $2.50@3.59; lg.4.00@5.00
Cucumbers, bx. hothouse.....1.50@2.50
Lettuce, cr .iced 1.25-1.50; uniced 1.00-1.25
Mushrooms, bx. .....50@1.00
Peas, small, 7@9; large.....10@11
Rhubarb, box .....1.00@1.75
Squash—Hub., lb. .....2½@3½

FRESH FRUIT

Wholesale selling price:
Apples—Newtown Pippins.....1.00@1.50
Bananas, bunch .....1.50@2.50
Pineapples, doz. .....2.25@2.50

CITRUS FRUIT

Wholesale selling price:
Lemons .....1.50@3.50
Grapefruit .....2.00@3.00
Navels .....1.50@2.90
Tangerines, half orange box.....1.50@2.00

PEACH PRICES

Advance in prices, effective Saturday, February 24, 1917, at 6 p. m. All prices are f.o.b. factories, California common points. We reserve the right to refuse confirmation, at the following prices, unless f.o.b. factories where grades and varieties desired are available. All quotations are subject to our approval of variety and assortment, subject to our confirmation and subject to advance without notice; March and April shipment.

Price list No. 6 is hereby withdrawn and ineffective at 6 p. m., Saturday, February 24, after which time prices herein quoted shall apply.

	Yellows.	Muirs.
Standard Peaches	.06⅜	.06⅜
Choice Peaches	.06⅝	.06⅝
Fancy Peaches	.07¼	.08¼
Extra Fancy Peaches.....	.08	.08⅜
Slab Peaches	.....	.05¾
Choice Peeled Peaches		.09¾
Fancy Peeled Peaches		.11

Above prices bulk basis
For 50-lb boxes, unfaced, add..... ½c
For 50-lb. boxes, faced, add..... ⅝c
For 25-lb. boxes, unfaced, add ..... ⅝c
For 25-lb. boxes, faced, add..... ⅞c
For 10-lb. boxes, unfaced, add.....1¼c
For 10-lb. boxes, faced, add 1½c

For prices on graded peaches, original, in bags, add ⅞c to the bulk basis prices above quoted.

	Per Lb.	
Ungraded, orig. bags	.07⅜	.07⅜
Choice unpld. 1-lb. cart ...	.08½	.08⅝
Choice unpld. 5-lb. cart.	.08¼	.08⅜
Fancy unpld. 1-lb. cart. ...	.09¼	.09⅞
Fancy unpld. 5-lb. cart ...	.09	.09¾
Choice Peeled, 2-lb. cartons		.12
Choice Peeled, 5-lb. cartons		.11¾
Fancy Peeled, 2-lb. cartons		.13¾
Fancy Peeled, 5-lb. cartons		.13¼

The above prices are guaranteed against our own decline to June 1, 1917, and apply only to sales and shipments made direct to the recognized jobbing trade. No goods will be confirmed at above prices to Coast or Eastern brokers, or to speculators, it being our object to eliminate speculation in dried peaches, we preferring to carry our stock in storage here on the Coast until actually required by the jobbing trade.

DRIED FRUITS

Wholesale quotations:
PRUNES—Bulk basis, per lb.: 30s and 40s, 6½c; 50s, 6⅞c; 60s, 6¼c; 70s, 7¼c; 80s, 7½c.
Other fruit, 50-lb. boxes:

	Stand-ard	Extra Choice	Extra Fncy.	Extra Fncy.
Apples	8¼c	8½c	9 c	....
Apricots.	16¼c	16⅜c	16¼c	17½c
Peaches . 6¾c	7 c	7½c	8½c	9⅛c
Pears ... 6¼c	8½c	9½c	11¾c	....

RAISINS—The Growers' Association quotes Fresno f.o.b. prices per box as follows:
Seeded—Fancy, 25-lb. bxs, $1.75; cs, 12s, $3.15; do. 16s, $3.05; choice, 25-lb. bxs, $1.75; cs, 12s, $2.95; do, 16s, $2.90.
Loose Muscatels—50-lb. bxs, 4-crown, $3.75; 3-crown, $3.50; 2-crown, $3.25; 1-crown, $4.
Three-crown layers, $1.50; 4-crown clusters, $1.75; 6-crown clusters, $2.60; bulk layers, 50-lb. bxs, $3.25; do. 100-lb. bxs, $6.25; clusters, in cartons, 20 to cs, $1.85; 12s, $2.20; 4s, $2.35.

NUTS

Jobbers' Prices:
Almonds.—Exchange opening prices: Nonpareil, 19c; Ne Plus Ultra, 17c; IXL, 17½c; Drake, 16c.
Peanuts .....5½@6½

BEANS

Jobbers' prices, cwt. recleaned:
Limas .....12.25@12.50
Bayous .....8.25@8.50
Garbanzos .....4.25@4.50
Small White .....11.75@12.00
Mexican Red .....8.00@8.25
Large White .....11.75@12.00
Pinks .....8.75@9.00
Horse Beans .....5.50@6.00
Black Eyes .....7.00@7.20
Red Kidneys .....11.75@12.00
Cranberry California .....9.50@10.00

HONEY

Jobbers' prices:
Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. .....11@12
Ex. Fy. lb.....9c; Lt. A.....6@8
Beeswax .....20@32

HOPS

Prices to growers at shipping points:
Sacramento .....7@9
Sonoma .....8@9
Mendocino .....8@9
Oregon and Wash., lb.....6@9

RICE

Cal. Rough, cwt. .....1.80@2.00

HAY

Under date of March 17, Scott, Magner & Miller say:
We received 1489 tons of hay during the past six days, which amounts to 50 per cent in excess of our last week's arrivals. The market on all classes is advancing. Alfalfa finds ready sale.
We quote the average wholesale price of hay in carload lots on today's market as follows, viz:
Wheat, Fy., lt. bales.....26.00@26.50
Wheat or Wh. and Oat, No. 1.23.50@24.50
Wheat, or Wh. and Oat, No. 2.21.50@22.50
Oats, Choice Tame.....23.50@24.50
Other Tame .....21.00@22.00
Wild .....18.50@22.00
Barley .....21.50@23.50
Alfalfa .....18.50@22.00
Stock .....15.00@16.00
No. 1 Barley Straw .....90@1.10

GRAIN

Grain Exchange prices, cwt.
Wheat, California Club .....2.65@2.75
Wheat, No. Bluestem .....3.02¼@3.05
Corn, Eastern Yellow, cwt.....2.32@2.35
Corn, Egyptian White.....2.20@2.25
Oats, White Feed .....2.05@2.10
Barley, feed .....2.20@2.22½
Shipping .....2.32½@2.37½
Rye, cwt. .....2.65@2.75

FEEDSTUFFS

Wholesale prices per ton:
Bran .....32.00@33.00
Cornmeal feed .....51.00@51.50
Rolled Barley .....45.00@47
Cracked Corn .....51.00@51.50
Middlings .....42.00@45.00
Alfalfa Meal, carlots.....20.50@21.50
Shorts .....35.00@36.00

SEEDS

Prices in round lots, lb.:
Millet, recleaned .....3¼@4
Alfalfa .....20@21
Rape .....2¼@2½
Flax .....5@6

Citrus Fruit Market

LOS ANGELES, March 21, 1917.

Owing to storms of a couple of weeks ago holding up shipments at that time, also to railroads refusing to accept perishable freight during last week when a possible strike was pending the market is practically bare and extremely high prices have been prevailing. Many better grade navels have sold around $4.00. The lemon market also is exceptionally strong.

Shipments

Shipments of oranges from Southern California to date since November 1, 1916, 12,546 cars, lemons 2317, total 14,863; to same date last season, oranges 10,415, lemons 2080, total 12,495. From Central California to date this season, oranges 4046, lemons 163, total 4209; to same date last season, oranges 4199, lemons 143, total 4342. From Northern California to date this season, oranges 843 cars, last season 610 cars oranges and one lemon.

FROM THE AUCTION

March 14

New York: 18 Nav., 1 blood, 2 lem. Higher. Nav., $2.60@3.90; bloods, halves, $1.55@1.70; tang., halves, $2.10@2.65; lem., $3.00@3.45.
St. Louis: 12 cars. Nav., $1.95@2.95.
Cleveland: 8 cars, higher. Nav., $2.40@3.60; lem., $2.70@3.45.

March 15

New York: 12 Nav., 1 blood, 3 mixed, 2 lem. Nav., $2.65@4.00; bloods, halves, $1.55@2.05; lem., $3.35@3.60.
Boston: 10 cars. Nav., $2.80@3.60; lem., $3.10@3.70.

March 16

New York: Nav., $2.80@3.60; lem., $3.40@3.60.
Pittsburg: 4 cars. Nav., $3.10@3.40; lem., $3.05@3.15.
St. Louis: 10 cars, higher. Nav., $2.15@2.70; lem., $2.70@3.45.
Philadelphia: 12 cars. Nav., $2.80@3.85.
Boston: 5 cars, higher Nav., $3.00@3.80; bloods, halves, $1.75@3.70; lemons, $3.10@3.40.

March 19

New York: 31 Nav., 5 mixed, 3 lem. Nav., $2.85@4.05; bloods, $3.50; seedlings, $2.70@2.85; tang., halves, $1.25@2.30; lem., $3.40@3.90.
Pittsburg: Nav., $2.65@3.25.
Boston: 18 cars. Nav., $3.00@3.90.

March 20

Boston: 10 cars. Nav., $2.75@3.85; lem., $3.25@3.65.
lem., $3.25@3.65.
Philadelphia: 8 cars. Nav., $2.25@3.35; lem., $2.75@3.20.

TEST OF TULARE COWS

Cows tested by the Tulare Cow Testing Association, which produced over 50 pounds butter fat the 30 days ending March 1, with name of owner, name of animal, breed, registered or grade, pounds milk, per cent fat and pounds butterfat.

W. J. Higdon, Pearl Segis, Holst. Fries,registered, 2430, 3.8, 92.34; Leda Ormsby, H.-F., reg., 2040, 3.5, 71.40; Paula Segis, H.-F., reg., 2093, 3.4, 71.16; Amy, Guernsey. reg., 1416, 4.9, 69.38; Arcadia, Guernsey, reg., 1350, 5.1, 68.35.

P. L. Hoyt, Anna, Shorthorn, grade, 1200, 6.0, 72.00; Goldie, Shorthorn, gr., 1014, 6.0, 60.84.

H. Cheney, Baby Rose, H.-F., gr., 1923, 3.7, 71.15; Florence, H.-F., gr., 1332, 4.0, 53.28.

Geo. Beck, Kiz, Shorthorn, gr., 1569, 4.3, 67.47.

Chicago Ranch Co., Maria, H.-F., gr., 1305, 4.8, 62.64.

R. Smith, No. 10, H.-F., gr., 1524, 4.0, 60.96.

J. T. Smith, No. 7, H.-F., gr., 1254, 4.6, 57.68; No. 3, H.-F., gr., 1461, 3.6, 52.60.

WEATHER CONDITIONS

For the Week Ending March 17 1917

	Rainfall Wk	Rainfall Season	Rainfall Norm.	Temp. Max.	Temp. Min.
Eureka	.67	24.18	35.57	50	32
Red Bluff	.22	15.67	19.74	64	34
Sacramento	.20	12.19	15.69	62	34
San Francisco	.62	15.28	18.37	60	42
San Jose	.24	12.05	13.52	64	32
Fresno	.12	6.82	7.49	66	34
San Luis Obispo	.21	22.40	16.22	66	30
Los Angeles	.03	14.59	12.79	72	40
San Diego	.20	8.74	8.19	66	40

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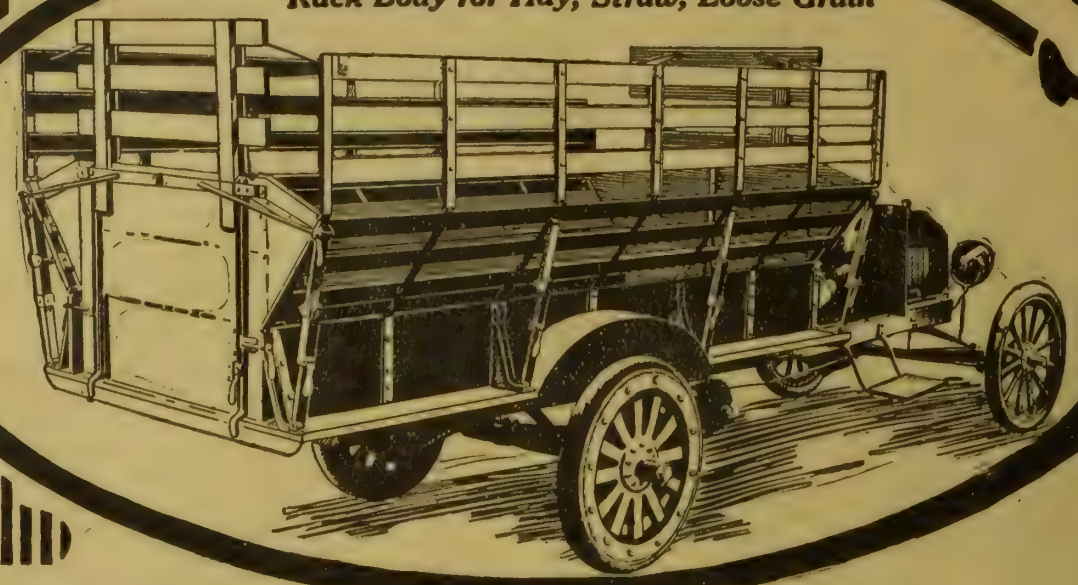
Land Department.
350 California St. -:- San Francisco

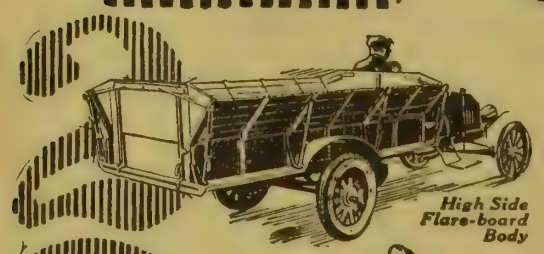
Smith Form-a-Truck

$350

F. O. B. CHICAGO

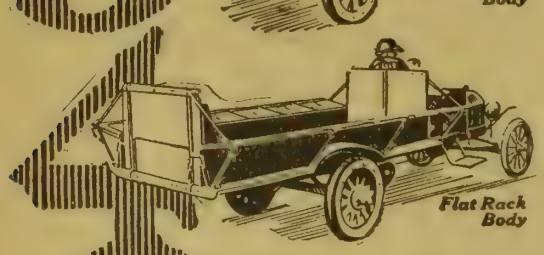
Rack Body for Hay, Straw, Loose Grain





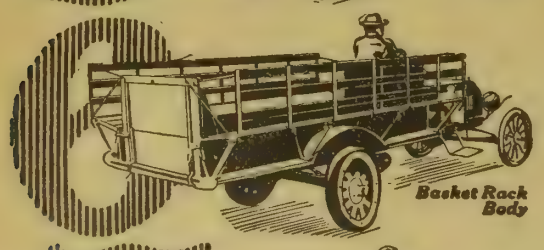
High Side Flare-board Body

Hog Rack Body

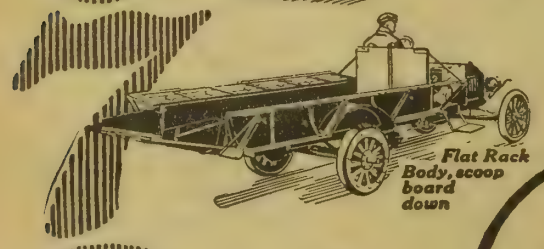


Flat Rack Body

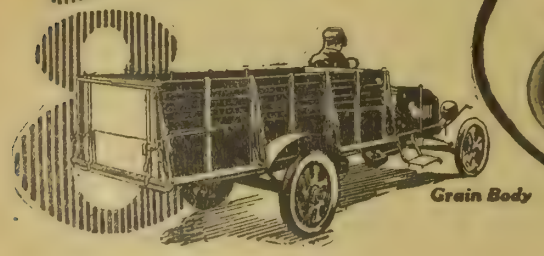
Stock Rack Body



Basket Rack Body



Flat Rack Body, scoop board down



Grain Body

4 Times the Work at Same Cost

In all heavy farm hauling this is what users of Smith Form-a-Truck are doing. Hauling twice the load three times as far—saving feed charges, veterinary bills and farm labor — and doing its work in all kinds of weather at the lowest cost for hauling that has ever been reached.

Keep Horses for Farm Work Only

Use your horses for plowing, seeding and harvesting. But not for hauling. You delay farm work—lose time and money.

Let Smith Form-a-Truck carry your manure — hay — fertilizer and do all other hauling on the farm. It will do the work of four teams. *And at half the cost!*

Use the Smith Form-a-Truck for hauling milk, grain and other farm products to town. It will haul as much as two teams. *And in half the time!* That alone will save two to three hours' time for two drivers. In a year it amounts to 1200 hours—120 days—$240 pay. And it gives you the use of those four horses for farm work.

20 More Acres

Your Smith Form-a-Truck is as good as 20 acres of land to you. Government figures show that in a single year four horses eat all the feed that can be grown on 20 acres of land. Smith Form-a-Truck will save that. 20 acres of land for $350! Think of it!

Unbeatable for Dairy Farm

All over the country dairy farmers are replacing expensive horses with economical Smith Form-a-Trucks. It will haul 2,000 pounds of milk ten miles and return with the empty cans in less than 2 hours. And the total cost for the round trip is but $1.50 — gasoline, oil, tires and everything. Think of it! Two teams and two drivers would require a half a day for this work.

And in every other line of farm hauling Smith Form-a-Truck is showing equal economy.

Travels Anywhere

Smith Form-a-Truck will travel anywhere horses will go—through mud, sand, snow. No hill is too steep.

Famous 8-in-1 Convertible Farm Body

Change to any one of eight types of bodies is made instantly with the famous 8-in-1 farm body. No tools required. Merely pull the lever. This is an exclusive Smith Form-a-Truck feature.

Amazing Strength Smith Form-a-Truck combines with any Ford, Maxwell, Overland, Dodge Brothers, Buick or Chevrolet to make a fully guaranteed one ton truck. When the chassis of these cars is telescoped on the Smith Form-a-Truck frame, the wonderful strength of these cars is reinforced. A double construction feature is provided — the strongest construction known to engineering.

And the rear axles of these cars merely become jackshafts for the chain drive. The strong, sturdy Smith Form-a-Truck axle carries 90% of the load.

Unequalled Economy Note these wonderful records of Smith Form-a-Trucks in daily use on hundreds and hundreds of farms. 12 to 15 miles on a gallon of gasoline—6,000 to 8,000 miles on a set of tires — 12 to 18 miles per hour. The first Smith Form-a-Truck ever built is still in daily service. It has traveled over 20,000 miles. And total repair cost has been less than $8.00.

Send Coupon Now Every day's delay in putting the Smith Form-a-Truck on your farm costs you hard earned money. Send for the big FREE Book *today*.

Write your name on the coupon *Now*. Never mind pen and ink. A pencil will do. But mail it at once.

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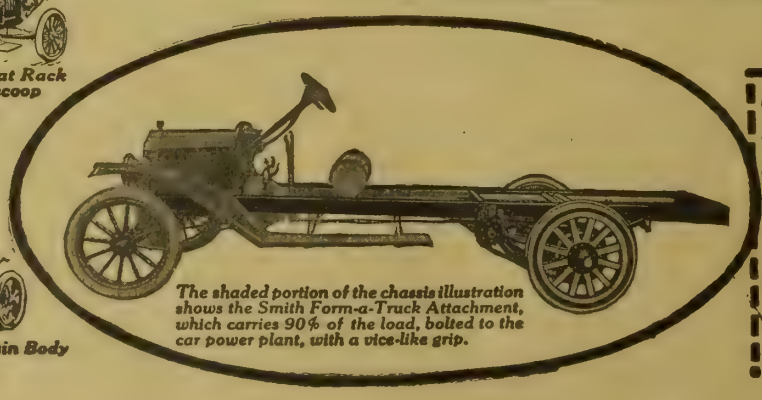
Manufacturers of Smith Form-a-Trucks

Executive Offices and Salesroom — Suite 990 — Smith Form-a-Truck Building

1470 Michigan Ave., Chicago



The shaded portion of the chassis illustration shows the Smith Form-a-Truck Attachment, which carries 90% of the load, bolted to the car power plant, with a vice-like grip.

CUT THIS OUT! MAIL IT TODAY!

Smith Motor Truck Corporation,
Suite 990, 1470 Michigan Ave., Chicago, Ill.

Gentlemen:—Without obligation on my part please send me big FREE book and full details of your farm attachment and the new convertible body for farm use. I am interested in how the Smith Form-a-Truck can save me money and give me better service than I am getting with horses.

Name.....

Town.....*County*.....

State.....*Number acres owned*.....

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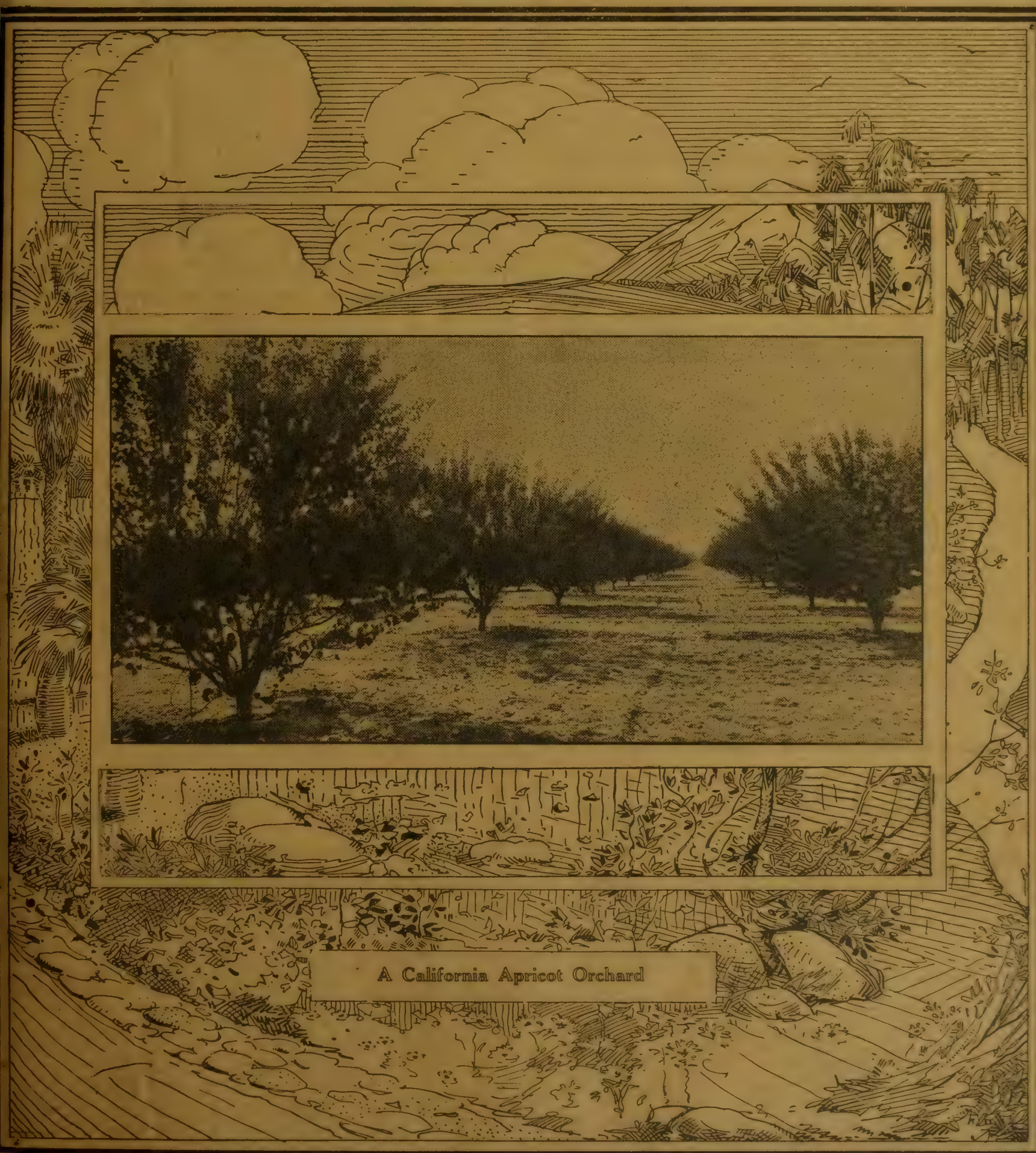
An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES March 31, 1917 SAN FRANCISCO



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Samson Sieve-Grip 12-25

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Two sizes—12-25 and 6-12 horsepowers. Ask us how Sieve-Grip wheels, Nodust-Moisto-Rizer, Roller Pinion, etc., on Samson Sieve-Grips can make money for you.

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Send me catalog and tractor-farming magazine "Samson Siftings."

Tear off & mail!

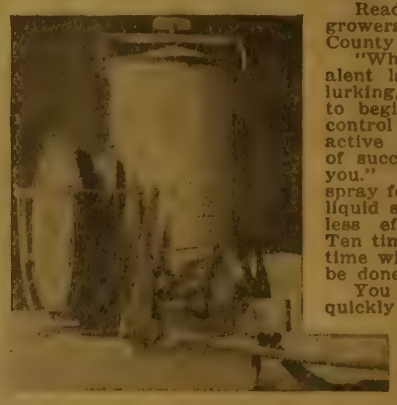
Name .....

Address .....

Mr. GRAPE-GROWER

It is almost time for MILDEW.

Remember:—"A Puff in Time Saves the Vine."



Read this extract from a letter to grape growers of Tulare County by C. F. COLLINS, County Commissioner.

"Wherever this disease (Mildew), was prevalent last season, millions of spores are now lurking, waiting proper atmospheric conditions to begin their work of destruction, and their control is very difficult after they have begun active operations upon the vines. The secret of success lies in "doing them before they do you." The best authorities agree that winter spray for mildew is practically useless, and that liquid spray at any time is more expensive and less efficient than DRY SULPHUR. • • • Ten times as much can be accomplished at this time with one half the expense, as can possibly be done one month later."

You know how necessary it is to do the work quickly when the right day comes. READ THIS extract from a letter from S. C. DAILEY, a grape grower of Kingsburg, Cal., concerning

The American Beauty Sulphur Machine

"I used one of your American Beauty Machines in my Emperor vineyard last season with perfect success. Emperors are especially hard to keep free from mildew, as you have to irrigate them so much to produce good fruit. This over-irrigation makes the mildew grow, if it has the least chance. The year before I used more sulphur with a foreign machine, and there were lots of grapes damaged. I attribute my success last season to the fineness and volume of the cloud of sulphur thrown by the American Beauty Sprayer. After using it there was not a trace of mildew in my vineyard. Your machine works twice as fast as my old one."

DON'T LOSE VALUABLE TIME tinkering with a poor machine. A few hours lost at a critical time may cost you your crop. Send us $11.00 for a vineyard size, or $13.50 for an orchard size machine, and we will send you an American Beauty Dust Sprayer, all charges paid. Try it. If it is not entirely satisfactory, return it at our expense, and we will cheerfully refund your money.

WE FULLY GUARANTEE EVERY MACHINE

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Offices in Reedley, Fresno Co., Seattle, Wash.

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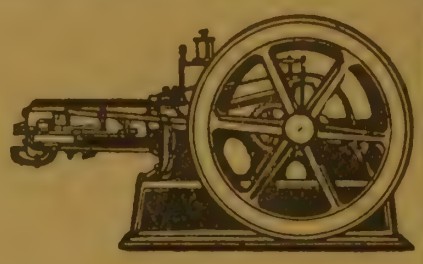

It means a lot more than the purchase price to the man who buys an unreliable pumping engine. The time, worry and expense involved trying to get the engine to run right must be added to the first cost. And finally, more time and expense with your pumping plant out of commission while the engine is being changed for another.

Get the Right Engine First

Install a **Commercial Engine** and you will have no trouble or needless expense ahead of you. Write today for our handsome new catalog and post yourself on all the superior features of **Commercial Engine** construction. Remember, an **ironclad** written guarantee protects the purchaser of every **Commercial Engine.**

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Work Every Day in the Year

This Tractor will pay for itself several times. Does the work of four horses, burns all cheap fuel, and look at the price.

Only $500 f. o. b. Los Angeles

This is the one you have been waiting for. If you want one you should get your order in early. The demand is exceeding our greatest expectations. Exhibited on our sales floor. Dealers wanted.

C. S. Anthony

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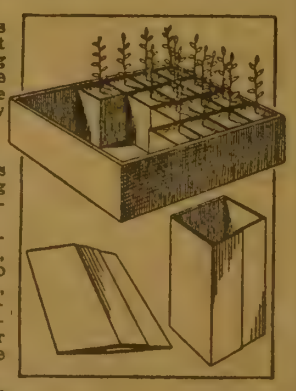
that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour.

For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus and Conifers. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.

THE EXPAN CO., 935 E. Central Ave., Redlands, Cal.



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FIELD HARROW 4 TO 12 FT. WIDTH

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Vol. XLVIII No. 13 LOS ANGELES: March 31, 1917 One Dollar Yearly

Deciduous Fruit Prospects

The Season is Backward. Cold Weather May Have Done a Little Injury. General Predictions Favorable for Good Crop. Too Early for More than Good Guesses as to Harvest

Many More Reports in Hand for Next Week

IT is too early to predict with much definiteness this year's deciduous orchard crops, for it may be recalled that on the 7th day of May of 1916 a frost, unprecedented, but none the less most destructive, visited many fruit growing sections of California. Here's hoping such a visitation may never occur again, but we mention this at the outset of our 1917 crop reports to show one of the factors which have to be considered in determining the coming output. We also mention it to be entirely fair with many of our subscribers and correspondents who have given of their best judgment, and for them we ask consideration of the fact that they are giving these early estimates, fully realizing the uncertainty of weather and other conditions which may cause them to entirely change these estimates later. We recall that last year one apricot grower estimated the output of his county at not far from 75 per cent of normal. Later he wrote, recalling this estimate—because of the late frost—changing it to 25 per cent. This season also is fully two weeks later than usual, which increases difficulty of making an early estimate.

Notwithstanding this uncertainty these crop estimates are of value and may aid many a grower in considering present day marketing conditions. Above all, we hope this lesson will be taken by every producer: "Sit tight; do not sell unless the offers are entirely satisfactory." It now appears that this is the grower's season, and, if he will, he may command fair treatment. Reports are still coming in, and this week's estimates are only a forerunner of those which are to come the next and following weeks.

We appeal to every subscriber to give of conditions as they appear in his section. As a help in forming an opinion of the total output in the state we quote on this page from Deputy Commissioner Weldon's table showing percentage of the state's output of fruits grown in each of the main producing counties during a season of normal production. Counties which produce less than two per cent of the state's total of a special crop are indicated by stars or blanks.

The Cultivator appreciates the help of its correspondents. Their reports follow:

Roy K. Bishop, Horticultural Commissioner, Orange County

I have made a thorough canvass of the deciduous fruit prospects in this county and find that the outlook is most excellent.

From present indications the apricot crop will be one of the largest that we ever had. The trees are so thick with young fruit that it will need thinning. This is also true of peaches. The frosts of the 9th, 10th and 11th of the month were not severe enough to injure the blossoms.

The walnuts are just coming out, but the conditions now indicate a very fine setting of nuts.

I estimate apricots at 100 per cent plus; peaches and walnuts at 100 per cent.

J. P. Dargitz, Sacramento, Sacramento County.

When the warm pleasant spring days come and the trees are heavy with bloom and the sap starts to flow in the fruit trees, then hope eternal begins likewise to flow in the veins and imaginations of the orchardist and cultivator.

The speculator in farm products likewise looks out over the landscape and sees in the oceans of bloom promise of new worlds for him to conquer, or at least to cinch. First he thinks of a wonderful crop and low prices. Then he talks it and tries to make every farmer and fruit grower see it his way.

The farmer and fruit grower, naturally hopeful at this time of the year, sees all about him such promise of big crops that he is an easy victim. Then comes the awakening after he has sold his crop based on enormous yields, and he finds that the yield is only ordinary after all.

If the heavy frosts we have had the first half of March do not mean short almond crops and apricots ditto, then we need never think of spending big sums of money and hard work for smudging.

If any man can at this time tell that no evil will befall cherries, peaches and prunes before harvest time, his fortune is made and he need no longer mow thistles nor dig Johnson grass.

ESTIMATED PER CENT OF THE TOTAL CROP of the PRINCIPAL CALIFORNIA FRUITS GROWN IN EACH OF THE MAIN PRODUCING COUNTIES DURING A SEASON OF NORMAL PRODUCTION

Compiled from Reports of the County Horticultural Commissioners

By Geo. P. Weldon, Chief Deputy State Commissioner of Horticulture

County—	Almonds	Apricots	Cherries	Peaches	Pears	Plums	Prunes
Alameda	*	14	9	..	2	*	*
Butte	12	..	*	8	2	*	2
Colusa	4	*	..	*	*	..	*
Contra Costa	11	*	*	*	6	*	*
El Dorado	..	..	*	*	8	*	..
Fresno	..	5	..	29	..	..	*
Glenn	*	*	..	..	..	*	..
Humboldt	..	..	..	..	..	..	..
Imperial	..	*	..	..	..	..	..
Inyo	..	..	*	..	..	..	..
Kern	..	*	..	*	*	*	*
Kings	..	5	..	6	..	..	*
Lake	*	*	..	*	8	..	*
Los Angeles	2	4	..	4	*	3	*
Madera	*	*	..	*	..	..	*
Mendocino	..	..	..	..	*	..	*
Merced	*	*	..	3	..	..	..
Modoc	..	..	..	..	..	..	..
Monterey	*	2	*	..	*	..	..
Napa	*	*	*	*	4	*	4
Nevada	..	*	*	*	*	*	..
Orange	..	4	..	..	..	..	..
Placer	*	..	3	6	7	39	..
Riverside	3	7	*	*	*	..	*
Sacramento	6	*	5	*	18	8	*
San Benito	*	6	*	*	*	*	3
San Bernardino	..	4	*	5	..	..	..
San Diego	*	*	..	*	..	..	..
San Joaquin	12	3	25	8	4	*	*
San Luis Obispo	*	*	..	..	..	..	..
Santa Barbara	..	*	2	..	..	..	..
Santa Clara	*	21	26	5	9	18	55
Santa Cruz	*	3	2	*	..	..	*
Shasta	*	..	..	*	*	..	*
Siskiyou	..	..	..	..	..	..	..
Solano	6	3	10	3	6	16	4
Sonoma	*	*	9	*	6	*	12
Stanislaus	6	*	*	3	*	..	..
Sutter	9	..	*	2	*	*	*
Tehama	*	*	..	*	2	*	*
Tulare	*	*	..	9	..	2	4
Ventura	..	6	..	..	..	..	..
Yolo	11	5	..	2	9	4	2
Yuba	*	..	..	*	*	*	..

*Less than 2 per cent of state's normal crop grown in county.

Joseph H. Bone, Secretary, California Prune and Apricot Growers.

It is entirely too early for us to estimate any damage. It has been reported that apricots had suffered quite a bit, which we are inclined to believe has been very much exaggerated.

Almonds have set very well and do not seem to have suffered any damage.

Cherries too early to predict; this is also the case with peaches and prunes. The latter are not yet in bloom.

The Saratoga blossom festival has been postponed on account of the lateness of the bloom.

To predict the size of the crop of any one of these fruits would not be safe because there is nothing to base crop prospects upon.

G. H. Waters, Citrus Fruit Juice Company, Romona, Los Angeles Co.

I have just driven over the fruit district and made a very careful examination, more especially of the apricots, but I have also examined the peaches so think I can report intelligently.

The first bloom of the apricots was mostly killed, but there were a great plenty of buds that had not yet come out, to still make a good crop. I think we will have 75 to 85 per cent of an apricot crop in the territory I visited, which is the principal peach and apricot district of this locality.

Peaches are in full bloom, and on very careful examination in a great many orchards, I find the damage very light. I would reckon the present outlook at 100 per cent of a peach crop. In the 25 years I have operated in this valley, I have seen but one damaging frost after this time of year, so I feel we are reasonably safe for a normal crop, though it is somewhat backward, probably two or three weeks later than last year.

Chas. F. Collins, Horticultural Commissioner, Tulare County.

I belong to the class who doubt the advisability of estimating fruit crops at this season of the year as I believe harm frequently results from reports of this kind so early in the season. Of course, if everyone fully realized that all we can do is to judge the future from the general conditions of the present, no harm would result, but so many people seem to think, if optimistic reports are given out regarding blooming and general conditions at this season that it means an unprecedented crop.

Cherries are not grown here, almonds to a very limited extent and but very few apricots. I took a run over into Kings County, where they grow large quantities of 'cots, and found that a very large number of the young 'cots, especially on the lower half of the trees, are killed by the frost. As the trees, however, are loaded with five times as much bloom as is necessary, there may still be a good crop of 'cots. I have examined many peaches but to date have found none that are injured, as they were fully protected by the bloom. Prunes are full of buds and, of course, are not injured as they are not yet in bloom.

We have had more frosty nights here than I have ever seen before in a residence of 30 years, and they have continued quite regularly for some time past until two or three nights ago. We have had plenty of moisture and the soil is in good condition and farmers are taking advantage of this and hurrying up their spring work.

[As we go to press Mr. Collins writes that his estimate is now ancient history as a frost has come and worked havoc in many sections. His later estimate next week.—Ed.]

Wm. Jas. Hill, California Cured Fruit Exchange.

I much regret that in the present state of this Exchange I am unable to give you the desired information from a state-wide point of view. I hear from my own county, Shasta, that the many severe frosts have practically destroyed the almonds, apricots, and early blooming peaches, but as their season is later than most fruit-bearing districts it is too early to give an opinion on the crop outlook for prunes and Muir peaches.

You are, of course, aware that Shasta's crop, though very material to us, does not seriously affect the state supply.

C. A. Baker, Piru, Ventura County

The frost of March 9th and 10th got everything out of the bloom. Apricots will be 50 per cent of normal crop.

J. C. Metzger, Secretary, Chamber of Commerce, Santa Ana, Orange County.

It's a bit early to judge, but 'cots now are fine, promising 100 per cent. Almonds, cherries, peaches and prunes are not grown in this county in commercial quantities.

Fred Seulberger, Horticultural Commissioner, Alameda County

It will be about two weeks before I can give estimate, as the fruit has not set on the trees yet.

A. L. Shively, Santa Paula, Ventura County.

A 40 per cent apricot crop is estimated for this county.

Harry Ladd, Stockton, San Joaquin County.

It is too early to forecast conditions on all our fruit crops except almonds and apricots; other fruits not far enough along with the bloom to give any reliable data. We had a very cold morning this morning (March 22) with plenty of wind, and I think that there has been no damage done, however, if we get a quiet morning as cold as this we will lose severely.

I think that apricots in this county have suffered to the extent of 15 per cent with frost, and almonds not more than 5 per cent.

If there is a heavy damage in the next few days I will report it to you; otherwise you can get a report from the state board soon after the first of April.

A. E. Beers, Horticultural Commissioner, Merced County.

There has been slight frost injury to apricots, but this county has only small bearing acreage.

Almonds show no injury.

The heavy bloom on the peaches was uninjured by frost; there will be a 100 per cent crop.

There are no cherries raised in this county, except in family orchards; also no commercial orchards of prunes.

Tomato plants have been held back by cold nights. Grain acreage large but backward because of cold, dry weather. Growing finely now.

Geo. D. Kellogg, Newcastle, Placer County.

There are very few apricots grown, but crop is good.

Not many almonds grown.

Prospects for cherries are good.

Peaches, prunes, plums not hurt on high ground, but frost killed some on the low land.

A. Hancock, E. Bakersfield, Kern County.

50 per cent apricots and possibly less.

Almonds about the same as apricots.

No acreage bearing cherries.

Peaches probably about 60 per cent.

Prunes, good chance for a full crop.

Weather conditions have been very much against a good fruit crop this year in Kern County, and the prospects at present are not very bright. The cold snap the second week in March hurt the apricot and almond crop a good deal except in a few favored locations. The peach crop is damaged considerably, but not so much as the apricots or almonds, as they were not so far advanced.

The prunes, I believe, are not hurt so far, but as they are just starting to bloom and as it is now blowing and raining there is no knowing what will happen a year such as this has been so far.

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It is entirely too early to give any definite figures yet as it is not possible to tell exactly how much damage the frost has done because sometimes it takes quite a little while to develop. A report about the middle of April would be a good deal more authentic and reliable.

But it is certain that the crops have been damaged and I should estimate it to be as I have stated above.

A. A. Brock, Horticultural Commissioner, Ventura County.

The production of the prune and almond in this county is confined to about two districts. The cherry and peach crop is also of minor importance. The apricot crop is grown on approximately six thousand acres, 2500 of which are in bearing.

We feel that the loss from the recent cold weather will amount to from 30 to 40 per cent over the entire county.

C. M. Conner, Farm Adviser, Kern County.

Apricots, 85 per cent; almonds, 100 per cent, peaches, 100 per cent, and prunes, 90 per cent.

Thomas P. Redmayne, Horticultural Commissioner, Marin County.

Owing to the backwardness of the season due to the continued cold weather it is too early to make any definite forecast of the crop. A single frost might upset all calculations. The fruits mentioned bloomed well above the average.

Cherries are just coming into bloom but are well set with fruit buds.

Almonds are apparently setting 100 per cent fruit.

Apricots indicate at present above normal.

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Peaches and prunes not yet set.

Though there has been much fros the moist condition has prevented an apparent damage. The critical tim is the next two or three weeks.

Geo. C. Nevins, Hemet, Riverside County.

As to fruit prospects here, I can only say, just now, that it is merely guess. Growers are estimating fron 25 to 75 per cent of a full crop of apri cots. Some orchards, particularly i the higher portions of the valley, no show a full crop of healthy looking very small 'cots, but how much of thi will mature is a question, while othe orchards show scarcely any setting.

Two years ago, with a large crop we had approximately 7500 tons fres fruit, and with the young trees now coming into bearing a normal yiel would be net less than 10,000 tons 50 per cent of which would yield u a crop of 5,000 tons, with which t meet any German invasion; but it wil require some weeks yet to determin the extent of our preparedness in th way of apricots.

Peaches are in full bloom and very promising, notwithstanding there wa a freezing temperature this morning and growers are expecting satisfactory returns, and I am passing along you suggestion to sit tight.

We do not grow almonds, cherries or prunes in a commercial way.

* * *

Since my report to you, March 23 we have had a freeze that has destroy ed nearly all of the setting of Royal apricots.

The Tiltons, which are two or three weeks later than the Royals, and some orchards of Royals which were late in blooming, were in full blossom at the time of this freeze, and probably were not injured. So the indications now are that 25 per cent of a crop of 'cots is a liberal estimate.

Samuel Fox, Corning Cured Fruit Association, Tehama County.

Apricots, 10 per cent of crop only; almonds, 75 per cent of crop; peaches 75 per cent of crop; prunes blooming heavily, but cannot tell how they will set yet. Weather cool but no frost, which is good for all fruits.

John J. Fox, Horticultural Commissioner, Napa County.

It is as yet too early to offer anything definite, but you may report for my county that: Prunes are two weeks later in blooming in Napa County than last year. In 1916 French prunes were in full bloom from March 14 to 16, and were injured by frost on the 22nd. This year they will probably be in full bloom about the 28th. There is a heavy set of buds in splendid condition on all fruits. Cover crops with a few notable exceptions are very poor. Plowing is more than half through and the ground has never turned up mellower or worked down more kindly.

Failing adverse weather this should be a good year for pears, prunes, peaches and cherries. Apricots and almonds have suffered considerably.

Our little county has already planted out over 2000 acres of trees during the past season, which has been a splendid one for work of which growers have availed themselves to the full. The result is a satisfied feeling in the community that can be felt.

W. H. Heileman, Farm Adviser, Glenn County.

Apricots, in my best judgment, will give 25 per cent crop; almonds, 80 per cent; cherries, 95 per cent; peaches, 80 per cent and prunes 95 per cent.

Red Bluff Cured Fruit Association, Tehama County.

Apricots will give about a half crop, have been damaged by rain and frost.

Almonds will give three-fourths crop.

As to cherries it is hard to tell; indications are for a fair crop.

Peaches look like full crop.

Prunes are budding well; indications good.

It is too early to make predictions as frost danger is not over until May. Most killing frosts occur in April here.

Sheridan W. Baker, Santa Rosa Cured Fruit Association, Sonoma County

Apricots and almonds are not grown commercially. Would estimate both

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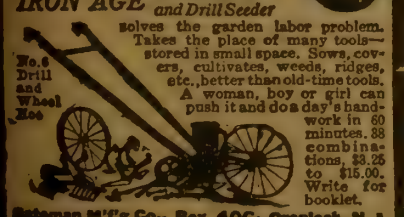

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at 50 per cent. It is too early to make any estimate on cherries, peaches or prunes.

O. S. Hofman, San Jacinto, Riverside County

Apricots, about 50 per cent; good prospects for peaches.

J. F. Benton, Horticultural Commissioner, Humboldt County

It looks as if the crop of apricots, cherries and peaches would be good; almonds, not good.

Conditions backward; at least three weeks late owing to late cold storms in foothills and coast sections with snow in high elevations.

C. K. Turner, Horticultural Commissioner Placer County.

Regarding prospects for the coming fruit crop, will say that it is, as you suggest, entirely too early to give close estimates. In fact any estimate at present would be the rankest kind of a guess. The long spell of cold weather which has continued, so far, through the blossoming season, together with cold rains and north winds at intervals, may have had a more weakening effect upon buds and blossoms than is at present evident, and may be the cause of a heavy drop later on.

So far the frost damage seems to be confined to the earlier blossoming varieties of plums; with them the crop is undoubtedly thinned, but to what extent it is impossible to say at this writing.

On the other hand, practically all our trees are making a splendid showing of blossoms, and for the sake of economy it would probably be better if the weather does do some of the necessary thinning. This refers to plums, peaches, almonds and 'cots; our pears and cherries are only now beginning to blossom, but there is sufficient evidence to show that they also will blossom heavily.

To sum it all up, we are all at sea at present. As one of our prominent growers and shippers expressed it in conversation with me yesterday, it would not surprise us if there were a bumper crop: but on the other hand neither would it be a surprise were the crop very materially shortened. We should be able to form a fair estimate of the crop in a couple of weeks provided that the weather conditions are favorable from now on.

O. E. Bremner, Horticultural Commissioner, Sonoma County

There is no question but that California wants a fruit crop this year, but anyone who would predict now as to the conditions at market time certainly must have some kind of inside information that I do not possess. The principal crops are not yet in bloom; such as prunes, apples, pears and grapes. A thousand and one things may happen next month, which may totally or partially destroy the crop.

At the present writing, the only thing we can say is there is a fine bud set, the trees look well and if no adverse weather conditions occur we ought to have normal crops all around. I doubt if there has been enough frost up to the present writing to do any material damage to this section.

Winters Dried Fruit Company, Winters, Yolo County

Apricots, 75 per cent; almonds, Hatch varieties 60 per cent; others 100 per cent; peaches and prunes, blooming, good prospect.

Crop report will be given out by this office April 1.

H. J. Baade, Farm Adviser, Napa County

To date we find the following to be the approximates on the crop yields of the various fruits: Apricots, 10 per cent; almonds, 95 per cent; cherries, peaches, prunes, pears, full crops.

The weather has been rather cold in this district this spring, and the fruit has been somewhat retarded. If we do not have more frost most of the crops will be above normal, with the exception of the apricots as above stated, which were badly frosted.

S. V. Christierson, Horticultural Commissioner, San Luis Obispo County

Apricots, 60 per cent, frost and rain damaged. Almonds, 75 per cent, hurt by frost. Cherries not grown commercially. Peaches, 90 per cent; prunes, 95 per cent.

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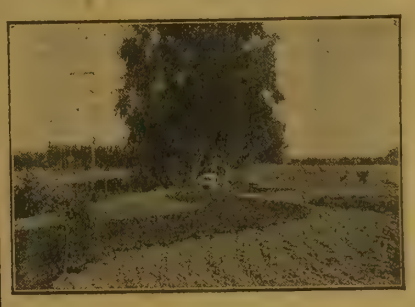

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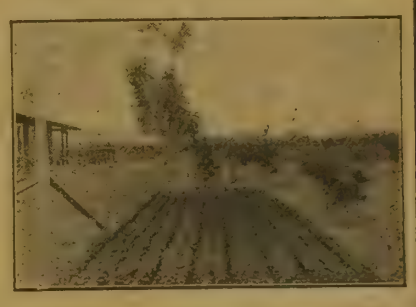

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Saturday, March 31, 1917

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

It now looks as if the owner of an apricot orchard not in the frost injured belt has assurance of good returns this year. Long prices are already being offered and every indication goes to show that best of care should be given to every orchard. The view on the cover this week was taken in Southern California and is typical of thousands of orchards in all parts of the state.

BLOSSOM TIME

Who would not live in California these days when the atmosphere is heavy with the fragrance of the orchards in full bloom and where color runs riot in the wild blossoms over the fields? California never looked more beautiful and never had more perfect days. But, just as a mere hint, one more rain, please.

KEEP THEM AT HOME

No question comes to the Cultivator's legal department so often as one regarding relief from stock trespass. We have seen, in more or less humorous vein, the statement; "Man's first duty to man is to keep his hens at home." There is so much truth in this saying that it is worth memorizing. Neighborliness disappears when one finds crops destroyed, especially where polite request for relief has been unheeded.

There is in California no law which seems to fit this trespass question, but who wants to live in a neighborhood where law has to be invoked to secure common right or justice? Let us all corral our hens and tether our stock securely.

COSTS OF SANITATION

The cost of stamping out the foot and mouth disease was in excess of $9,000,000, this both to the federal department of agriculture and to the departments of several states which aided in the campaign. The department says, however, that large as this amount is, it is trivial compared with the colossal damage which would have been inflicted had the disease escaped control. We believe that the time will come when the war against tuberculosis will be almost as severe as that which was waged against the foot and mouth.

USING MORE POWER

The department of agriculture issues information regarding the number of tractors in use in the various states. While California was one of the first to begin use of farm tractors it has been passed by a few of the states in number now owned. California has 1358 tractors, while Illinois has 3200, Kansas 2200, Minnesota 1500, Nebraska 1700, North Dakota 2100 and Texas 1700. All other states are using a fewer number than California.

We may be mistaken, but our guess is that the next year will show more rapid increase in the use of tractors in California than any other state in the Union. All told, in the United States there are now in use about 34,000 tractors. None of these figures are absolute, but they show the relative employment of tractors in the different sections.

LADY BIRDS

One indication of the greater planting activities in California this year has been shown in the demand for lady birds, or hippodamia convergens, made of the state insectary. For years the state horticultural commission has gathered in the Sierra Nevada millions of these little friends of the small crop grower. They have been collected by the bushel, brought to the state insectary, kept in cold storage and later shipped to various portions of the state. The Imperial Valley received the first consignment of these lady birds years ago, and it was found that they aided materially in controlling the aphis. Now the bean growers have learned of their value, and this year San Luis Obispo County applied for a great number of them. In fact the order closed with: "Be sure and send at least a carload."

The "bug to eat the bug" seems to be the only economical way to control this pest. We hope that new fields where the lady birds may be secured will be found another year.

BENEFITS FROM QUARANTINE

For many years Swiss farmers have looked upon the foot and mouth disease as a necessary evil. So far as possible they have tried to control it in a general way, but not until the past few months has the American plan of combating it been tried. Their agricultural interests had suffered fearfully, and practically all stock exports had ceased, and the dairying and meat producing industries had been almost ruined. Swiss scientists had decreed that the meat of these animals was edible, and at the beginning of the war much of it was fed to European troops. Quarantine was established and moving of stock from mountain to valley, and the reverse with the seasons, was prevented, and many cantons have been declared entirely free from this dread disease. It is now thought that no section of the country will harbor this pest within the next few months.

CROP REPORTS

With the understanding that we may change or revise our figures entirely within the next few weeks, we would like to predict that the apricot output this year will not be half of normal. As many of our contributors have said, it is altogether too early to make any definite estimate, but it is almost criminal not to look ahead and get every possible item of information we can regarding this season's production. So the Cultivator, as it has done for many years, makes thus early in the season a canvass in which it has been more generally aided this year than in any preceding year by subscribers, by the horticultural commissioners, the farm advisers and others. It will be noted in the reports appearing on several pages of this issue that estimates vary from ten per cent to 100 per cent of a crop, but taking the larger producting sections into account a fairly satisfactory guess may be made that 30 per cent of normal will not be far out of the way.

The Prune and Apricot Growers, Inc. is making appeal to every producer in the state; "Don't sell your children's birthright for a mess of pottage." If the cooperative association is supported and the growers will not permit themselves to be stampeded there should be satisfaction in being a deciduous fruit grower this year.

TO MEMBERS OF COW TESTING ASSOCIATIONS

COW testing associations are increasing; their work is invaluable and dairymen are richer because of it. In the state dairy cow competition the Cultivator is endeavoring to advance the work of these associations by offering prizes for highest testing herds. At first the announcement was made that these tests should be under the direction of a man from the state university who should make regular monthly inspection and tests. This made the cost to each competitor too great, as the competition covers a period of 12 months, and so a change was made, and Prof. Woll, who has this competition in charge, ruled that "the terms for the award of the three prizes of $100 each (offered by the California Cultivator) for the highest average production of butterfat for one year by herds owned by members of a cow testing association, have been modified so as to leave the certification of the yearly reports in the hands of the officers of the association. No monthly test checks will be conducted by the college of agriculture in herds competing for these prizes, as will be the case for cows in cow testing associations competing for other prizes, for records by individual cows or by groups of cows in the same herd."

This ruling was not understood by many dairymen who now express a desire to enter the competition. To encourage the industry and these dairymen the time for entry has been extended to May 1. This can only be taken advantage of by those who have been members of associations and whose records have been kept by the regular cow tester of the association, for while entry may be made as late as May 1, the records upon which the competition will be based may begin any time between November 1, 1916, and March 1, 1917.

There are now entries in all of the three classes, that is, dairies of ten to 25 cows, of 26 to 50 cows, of over 50 cows. Remember the winner in each one of these classes, at the completion of the contest, March 1, 1918, will receive the Cultivator's check for $100.

Write at once to Prof. F. W. Woll, University Farm, Davis, for entry blanks and information.

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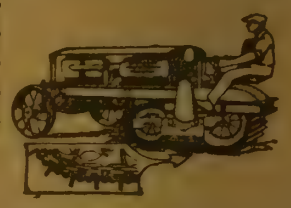

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Agricultural News Notes of the Pacific Coast

Northern California

A delegation of state legislators visited the university farm at Davis last week.

San Francisco houses are reported to be contracting prunes in Colusa County at six cents.

The citriculture class from the state university has been making a tour of citrus and olive orchards in Butte County.

Ranchers of Westport, Mendocino County, are planning to plant many green beans this season to sell to the cannery.

Colusa County is planting largely to sugar beets this season. Beet dumps are now being constructed at Princeton and Colusa.

At a mass meeting in Yuba City over 200 farmers voted to levy a tax of ten cents an acre to finance a fight against the placing of the Sutter bypass on the east side of Sutter Basin.

The supervisors of Glenn County have appointed C. Hugh Wren, of Orland, horticultural commissioner to succeed Carl J. Ley, who resigned to accept a position as manager of a large ranch.

Peach growers of the Gridley Farmers' Union report sale of all their 1917 crop at $40 for all clings, $25 for Lovells and $22.50 for Muirs. The members' peaches were pooled, amounting to 1000 tons.

George H. Ayers of Fort Bidwell has applied to the state water commission for permission to appropriate 575 cubic feet per second of the waters of Cowhead Lake and 125 cubic feet per second of the waters of Twelve Mile Creek.

At the recent meeting of the Glenn County Agricultural and Live Stock Association J. A. Flaherty of Orland was elected president, Ed. Kirk secretary, and Dr. W. H. Walker of Willows director to succeed James Mills, resigned.

Central California

The Newman creamery is installing a casein plant.

Fresno County is to have a new farm adviser appointed April 1.

Many reports have been received of offers of $40 for canning peaches. Some are reported at $42.50.

Twenty thousand additional acres will be placed under irrigation from the Turlock district this year.

Bean canners have been endeavoring to interest ranchers of Tulare County in contracting large plantings.

The Valley Fruit Growers' Association is conducting meetings of vineyardists at various points through the valley.

The Stanislaus County board of supervisors has let seven contracts for construction of 55 miles of county highway.

The Coalinga Poultry Association has been notified by the state poultry association that its third annual show will be held at Coalinga.

Cantaloupe growers of the Turlock district have petitioned the legislature to amend the Ashley standard pack bill to include various cantaloupe packs not now allowed.

Manager Niswander of the California Peach Growers' announces that damage to the peach crop from the recent frosts was very slight and occurred only in a few sections.

Reports from several nurseries indicate that at least 20,000 acres will be planted to grapes in the raisin belt this season. This includes Fresno County, the northern part of Tulare and the eastern part of Kings.

The Merchants' Association of Fresno has practically secured funds necessary to secure the establishment of a plant of the Universal Meat Packing Company. The proposal is to provide a site for plants which shall cost at least $250,000.

Southern California

Oceanside, San Diego County, has started its anti-fly and mosquito campaign.

Riverside County fair directors have fixed dates of their fall fair at October 9-13.

Imperial will have an extension of its rural delivery postal service west of New River.

The cotton gin installed last fall at Brawley has closed its season's work with a total output of 1423 bales.

Imperial County's cantaloupe acreage this year is estimated at 12,700 acres, an increase of more than 4000 acres.

Coachella has organized a local branch of the Riverside County farm bureau. It starts with a membership of 76.

Reports from various sections of Ventura County indicate damage to the apricot crop from the recent frosty nights.

Coachella Valley date growers have reorganized their association. Fifty-six members have now signed up, W. L. Paul being elected president.

A mass meeting was recently held at Hemet to encourage planters to put in 10,000 acres of sugar beets in order to secure the building of a sugar factory.

A Jersey Breeders' Association has been organized at Riverside with Geo Thomas, president; W. E. Rough, vice president, and W. P. McClasky, secretary.

Secretary Houston of the department of agriculture has been invited to attend the state fruit growers' convention to be held at Riverside June 4-9.

Brawley, Imperial County, held a pig club show last Saturday. The pigs were judged by Prof. True, head of the animal husbandry department of the state university.

The Coast

Yakima County Washington, will soon have a county agent appointed.

The Monkland district of Oregon has formed a Percheron association.

Twin lambs are reported unusually plentiful in Oregon flocks this spring.

Northwest potato growers are hoping that the introduction of sugar beet growing will help to eradicate potato diseases.

The state board of control of Washington has fixed the prices of grain bags manufactured at the penitentiary at 10½ cents.

Stockholders of the Eugene, Oregon, Farmers' Creamery, a cooperative organization, are planning to start a cheese factory.

Bend, Oregon, reports thousands of cattle suffering for lack of pasture, caused by the prolonged cold weather and heavy snows.

The St. Joseph Farm Improvement Association of Navajo County, Arizona, is buying seed and many other supplies cooperatively.

The wagon road from Grangeville to Elk City, Idaho, will be finished this spring, the state and county cooperating with the forest service in the work.

Farmers of the Gila Valley of Arizona have formed a buying and selling exchange to procure supplies in quantity and grade and pack produce for market.

In a case recently coming before the supreme court of the state of Idaho the state law forbidding the grazing of sheep within two miles of the residence of another person was held to be constitutional.

Traffic managers of fruit interests of the Northwest, representing some 12,000 carloads, have formed an organization. They will study problems of uniformity and improvement in storage, icing, weights and claims.

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8 in. and up at $50 per thousand

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Strain of Bees

Written for California Cultivator By G. W. Bercaw

JUST exactly what strain of bees to start with or to change over to afterwards depends mostly upon individual taste. It must be admitted by those that have had experience that our native strain of honey bees has some good qualities, possibly some bad, but we will ignore the bad, only look for the good. In the production of comb honey in our own yards we have found that our native black produces and caps the whitest and clearest comb honey; but this might not be the experience of others. Add to this that these black bees are most probably the crossest and most inclined to sting, either a trespasser or a beekeeper. For an all around, reliable, gentle bee, we have found the leather colored or three-band Italian bees are the best for storing extracted honey and they do very well for comb honey, too, if handled properly. There is a strain called Golden Italians which are fine looking bees but for the production of honey we have not found them equal to the others. Since the breaking out of the European war it is difficult to import Italian bees, but if one can get good stock from Italy and cross with our native Italian drones, there is no better strain of bees, all things considered. Importing queen bees from foreign countries is a risky proposition, and on the average about three-fourths arrive dead. We have had consignments of 12 queens from Milan, Italy, to arrive with all attendant bees dead and only six queens alive, the queen seeming to stand the trip better than her attendants. It is acknowledged by nearly all prominent beekeepers that a good strain of Italian bees is the best resistant stock to our commonly called foul brood. Just why this is it has not yet been definitely solved but it may be that good Italian bees are better housekeepers.

Artificial Increase

Written for California Cultivator By Henry Perkins

THERE are many methods of artificial increase. Mine is to pick a colony which has at least a brood chamber full of brood and bees. I set an empty hive beside it. I next hunt out the queen and set the comb she is on to one side then put one half of the brood and as nearly as I can estimate, one-quarter of the bees in the new hive. I then replace the comb with the queen in the original hive, fill it out with combs or frames set with foundation, close it and carry it to a new stand at least 50 feet away. I return to the new hive and after filling it with frames, place it on the stand orignally occupied by the parent hive, with the entrance facing the same direction.

I am careful to select a bright warm afternoon for the work. It should be done shortly after noon. The bees which are out at the time the dividing is done will return to the orignal stand and serve to reinforce it to a strength that should be sufficient to care for the brood.

The operation will have a paralyzing effect on the activities of the parent colony for a few days but it will soon renew its efforts to increase its strength. I am always careful to see that both colonies are well supplied with honey unless there is a heavy flow on at the time.

Now the new colony will as a matter of course be queenless and immediately begin starting queen cells. It is just as well to leave them alone for five days. By that time the cells should be sealed. I select the largest cells and destroy all the others. If however I have queen cells in the yard which are more advanced or from choice stock I destroy all the cells in the divide and give them one of my own preference. In some cases they will destroy a foreign cell, but not often, provided they have been five days queenless.

In transplanting queencells from one hive to another it is best to allow a lapse of at least one day between the time the cell is given and the time it is due to hatch. This provision gives the bees opportunity to discover that their own cells are gone and their sole reliance for a queen is the introduced cell. This brings up the question, "How is one to tell the age of a queen cell?" In the Cultivator of June 22 I gave the periods of the queen cell. If you know the date the egg was laid you can figure 14 days till hatching. A little investigation of the inmates of superfluous queen cells will soon train the eye to a sufficient accuracy. A queen cell once torn open is worthless but its appearance may furnish the key to the age of its sister cells.

Increasing bees is a big subject with as many exceptions as rules. To know all about increasing is virtually to know all about bee keeping. Don't be disheartened if you fail in your first attempt. I often err in my calculations even yet.

BEES ARE NOT TROUBLESOME.

To the beginning beekeeper, his first attempt to open the hive and handle the combs and bees may be beset with some difficulties, but in time this becomes the most fascinating part of beekeeping. Leonard Haseman of the Missouri college of agriculture would have the beginner study the bees, their habits, nature, likes, and dislikes, and then accustom himself to their ways. The honey bee is not a vicious creature, and if given anything like the consideration it deserves it will not fight.

Careless or nervous handling will start trouble in any bee colony. A veil should be worn to protect the face. Cool smoke should be used sparingly at the entrance and under the cover as it is being gently raised. Smoke may be used to induce the workers to fill their honey stomachs with honey. In this condition they are less likely to sting. Pinching bees between the fingers invites trouble as it is their privilege and nature to resent such careless treatment. The warm part of the day when the workers are actively gathering nectar or pollen is the best time to handle the colony, for at such times there are fewer bees in the hive and those present are more docile. The brood chamber should not be opened when the weather is cold, if it can be avoided, for the queen and the brood may become chilled.

These are a few of the precautions which the beginning beekeeper in particular should keep in mind. A careful study of the bee and its life and habits and a little effort to adjust one's actions to those of the bees will soon make beekeeping both an interesting and profitable pursuit. Every farmer should produce his own supply of honey by keeping and properly caring for a few stands of bees.

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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Unsigned communications receive no attention.

Soldier's Exemption

Is an honorably discharged soldier exempt from irrigation tax on a town lot?—Subscriber.

An irrigation tax, or any other local assessment, upon a town lot usually proceeds upon the presumption that the property itself has been benefited thereby. While the writer, in view of the lack of any definite decision on this point, cannot authoritatively state, it is the opinion that the soldier's exemption does not cover an irrigation tax or other local assessment.

Barbed Wire Fencing

I wish to ask if there is a law against the use of barbed wire "of any kind" being used for fence on ranches in California? Are we liable if loose stock gets cut on such a fence?—Subscriber.

The liability for injury caused by a barbed wire fence seems to depend upon whether or not the fence was well constructed. A judgment for damages for injury caused by a barbed wire fence, the wires of which were not properly stretched but were left hanging loose between the posts in such a way that stock were not likely to see them, has been affirmed upon the ground of such negligent construction by the supreme court of this state. In this case the court stated that the question was one of negligence in the construction of the fence, which was to be found by the jury.

Renewing Mortgage

Will you please tell me if a payment upon a note and mortgage that is overdue in the state of Arizona will renew it without making a new mortgage and recording it?—Subscriber.

The general rule is that a partial payment or payment of interest is a sufficient acknowledgement of the indebtedness in order to take the indebtedness out of the statute; but in California, and in many of the Western states, following the California code, an express promise or acknowledgement in writing is required, and a part payment or payment of interest is not available. It would probably be sufficient, however, without re-recording a mortgage, to execute a renewal of the note. Due care must be taken in this respect, however, in view of the fact that it has been held in some states that even though the debt is renewed by acknowledgement after lapse of time of the statute, nevertheless the lien of the mortgage, having once expired, cannot thereby be deemed to have been renewed. Such case, therefore, might arise that you might have merely an unsecured, renewed debt.

Queries

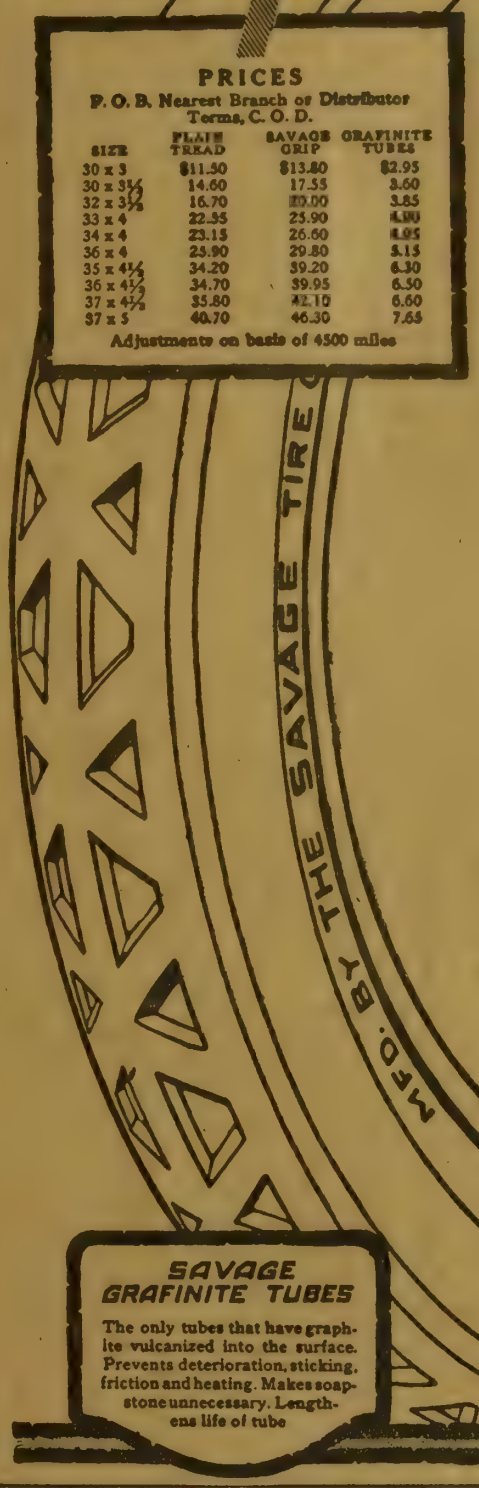
Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Mange Cure

A Colton subscriber, referring to inquiry of Mecca subscriber in a recent Cultivator as to cure for mange on horse writes:

"I breed rabbits, and one of my large Belgian does was afflicted with mange; a place two or three inches square on her breast was entirely devoid of fur. I made a strong solution of permanganate of potash and applied but twice, and the place healed permanently. That was a year since. It might be the remedy for such disease on any animal."

Heap big mileage!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What is the use of preparing a good seed bed and planting seed that cost good money if you let squirrels and gophers eat your profits. These pests are a constant danger to crops and a constant menace to the family's health.

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has for over 30 years proven to be the most effective—the only sure killer of squirrels, gophers, rats, prairie dogs, ants, moles, yellow jackets, moths, weevils, lice, etc. It is easy and safe to use.

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gated. Would the beans require water?—Subscriber, Hughson.

Blackeyes, pinks or Teparies would do well with you. Irrigation increases the yield and might be necessary, especially with the first two varieties named. That depends entirely on your soil, subsoil and manner of treatment. If the ground has been plowed during the winter and has taken in all of the rain and been kept in good tilth so that no moisture has been lost dry farming might be possible.

Barley for Soiling

Please advise if it would be a safe practice to allow cows to eat all the green barley, just heading out, they want.—Subscriber, Fullerton.

We see no harm in feeding dairy cows on such soiling crops. Such crops are not liable to cause bloat and would make a nutritious feed.

Guernsey-Jersey

Do the general characteristics of the Guernsey cow trend toward the Holstein or the Jersey?—Subscriber, Fullerton.

The Guernsey and Jersey are closely related or, more correctly, they come from the same French ancestry of Brittany and Normandy cattle. The islands of Guernsey and Jersey, both in the English channel, about 14 miles from the coast of France, are the homes of these two breeds. On the island of Guernsey there are only some 12,600 acres and on the entire isand not more than 5000 head of cattle. The island of Jersey has nearly 29,000 acres and perhaps about 40,000 cattle are kept on the island, all of the Jersey breed. On the other hand, the Holstein-Friesians were bred for centuries in Holland and Northwestern Germany and Belgium. The first Holstein-Friesians were imported to New York some 200 years ago.

Beet Pulp for Poultry

Please give analysis of beet pulp and advise whether it would be advisable to use as a poultry food, and to what extent.—Subscriber, Glendora.

Dried beet pulp, according to Woll's "Productive Feeding," contains 60 per cent nitrogen free extract, 17.5 per cent fiber, 8 per cent protein. It contains 4.1 per cent digestible protein, 64.9 per cent carbohydrates. It may be fed to fatten steers, dairy cows and sheep, but we have no report as to its trial with poultry excepting that Dryden's "Poultry Breeding and Management" says: "Dried beet pulp is now used to a considerable extent in stock feeding. It may be used as green feed for poultry. In addition to its value as a succulent food it contains a fairly high percentage of mineral matter. This makes it of more value than some other green feeds. There is little authoritative data on the subject of beet pulp as a poultry feed, and at the present time it should be used experimentally."

Ducklings With Weak Legs

I have read the answer to my inquiry on the baby turks and thank you very much. Since feeding them according to your directions have not had any more trouble.

I am now having trouble with my two-week old ducklings. They begin to tremble when they walk, keep getting worse until whenever they try to walk they roll on their backs and can't get up.—Subscriber, Coachella.

Your ducklings' bodies are getting too heavy for their legs. This may be for lack of meat in the ration—you do not mention feeding beef scrap in the mash—and it may be that you are feeding too heaviy with the bran mash. A little fine ground bone in the mash will help to strengthen the legs. Exercise will also help. Ducklings that are confined are quite likely to have weak legs. The mash should be about one-third green feed. Lettuce cut up fine is best for them at this age. A mixture consisting of three parts bran, three parts chopped greens and one part each of corn meal, middlings and beef scrap, with about three per cent fine sand or chick grit, the whole moistened till it is crumbly, makes a satisfactory ration for duckings of this age. Care must be taken to add the beef scrap gradually to the mash. Begin with a very little and increase until the required proportion is reached.—J. A. K.

TALKS ON
Nitrogenous Fertilization

Number 12

INTERESTED readers of our "Talks" are asking why Sulphate of Ammonia meets the nitrogen requirements of California soils so well; how it is held in the soil and converted into plant-food; how quickly and for how long its plant-food is available to the plants. For answer, let us glimpse briefly at one of Nature's wonderful processes, which like the brook goes on forever undreamed of by most of us.

All California soils contain alkaline (basic) substances, occasionally in proportions that might limit or hinder plant growth. In so far as it can,

SULPHATE OF AMMONIA

combines with them, the consequent reaction resulting in the formation of ammonium carbonate. A tendency toward soil alkalinity is thus checked, the Sulphate breaking down so that the humous compounds can absorb and hold its ammonia-nitrogen.

Two distinct types of bacteria, and possibly other soil organisms, complete the nitrification process. Under their activities, the humous-bound ammonia is released as nitrate-nitrogen. These manufacturing processes progress steadily, delivering food to the plants about as fast as they can use it.

Quick-acting, all-available, enduring, highest in nitrogen, Sulphate of Ammonia is especially fitted to fill your needs for nitrogenous fertilizer.

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New York City, N. Y.

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For advice as to application write
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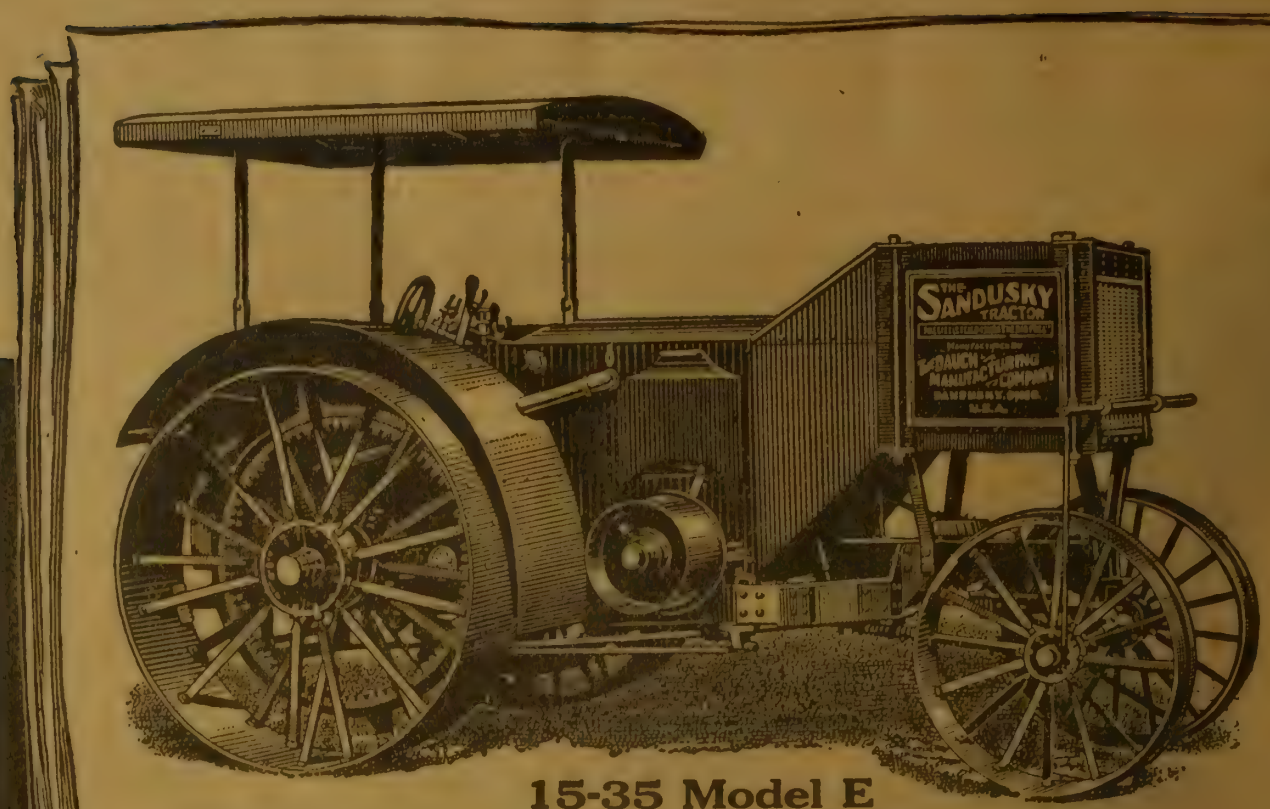
Sample sent on request



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THE SANDUSKY TRACTOR

"THE LITTLE FELLOW WITH THE BIG PULL"

FOR great power, working flexibility, reliability and durability, the 15-35 Model E Sandusky Tractor stands in a class by itself.

Proof of this is found in the increasing number of farmers who are its enthusiastic endorsers because of results obtained on their farms. and in the growing list of imitators who follow its progress.

Reason for this admitted superiority exists in the engineering skill that designed this tractor, the excellent workmanship that goes into it, and the highest-class materials used in its construction. The completed tractor was tried out by exhaustive tests before it was offered the public, and the result of these tests has been emphatically endorsed by hundreds of users.

Fifteen horse power guaranteed at the drawbar, with 33⅓ percent reserve; thirty-five at the belt. Direct drive on all heavy duty work, and ease of handling, with its reliability, make it the ideal tractor.

You get *tractor certainty* when you buy a Sandusky, because service and long life are built into it in the first place, and because all the experimental work is done at our expense before you are offered the machine.

And you buy *with certainty* as well. You must try our tractor on your own farm, doing your own work, before it is yours, and it must convince you by actual service that it is adapted to your needs.

The Sandusky Tractor on your farm will economically do your plowing at the right season; do your harvesting when your crops are ready, disc, harrow, thresh, haul, fill silos, crush rock, shred fodder, saw wood, build roads and do a hundred other tasks that keep it busy for you and your neighbors all the year round, to your great profit and satisfaction.

BOOK E-16 FREE.—A 40-page book which fully describes and illustrates the distinctive design, high grade construction and exceptional ability of the 15-35 Model E Sandusky Tractor. A copy will be mailed you upon request. Be sure to ask for Book E-16

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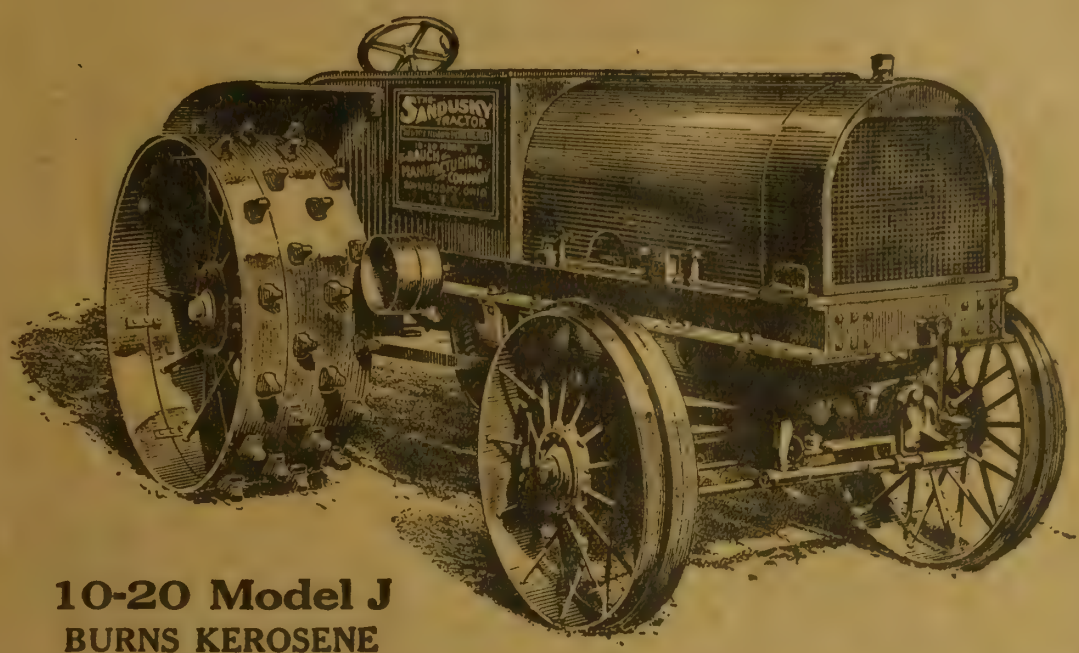
A NEW PLAN—FREE SERVICE. We announce an entirely new departure in tractor selling. A coupon book good for 200 hours of service goes with every Model E; a similar book for 100 hours with every Model J. This means expert advice and help without charge when you want it. See catalog for details.



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WHERE the volcano of power presented in our 15-35 Model E is not needed, but where a sturdy, efficient and durable tractor is sought, the 10-20 Model J Sandusky solves the problem.

It isn't because it is lower priced, but because, for the smaller farm, the Model J, pound for pound, is every bit as good a tractor as the Model E.

Highly trained engineers have spent years of study on it; skilled workmen have carefully wrought the best materials into the engineers' designs, and *three years* of constant field development, of careful tests, of hard work under adverse conditions, have thoroughly demonstrated the practicability, the economy and the absolute reliability of the Model J.

Hence it is guaranteed as a profitable servant on the farm, to do your plowing, harrowing, discing, harvesting, threshing, silo filling, fodder shredding, wood sawing, road building, hauling, etc. We show you on your own farm that it will do your work---that it is adapted to your needs---that it is capable, efficient and economical.

Behind it we put a guarantee that means much; the faith of our organization and the standing we have built up by years of honest dealing. All of these say to you:

"Buy the Model J Sandusky Tractor. It will serve you faithfully, make your farm work more productive, decrease your farm expenses and ease your labor. And it does not cost any more than the good horses it displaces, while its working capacity is so much greater that you will actually make money with it."

BOOK J-15 FREE.—Describes the unique principles of design, construction and performance of this smaller machine. Also gives details of our "Try It Before You Buy" sales policy, and our broad, binding guarantee. Be sure to ask for Book J-15

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The Sandusky Tractors—both Models—are ready for inspection at and delivery from our principal Factory Branches and Service Stations at Indianapolis, Ind.; Bloomington, Ill.; Milwaukee, Wis.; Lewistown, Mont.; Minot, N. Dak.; Fargo, N. Dak.; Sioux City, Iowa; Lincoln Nebr.; Wichita, Kans.; Dallas, Texas; Leesburg, Fla.; Los Angeles, Cal.; Sacramento, Cal.

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Are more than just GOOD—they are BETTER

WHY?

They are made by a company that has had twenty-eight years' successful experience in the manufacture of wood tanks and pipe, and can point to thousands of installations that have stood the test of the severest service continuously without break;

This experience has proved definitely and conclusively that REDWOOD, air-dried, is the best material in existence for silos.

More than forty million feet constantly on hand insures the use of none but air-dried redwood for any REMCO product; stave material is carefully selected for its adaptability for that specific purpose.

REMCO REDWOOD does not rot or decay. The chemical action that converts raw, chopped feed into ensilage does not affect the REMCO silo.

Years, and more years of CONTINUOUS, SATISFACTORY SERVICE is the outstanding characteristic of REMCO products.

Specify REMCO, and convert silo expense into an investment. Full particulars on request. Write to us.

Redwood Manufacturers Company

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Anoakia Breeding Farm

ARABIAN-THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Colesho Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

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Anita M. Baldwin

W. H. TAYLOR, Superintendent Santa Anita, Cal.

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Hardy, prolific sows of best blood lines and breeding. Strong, upstanding, prepotent boars. In short the best possible specimens of the Berkshire breed. We plan to do this by breeding large numbers and from them making a rigid selection.

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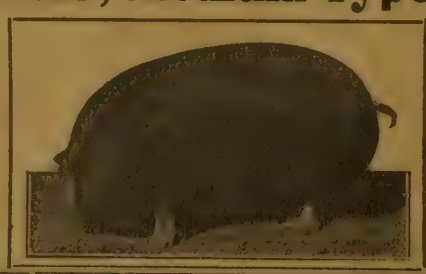
Poland Chinas, Medium Type

Choice breeding stock, both sexes, from Panama-Pacific International Exposition prize winning strain. 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to



M. Bassett

Hanford, Kings County, Cal.

When writing advertisers, mention The Cultivator.

Number of Small Flocks Increasing

Written for California Cultivator By W. S. Guilford

THERE is a gradual increase in the number of small flocks of sheep throughout the state. It may be some time before this phase of the industry has any great effect on the supply of mutton, but it is sure to eventually.

Some of these small flocks are started by the purchase of a few old ewes from some range flock. Such ewes are too old to be able to compete successfully for feed on the range with younger animals, while with better feed conditions and shelter they will live and raise lambs for two or three years more on the farm.

I know of one nice little flock that was started by the boy of the family going every day to a nearby lambing ground and getting such lambs as were not owned or for some other reason would be lost. These he brought home on his bicycle, fed them warm milk from a bottle, and before long he will have one of the most profitable departments of the little farm.

The owners of all of these small flocks will be customers for good pure bred rams, which will make it sure that high class mutton will be produced.

Look Out for Necks and Shoulders

The heavy winter coat is "slipping" now, and with the warmer weather the mules and horses are sweating freely. Now is the time to pay particular attention to the necks and shoulders. They should be cleaned thoroughly, and the collars should be scraped and kept clean.

Some claim that washing the necks and shoulders with cold water or soap and water or salt water every night makes the parts more tender. I have noticed that the teamster who does this, and carefully cleans the collars, has the fewest sore spots and the best looking teams.

In some parts of California curry-combs and brushes are unknown quantities. I do not see how anyone with a whit of pride can work a dirty team. It takes such a little time to clean up a team in the morning, and there is so much satisfaction in it that every one should do it. And the animals will appreciate it.

What the Testing Association Did

A good dairyman at Orland had four grade Jersey cows in his herd. He knew that they were good cows but would undoubtedly have sold them for $100 each. Then the Orland Cow Testing Association unit of the Glenn County farm bureau was organized. On the showing of actual returns, as indicated by the test, these cows were sold to a neighbor for $150 each.

Lots of Pigs Coming Now

February, March and April, these are months when many pigs are born in California. And the grower is lucky who has plenty of grass for them. Alfalfa in separate lots for sow and litter is an ideal condition.

There is a great difference in sows in the way they care for their pigs and in the amount of milk they give. No inflexible rules can be made for the culling out of sows, for a young sow that may have a small litter, be nervous and fretful and kill most of them may from that time on produce good litters and raise them well. But there are some sows that with the best of conditions are poor mothers. These should go to market.

Little pigs should have plenty to eat as soon as they will eat it. Their best food will be their mother's milk but they will soon learn to go into a creep for skim milk and a little corn or rolled barley and will take a bite of a mineral mixture. All of this is good for them. Gains made at an early age are the cheapest an animal will ever make.

The weather is good almost everywhere now, but there should be a dry bed for sows and pigs when it rains.

California Beef Cattlemen Waking

Written for California Cultivator By F. F. Stonerod

ORGANIZED primarily to reduce range losses from cattle stealing, the Central Stockmen's Association, W. S. Everts secretary, and Howard V. Jack, president, is commencing to branch out and make the organization a real power for good among the state cattlemen. This organization includes stockmen from Fresno, Kings, Kern, Monterey, San Luis Obispo, Santa Barbara, and Tulare Counties, but its success has been so encouraging since the day it was formed that it is gradually absorbing members from other counties.

Anything that affects the cattle business adversely or otherwise is receiving prompt attention at the hands of the wide-awake committees. Probably no other state in the West needs more organization and reform in its livestock industry than California. Obsolete methods of marketing, lack of competitive buying from the producer, lack of a law requiring registration of marks and brands, cattle inspection, etc., are only a few of the many reforms which the industry urgently needs.

A senate bill covering most of the above points is now in committee at the present session of the legislature. It is Senate Bill No. 150. It calls for the creation of an inspection board to administer the act if passed and prescribes penalties for the violation of the provisions thereof. This identical bill was passed by the legislature last year but was not signed by the governor. As every objection to the 1916 bill has been met the strong support of the cattlemen at this time will doubtless make the bill a law. A feature of this bill is that it will not create any new expense to the state as the fees for inspection and license will defray the entire cost. The public, after a law of this character is in effect, will have authentic data as to where our cattle are shipped and where and how they are slaughtered. Arizona has had such a law as the one herein de-

STOCKMEN: Stop at the GATES HOTEL

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Cafe and Restaurant

Garage in connection

Take Taxi at Station at our expense

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Retained Afterbirth

When the membranes remain in the uterus of a cow and decompose, inflammation of the lining of the womb may be caused, and this, with the absorption into the blood of the products of putrefaction, lead to ill-health, emaciation, diminished milk supply, failure to breed, and often blood poisoning and death. HOOD FARM BREEDING POWDER causes the afterbirth to come away naturally in a few days, and thoroughly cleanses and disinfects the parts, leaving the cow in normal condition for breeding. Write for full information and prices, mentioning this paper.
C. I. HOOD CO., Lowell, Mass.

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will reduce Inflamed, Swollen Joints, Sprains, Bruises, Soft Bunches; Heals Boils, Poll Evil, Quittor, Fistula and Infected sores quickly as it is a positive antiseptic and germicide. Pleasant to use; does not blister or remove the hair, and you can work the horse. $2.00 per bottle delivered.
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Kreso Dip No. 1

Easy to Use. Efficient. Economical. Kills Sheep Ticks, Lice, Mites and Fleas. Helps Heal Cuts, Scratches and Skin Diseases.

Prevents Hog Cholera.

Experiments on live hogs prove that a 2½% dilution of Kreso Dip No. 1 will kill virulent Hog Cholera Virus in 5 minutes by contact.

We Will Send Free Booklets on

The treatment of mange, eczema or pitch mange, arthritis, sore mouth, etc.;
How to build a hog wallow which will keep hogs clean and healthy;
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WRITE FOR THEM.

Kreso Dip No. 1 in Original Packages.

FOR SALE BY ALL DRUGGISTS.

PARKE, DAVIS & CO.

Department Animal Industry.

DETROIT, - - MICH.

Half a Cow—

Half a cow means half a profit—really a loss, because a poor producer costs as much to keep as a good milker. If you have a cow that is below par, chances are some vital organ is impaired and she needs treatment.

Kow-Kure is the one cow medicine that quickly tones up the digestive and genital organs and puts a backward cow on her feet. Try Kow-Kure on your most doubtful cow. It is especially effective for the prevention or cure of Abortion, Barrenness, Retained Afterbirth, Milk Fever, Lost Appetite, Scouring, Bunches, etc.

Sold by feed dealers and druggists, in 50c and $1.00 packages. Write for free book, "The Home Cow Doctor."

DAIRY ASSOCIATION CO., Lyndonville, Vt.

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GERMAIN SEED & PLANT CO., Los Angeles, Cal.
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HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families. Some of serviceable age.

REGISTERED BERKSHIRE PIGS

Masterpiece, Longfellow and Robin Hood Strains. Fine individuals of both sexes—we pay registration fee.

Careful attention given to mail orders.

Whittier State School

Whittier, Calif.

AUCTIONEER

Will conduct sales anywhere in California. Pure bred live stock sales given special attention. For dates and terms address.

T. J. Gilkerson

Phone, Farmers 39 Lemoore, Cal.

scribed for years and would not be without it. It has saved the cattlemen vast sums of money and benefited the industry in many other ways.

Only by cooperation can the live stock men of the state ever hope to better present conditions. While the central Stockmen's Association takes in the largest beef territory in the state there are other sections which should be formed into similar organizations. Imperial Valley is a great feeding ground. There is quite a large range country between Los Angeles and the Mexican line; north of Sacramento and in the counties adjoining Nevada are hundreds of cattlemen who should organize for their mutual benefit. With the beef cattlemen, the dairymen, the swine and sheep men organized into one general livestock association we would be able to secure desired legislation and in all probability better marketing methods and stockyards.

When that happy day arrives California growers will be in a position to make real progress toward prosperity in the production of meat animals. Verily, "In union there is strength"; unorganized the stockman is helpless.

DIRECTORS' MEETING STATE SWINE BREEDERS ASSOCIATION.

Written for California Cultivator By C. A. Briggs.

At the regular director's meeting of the California State Swine Breeders Association at the Travelers Hotel, Sacramento, on March 16, a plan for the annual meeting on May 30 was adopted. There will be a directors' meeting and election of officers in the morning and a donation sale in the afternoon. At this sale the leading breeders of all breeds will offer some of their best animals for the purpose of getting good blood of all lines into the hands of the farmers of the state. Twenty-five dollars from the sale of each animal will be donated to the general fund of the Swine Breeders Association for the promotion of the work. After the sale Prof. Thompson will close one of the university farm's swine feeding experiments, to which all are invited. These experiments which have been conducted for several years are extremely instructive and should not be missed. In the evening a banquet will be held, and speakers well posted on the subject of hogs will provide a valuable and interesting time for all attending. The work of the State Swine Breeders Association is of increasing value to the industry and should have even stronger backing than it has. Its officers are earnest, self-sacrificing men who serve without salary and pay all their own expenses. A most cordial invitation is extended to every one interested in "more and better hogs" to be at Davis on May 30.

FIELD NOTES FROM THE LIVE STOCK MEN

W. A. Young of Lodi reports recent sales: Three bred sows to H. C. Carr, Tulare County, for boys' pig club; one bred gilt to Chas. S. Harkins, Kern County; one bred gilt to H. F. White, Amador County; two bred gilts to Fred Villenger, San Joaquin County; one service boar, one bred gilt to the Gammon Estate, San Joaquin County; one boar pig to M. L. McDonald, Stanislaus County; one two-year-old sow to Paul Hopkins, Glenn County, one two-year-old sow to M. C. Freeman, Yuba County; one service boar to V. D. Goodrich, Santa Clara County; one service boar to Denner Bros., Santa Clara County; one sow pig to J. G. Wise, Nevada.

Frederick M. Johnson, Napa, reports recent additions to his herd of registered Duroc-Jersey hogs: A yearling sow, bred by the Economy Stock Farm, sired by Burke's Good Enuf and out of a Gano sow. A Cherry Chief fall gilt bred to Critic D. A daughter of Joe Orion II, bred to Indianwold's Orion Cherry King. A spring gilt bred by the university farm, a granddaughter of Col. Protection. A September, 1915, gilt, sired by Pathfinder and out of a Disturber sow.

H. P. Slocum & Son report the sale from their recent Eastern purchase of pure bred hogs, of two sows bred to Giant Col., whose sire was King's Col., to Geo. A. Spencer; nine to Spalding Company, six head for shipment to Honolulu; three bred sows with championship ancestry to Wellington F.

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The First, the Best Known and the Greatest

CREAM SEPARATOR

Better Now Than Ever Before

THE first practical continuous cream separator, the De Laval has easily maintained its original success and leadership for nearly forty years. Step by step, year after year, by one improvement after another, the De Laval has led in every single step of cream separator development and improvement.

The first belt driven, the first steam turbine driven, the first of every kind of hand turnable, the first disc bowl, the first blade bowl, the first bottom or suction feed, the first split-wing feed, the first feed-through-the-discs, the first self-centering bowl, the first automatically oiled—all these and a hundred other features of separator development and improvement have been conceived by De Laval inventors and perfected by the De Laval Company, most of them to be cast aside for something still better in the ever onward advance of De Laval construction.

The New 1917 De Laval

And now, in the De Laval machines for 1917, a number of new and still further improvements have been made, which make the De Laval machines of today much better in many respects than they have ever been before.

Their capacities are greater per dollar of cost; they skim cleaner under the more difficult conditions of separator use; they are equipped with the most improved speed regulator, thus insuring the proper speed necessary for complete separation; they are even better lubricated, and the bowl construction is even more sanitary than ever.

In other words, superior as the De Laval machines have always been to all would-be competitors and utilizers of abandoned De Laval features, the De Laval machines of 1917 are improved and superior in every way to all previous types and models of De Laval construction.

All these improvements and new features are described and explained in the new 1917 De Laval catalog now ready for mailing, but some of them are difficult to describe and make fully understood by words.

Be Sure to See a New De Laval

The new De Laval machines themselves best explain their new and superior features, and their use does this more completely and convincingly than even an examination of them. Every local agent is glad to afford opportunity for examination, and better still, for home test of a new De Laval machine.

But the demand for the new machines is a month ahead of the possible supply under the present difficult conditions of manufacture and freight distribution. More De Laval machines by half have been made in 1917 than ever before, but the De Laval Works is now ten thousand machines behind actual orders, and the demand is ever increasing.

Hence, the importance of securing a machine quickly if your local dealer happens to have one, and of ordering well ahead if he does not. And likewise, the importance of waiting patiently a little for a machine if need be.

A new De Laval catalog will be gladly sent on request, and if you don't know your nearest local agent please simply address the nearest De Laval main office as below.

DE LAVAL DAIRY SUPPLY CO.

LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST. We specialize in Alpha Gasoline and Distillate Engines, Ideal Green Feed Silos, Irrigation Equipment, Centrifugal and Deep Well Pumps and Alpha Spraying Outfits. Send for special catalog.

101 DRUMM STREET, SAN FRANCISCO

50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

Use Tuberculin Tested Sires in Your Herd

WE HAVE A NICE LOT OF SHORTHORN BULLS and HEIFERS THAT WILL SELL FAST WHEN THE SPRING FEED COMES. SELECT YOURS NOW FROM THE BRIGHTON FARM HERD.

H. L. & E. H. Murphy, Perkins, Cal.

Baby Chicks Many Varieties

Ten, 12 and 15 cents. We ship everywhere. Free 66-page illustrated catalog.

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AAGGIE ACME OF RIVERSIDE 2d

California State Butter Record

Butter 7 Days 35.38 Lbs. Milk 627.3 Lbs.
Butter 30 Days 142.34 Lbs. Milk 2730.7 Lbs.
Butter 60 Days 275.02 Lbs. Milk 5365.0 Lbs.
Butter 90 Days 400.96 Lbs. Milk 7931.3 Lbs.
Butter 120 Days 529 Lbs. Milk 10424 Lbs.

The above records are strictly official. She is a daughter of our herd sire, KING MEAD OF RIVERSIDE, who is transmitting with great certainty

HEAVY PRODUCTION - HIGH TEST - GOOD TYPE

There is no surer or quicker way of breeding these qualities into your herd than by the use of one of his sons from one of our high record cows. All of the daughters of King Mead of Riverside that have been tested for the year have an average of 4 per cent fat, and five two-year-old daughters have an average of over 700 pounds butter and over 14,000 pounds milk. We are offering several of his sons that carry more than 50 per cent of the blood of Aaggie Acme of Riverside 2d.

Pedigrees and prices will be submitted by request.

A. W. MORRIS & SONS CORPORATION

Woodland, - - - California

Good Bulls

We now offer two grandsons of King of the Pontiacs and one grandson of Rag Apple Korndyke, two of the greatest transmitting sires of the Holstein-Friesian breed. The dams of these three bulls are among the very best cows in our herd, and their present records should be increased at next freshening.

The three bulls we offer are as follows:

No. 1.—KING PONTIAC PIETERTJE BEAUTY. Born April 16, 1916. Sire: KING PONTIAC MUSA NETHERLAND 89775, whose sire is King of the Pontiacs. His three nearest sires have 440 A.R.O. daughters, 180 A.R.O. sons, and 238 producing daughters, a record not exceeded by any other bull. Dam: MAY BLOSSOM OF MILLBRAE 212662. Official records as a senior 3-year-old, 606.1 pounds milk and 24.95 pounds butter in 7 days, 2387.1 pounds milk and 98.76 pounds butter in 30 days. She is a daughter of a 30.88-pound cow and has a 31.86-pound 4-year-old sister. This is a nice typey calf.

No. 2.—KING PONTIAC NETHERLAND BARRILOS. Born March 18, 1915. Sire: KING PONTIAC MUSA NETHERLAND 89775. (Same as No. 1). Dam: SLEEPY BARRILOS OF MILLBRAE 161752. Official records 678.4 pounds milk and 30.88 pounds butter in 7 days, 2923.2 pounds milk and 122.56 pounds butter in 30 days. A wonderful producing cow who has a 31.86-pound 4-year-old daughter and a 24.95-pound 3-year-old daughter. Bull is a good individual.

No. 3.—RAG APPLE CLOTHILDE KORNDYKE 2ND. Born March 12, 1916. Sire: RAG APPLE CLOTHILDE KORNDYKE 105151, a son of Sir Rag Apple Korndyke, who is out of a 36-pound daughter of Pontiac Korndyke. Dam: GLADYS OF MILLBRAE 214830. As a senior 4-year-old she made official records of 729.4 pounds milk and 29.35 pounds butter in 7 days, 3064.1 pounds milk and 121.12 pounds butter in 30 days. As a senior 3-year-old she made 509.7 pounds milk and 21.07 pounds butter in 7 days, and 249 days from calving made 285.1 pounds milk and 13.64 pounds butter in 7 days. This is a very typey youngster and fit to head any pure bred herd. His dam is one of our best prospects, and is almost sure to increase her record

Come and see these bulls or write for prices and pedigrees.

Bulls from high record dams for sale at all times.

MILLBRAE DAIRY

PROPERTY OF

The Mills Estate, Inc. Millbrae, Cal.

Smith; one bred gilt to Mr. Laymen; one to W. V. Bennett; to Rev. C. R. Hedges and John McMartin a granddaughter of King's Col. out of a line bred Golden Model sow; one sow to W. H. Otterson; one Berkshire sow bred to Rival's Champion to A. Pilko.

A. A. Jenkins reports recent sales of two registered Jerseys to R. H. Brittingham, one Jersey bull, a son of Gertie's Son's Victor, to James Vincent, an Oregon breeder; one Jersey bull, a son of Gertie's Lad, to G. S. Look of San Luis Obispo County. Mr. Jenkins says he also made a sale of a fine Duroc-Jersey boar to Mr. Look and, of course, this through a Cultivator ad.

Mr. A. B. Spooner Jr., president of the San Luis Obispo County Dairymen's Association, recently returned from Wisconsin where he spent a month traveling over various parts of the state examining animals that were for sale. He finally made his selections at Oconomowoc, Watertown and Juneau. The carload consisted of 11 bulls ranging in age from eight to 14 months and 15 heifers, 13 of which were with calf to good A.R.O. bulls. The heifers were all from A.R.O. dams. Six of the bulls were purchased at Pabst Stock Farm. Two were sired by King Pontiac Champion and out of 20-pound dams. One was sired by Hillvale Paul Ormsby and out of Hillvale Lucile Ormsby, an exceptionally well bred heifer. She carries 50 per cent the same blood as the former 30-day butter champion, Pietertje Maid Ormsby, and 50 per cent the same blood as the sire of Duchess Skylark Ormsby whose record is 1506 pounds butter.

Two of the bulls were sired by Maplecrest King De Kol and another by Korndyke Segis Johanna, whose two nearest dams have an average of 39.05 pounds of butter in seven days. Two heifers purchased were sired by a son of Johanna McKinley Segis. Mr. Spooner has a son of Prince Gelsche Walker, purchased a year ago from Morris & Son, which he will use on the three heifers which he purchased. The following men purchased animals: Joseph Dalessi, C. S. Pike, Karl Steiner, James McMillan, John Walters, Joe Barlogio, H. M. Warden, Otto Sinsheimer, Manuel Garcia, M. D. Tognazzini, Valerio Tognazzini, A. B. Spooner & Sons, W. D. Wimmer, Peter Tognazzini, George Ross.

Harry L. Murphy will arrive this week from Eastern points with a bunch of Scotch heifers and bulls.

J. K. Fraser reports sales of Duroc-Jerseys; two gilts to J. Stith, a boar to C. A. Copren, a sow and boar to E. W. Beebe, a boar to Spreckels Sugar Company, a sow to E. J. Roux, Nevada. Mr. Fraser has also sold a registered Holstein bull to Francis Fiorini.

Peters, Lamson & Walker of Fontana and Devore have recently imported what they consider the best sow ever brought into California. She is the Golden Model bred sow, Model Lady 4th, bred by Waltmeyer Brothers of Iowa. She showed second at the Iowa State Fair this year to the grand champion sow of Iowa and the National Swine Show. This sow's litter mate topped Waltmeyer's sale last year at $450. They have also just received a sow from the herd of Hanks & Bishop, bred to the thousand-pound boar, Pathfinder. Sows in the Hanks & Bishop sale last month averaged $268. This makes the fourth sow received by Peters, Lamson & Walker lately, they being bred to the greatest boars in the East, namely Great Wonder, grand champion Iowa 1916, Pathfinder, King the Col., and Critic B.

A. L. Tubbs Co., Calistoga, reports sale of 15 bred large Yorkshire sows to J. R. N. Boyd of St. Helena.

Jay Dutter, manager of the Henderson Company, writes announcing the enlistment of two more enthusiastic boosters of Holstein cattle; A. A. Quackenbush and A. R. Strother of Acampo, who have just purchased of the Henderson Company a splendid young bull sired by the promising herd sire, Supreme Glista Pietje, whose dam, Glista Eglantine, has a record of 32.39 pounds butter in seven days, and whose grandsire on the dam's side, Prince Ybma Spofford 6th, has the greatest percentage of 30-pound daughters of any bull that ever lived, all of which are owned by Cornell University except one.

The Stanford Ranch at Vina during 1916 ran 39 cows on seven-day official test. Twenty-five out of the 39 made over 20 pounds of butter. The best record was that of Lauremaka, a senior four-year-old 518.6 pounds milk and 32.298 pounds butter. Eight cows are now on semi-official yearly test and G. W. Wendt, superintendent of the dairy department, says that it is the plan to eventually give every cow in the herd a yearly test. The herd of 429 head is headed by four bulls, Dutch Colantha Sir Ormsby, King of the Pontiacs 14th, Segis De Kol Pontiac Burke, Geneseo Lad. No females will be sold from the ranch until the milking herd numbers 200. Recent bull sales have been made to Geo. Hulseman, M. Muchada, Clara K. Morse.

W. H. Hammond of Butte County has recently sold five registered Shorthorn bulls to Guy Kennedy.

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Blatchford's Calf Meal

and Sell the Milk

More calves have been raised on Blatchford's Calf Meal than on all other milk substitutes combined.

100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk.

Prevents scouring and insures the early maturity of sleek, handsome calves.

It is steam-cooked and no trouble to prepare or use.

Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or Blatchford Calf Meal Factory, Dept. 8 Waukegan, Ill.

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Bunch Rake

10 ft. Steel Head
Wheels 5 or 6 ft. high
10 or 14 Teeth

This Rake is made for bunching and for extra heavy work for which the ordinary Rake is useless.

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FILL IT ONLY ONCE A WEEK

Clean it only once a year. No wick. No glass globe. No danger even if rolled around in straw. Can't explode. Can't spill. Use it around barns, cow sheds, chicken houses, cellars, etc. The

COLEMAN GAS LANTERN

Makes and burns its own gas. Gives 800 candlepower of strong steady light. Can't blow out or jar out. Made of heavy nickeled brass. Mica globe. Guaranteed for five years. Ask your dealer—if not on sale in your town yet, write for catalog of 20 different kinds Gas Lanterns, Table Lamps, etc. Dealers or agents wanted in every locality.

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REDWOOD TANKS — SILOS.

Thirty-five years in this Business in Stockton.—A 500-gallon tank, $12.00. A tank 6 ft.x2½ ft., $10.00. Other tanks equally cheap. I deal direct with the consumer, saving 10% to 25%. All sizes in stock. Clear dry redwood direct from the mill. Write for price today. Latest improved machinery. Doors, Windows, Frames, Mouldings.

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ANOTHER RECORD

McAlister & Sons reports:

"K. P. Baby Walker, a heifer calving at the age of 23 months and one day in the McAlister herd of Holsteins, has just broken the state record not only for yearlings for seven days, but also surpasses the best mark yet made by any junior two-year old. She made 23.17 pounds butter in seven days and 85.49 pounds in 30 days, which are both world's records for any heifer calving at a like age. She milked 69 pounds of milk in 24 hours and 468.1 pounds in seven days, which are also unequaled by any heifer in the world at like age. She is the highest record yearling daughter of King of the Pontiacs, the greatest sire of the breed, and her dam is a 24 pound daughter of a 28 pound cow.

There are only five heifers in the state that have made over 22 pounds of butter under the age of 30 months, yet three of these have made their records in the McAlister herd in the last three months. Out of the last 11 heifers to freshen in that herd six have made over 21 pounds of butter with first calf, while two others have made over 20 pounds, the other three two-year olds making 19.86, 18.51 and 17.62 pounds of butter. Nine of the last thirteen cows with second calf or over made from 26 to over 31 pounds of butter, while the other four made from 20 to over 25 pounds."

K. P. Baby Walker

PROFITABLE HORSES

The exports of horses and mules have at last passed the million mark. The official figures given by the department of foreign and domestic commerce show that during the 27 months ending December 1, 1916, 1,029,961 head of horses and mules, valued at a total of $216,941,912, were actually exported from the United States, most of these going directly to the European war territory. Purchases are still continuing at a heavy rate.

The farmer who has been obliged to sell his horses at $115 per head, while his neighbors, using the same kind of mares, but who bred to Percheron stallions, have sold their surplus at prices ranging from $140, $165 up to $225 per head, sees in a financial way the direct contrast in the value of light horses as compared with the value of horses carrying one-half or three-quarters of Percheron blood. This has done more to increase the demand for Percheron stallions than anything that has occurred in the past 15 years.

In the judgment of the most experienced market men fully 75 per cent of the horses sold abroad for artillery and transport work have been grade Percherons produced by crossing Percheron stallions on the common light mares in this country.

Despite all contention to the contrary, the horse is a most important factor in contributing to the success of civilized nations, whether that success be sought for in peace or war, and it should be our effort in America to produce the most efficient power unit that can possibly be produced in horse flesh, to the end that our own farm and city work may be more economically and satisfactorily accomplished and the income accruing from the sale of our surplus horses to foreign nations be materially increased.—Wayne Dinsmore, Secretary Percheron Society of America.

PASTEURIZING OR STERILIZING BUTTER

Mr. Albert Levy of Hemet writes regarding his method of pasteurizing butter. The day after churning he places butter, after rinsing in three waters, in stew kettle which is set in pan of boiling water on the fire. As butter melts he stirs, watching that it does not become transparent. Then butter is taken from the stove and allowed to harden. It is then moulded.

Mr. Levy advises that 95 degrees of heat will pasteurize butter, 120 degrees will clarify and after such a degree of heat it will keep for 18 months.

There is little expense connected with a dairy test association aside from the salary of the man who does the testing. To cover this expense, each member is assessed a certain amount, usually based upon the number of cows he has to be tested. In some associations the amount is one dollar a cow per year and in others it is a dollar and a half. If a man milks less than ten cows he is usually required to pay for ten.

Every practical feeder knows that foods which are relished are likely to be consumed in abundance. This is especially true in the case of hay and fodders. A great saving may be made by curing and storing our feeding crops in such condition that they will be most palatable and digestible. If not palatable, they will not be eaten, and if not digestible they will produce no good results.

Hickory King
Acclimated Seed Corn
Grown Without Irrigation
In the Ear or Shelled—Prices on Application
Hand Shelled
WE SELL SEEDS THAT GROW
Sow them and get results. Have you a copy of our new catalog?
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116 E. 7TH ST., LOS ANGELES, CAL.

"ROUGH ON RATS" ends RATS, MICE, Bugs. Don't Die in the House. Unbeatable Exterminator. *Ends* Prairie Dogs, Gophers, Ground Hogs, Chipmunks, Weasels, Squirrels, Crows, Hawks, etc. The Recognized Standard Exterminator at Drug & Country Stores. *Economy* Size 25c. 50c. Small 15c. Used the World Over. Used by U. S. Gov't. Rough on Rats Never Fails. *Refuse ALL Substitutes.*

JOHN DEERE IMPLEMENTS

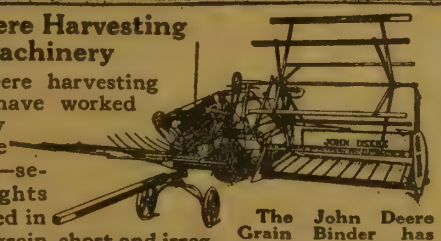
BOOK FREE 156 page reference book—tells all about a complete line of farm implements and how to adjust and use many of them. A practical encyclopedia of farm implements. Worth dollars.

Describes and illustrates Plows for Tractors; Walking and Riding Plows; Disc Plows; Cultivators; Spring Tooth and Spike Tooth Harrows; Disc Harrows; Alfalfa and Beet Tools; Farm and Mountain Wagons; Manure Spreaders; Inside Cup and Portable Grain Elevators; Corn Shellers; Hay Loaders; Stackers; Rakes; Mowers and Side Delivery Rakes; Hay Presses; Kaffir Headers; Grain Drills; Seeders; Grain and Corn Binders.

This book will be sent free to everyone stating what implements he is interested in and asking for Package No. X-111.

JOHN DEERE, MOLINE, ILL.

John Deere Harvesting Machinery



John Deere harvesting machines have worked under every possible condition—severe droughts that resulted in much light grain, short and irregular straw—extremely wet seasons, heavy grain, down and tangled.

However, the John Deere, "The Better Binder", has throughout maintained an unbroken record of success in cutting, binding and tying grain.

The John Deere Grain Binder has wide and high bull wheel—great power.

Main frame riveted—unusually strong.

Three packers instead of two, make better shaped bundles and save grain.

Accurate tying mechanism.

Quick turn tongue truck saves time, relieves horses and makes square corners and full swaths possible.

The John Deere-Dain System Rake

Here is what you do with the Dain System Rake:

Follow the mower closely, rake while leaves are still active and place hay upon clean stubble.

Make straight windrows, and no dumping of rake is required. There is no bunching of hay in turning corners.

Put the hay in medium size windrows, with the bulk of the leaves inside and the majority of stems outside.

The windrows will be loose in the center for the free circulation of air. The hay retains its color and nutrition.

The John Deere-Dain System is the rake employed with the Dain System of Air-Curing Hay.

Reel raised or lowered, rake thrown in or out of gear and angle of teeth changed by means of convenient levers.

Ample capacity. The inclined frame grows higher where the windrow becomes larger—an exclusive Dain feature.

John Deere Plows for Light Tractors

So far as quality of John Deere Plows for Light Tractors is concerned, they are built for the farmer who realizes that it is business judgment to buy a high grade tractor plow. Don't forget that a tractor plow is not an everyday purchase.

John Deere Plows for Light Tractors are noted for their high grade work in the field—the real test of tractor plow value.

Before you make your purchase, be sure to see John Deere Plows for Light Tractors. A careful purchase means a permanent saving.

The John Deere Light Tractor Disc Plow works with any standard tractor—the hitch is adjustable.

Three or four discs.

Discs have a double setting. Taking care of all conditions where a disc plow can be expected to operate.

Adjustable scrapers keep discs clean and lighten the draft.

No choking in trashy ground—frame is high, beams are dropped, which gives good clearance under the frame, and there is plenty of room between the discs for trash to pass through.

John Deere Factories

Every implement bearing the John Deere trade mark is made in a John Deere factory.

To insure the best in every class of implements there is a special John Deere factory for making each class. John Deere Plows are made in a plow factory; their hay-tools in a hay-tool factory; their planters in a planter factory.

Every tool in the John Deere line is made in a factory organized and equipped to make such tools.

All John Deere factories are in communication with each other. Each has the benefit and experience of all.

When it comes to purchasing raw material, John Deere factories as a unit, represent an enormous buying power. This is an advantage to purchasers of John Deere implements.

Don't forget that each John Deere factory is a leader in its field—that every implement it turns out is worthy of the name, "John Deere."

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Classified Liners

The direct selling method from producer to consumer, and a clearing house for over 31,000 readers, weekly.
Liner rates: Single insertions 3c per word; yearly contracts 2½c per word. 35c per issue minimum charge.

TREES

For Sale — Washington and Thomson Navels, Valencias, Seedless Grapefruit, Eureka, Lisbon, Villa Franca and Seedless Lemon, Harman Avocados. Buds were selected from the best bearing trees and will yield bumper crops. Also 40,000 Mission and Manzanillo Olives. The above stock is growing in Rialto, Whittier, Glendora and Fallbrook. Budding cloth 30c yard, post paid. No frost damage. We solicit your patronage. Prompt replies to inquiries. Cyrus W. Wilhite, P. O. Box 154, Glendora, Cal. Phone 303.

For Sale, Seed Bed Stock—About 100,000 extra fine and absolutely clean sour stock. Will run from 6 to 16 inches. Also two-year-old Marsh Seedless Grapefruit, Eureka Lemons, Valencia and Washington Navel Oranges. Prices on application. W. B. Richards, 935 N. Park Ave., Pomona. Phone 6302.

Citrus Trees—All leading varieties. Large line, Lisbon & Villa Franca Lemon and Washington Navel trees. All first class and clean. Special prices to dealers or in carload lots to growers. Randall Bros.' Nurseries Co., Whittier, Cal.

6500 Washington Navels, 7000 Late Valencia Orange trees ¾ up to two years old. Buds carefully selected. Stock thrifty. 30c each open roots, 38c balled f.o.b. Glendora. Wilbur K. Howard, Box 484.

For Sale—Valencia, navel oranges and Eureka lemons, 2-year-old good stock. Write or call for prices to Nursery on North Azusa Avenue between 11th and Sierra Madre Ave., K. Minabe, Azusa, Cal.

Avocados For Sale, also fine Washington Navel, Valencia and Eureka Lemons. Fine large stock, field grown in frostless location. In nursery business since 1894. Write for prices or call. C. B. Reas, Sierra Madre, Cal.

For Sale 6000 Valencia Trees—One year old this spring. Buds from Performance Record trees in one of the best groves in the state. Write today. L. V. W. Brown, Riverside, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

Apricots and Olives—Royal Blenheim and Tilton apricots. First class trees. Large stock of Mission, Manzanillo and Ascolano olives. Balled or open root. No scale, no defoliation. C. E. Moyer, Hamet, Cal.

Roses 50 cents per dozen. Apple trees $6.00 per 100. Olives $4.00 per 100. Big stock fruit and ornamental trees and roses. Write for catalogue. Kavan Nurseries, San Bernardino, Cal.

Citrus Trees—We have a few nice clean Valencia, Washington Navel, Eureka lemon and grapefruit trees: 2-year stock; first class. Glendora Nursery, H. W. Spiker, Glendora.

Apricots Apricots Apricots
5c up, 5c up, 5c up, 5c up, 5c up.
The largest in the state to select from. Carsten Truelsen, Nurserymen, Hemet, Cal.

For Sale 23,000 trees. Valencia oranges, 18,000; Eureka lemons, 5000, all two years old, extra fine this spring. Frank R. Baxter, R. F. D. 1, Fullerton, Orange County, Cal.

For Sale—All kinds citrus nursery stock. 1 year buds, fine roots. Y. Yamaguchi, Box 574. Phone Sunset 470R. Upland, 10th St. and Cucamonga Ave., Upland.

For Sale—6000 fine thrifty two-year-old Lisbon lemon trees. Bud selection the best. Address Chas. Story, Rivera, Cal. Phone Whittier 4721.

For Sale—Excellent citrus trees, principally Eureka lemons and Marsh grapefruit, 2 years old. B. C. Dodson, Glendora, Cal.

Novelty in Eureka Lemons—Write your bid for onen roots f.o.b. Glendora. Any quantity. If right, trees are yours. E. J. Vander Sluis, Glendora, Cal.

Mission Olive Trees—Raised from my own bearing trees. This is only sure way to get what one wants. W. A. Hayne, Box 461, Marysville, Cal.

Olive Trees—Mission, Manzanillo, Ascolano. Propogated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, Cal.

For Sale—Two-year-old Navel-Valencia lemon and grapefruit trees. Choice stock of best quality. Geo. M. Pearson, Riverside, Cal.

Valencias, one and three years old. Eureka lemons, three years old. Selected stock. May A. Miller, Glendora, Cal.

10 CENTS. VALENCIA TREES IN THE GROUND. ROBINSON CITRUS NURSERIES, SAN DIMAS, CAL.

Budded Avocados—All leading varieties. Address Mather's Avorado Nursery, 137 N. Fair Oaks Ave., Pasadena, Cal.

Citrus Trees—All kinds, any quantity. Butler's Morning Side Nursery, Lamanda Park, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Quality Trees—Prune trees 10c each. Cash Nurseries, Sebastopol, Cal.

RABBITS

New Zealand Rabbits are money makers. Send 25c for our new book on their culture—also catalogs. Gilmore Rabbit Farm, Dept. C, Santa Barbara, Cal.

DOGS

For Sale—One female Airedale puppy, 2 months old, in good condition. Splendid stock, pure bred. First check for $7.50 gets her. Ben F. Thorpe, Bonsall, Cal.

HOGS

Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

Make Big Money with our famous Whitten Ranch Big Type Poland-China. Prolific breeders and profitable feeders. Grow rapidly, fatten quickly. Top the market at 225 lbs. in six months. Make greatest profit for feed consumed. Prices reasonable; satisfaction guaranteed. Send for free illustrated book, "Hogs for Profit". Finest ever issued. Packed with valuable information; tells how to become successful. Ranch in Tulare County, but address owner, R. H. Whitten, 610B Security Building, Los Angeles.

The Billiken Herd of Chester Whites. The type that is ready for the market in from 6 to 7 months. Twenty bred gilts due to farrow in May and June. Four young service boars. Forty pigs, four months old, both sexes. Pork is going up every day; brood sows will be high priced by the middle of June. No advance in prices as yet; get busy and order now. Write for booklet, etc. C. B. Cunningham, Mills, Cal.

Large Number of excellent young boars ready for immediate service. Weanlings of either sex. Sired by Joker, first prize boar at Wisconsin State Fair 1915. Sows and gilts, sired by Iowa Wonder and bred to Joker and Sunnydale's Chief. For prices and further information write to Geo. A. Smith, Corcoran, Cal.

Poland-Chinas—Twenty good gilts and three 2-year-old sows for sale. Either sired by or bred to I. B. A. Wonder, reserve champion at P.P.I.E. A few good young boars ready for service, sired by I. B. A. Wonder. A fine lot of fall pigs. I please you or refund your money. W. A. Young, Lodi, Cal.

Registered Duroc-Jersey weanlings every month in the year, $10; 3 for $25. Specials for March and April, 1 mature boar, prize winner at Marin-Sonoma Fair, 2 gilts ready for breeding. Satisfaction guaranteed. Red Rock Ranch, Glen Ellen, Cal.

Cholera Immune Berkshires, August, Masterpiece boars, September values. Bachelor boars and November Ames Rival boars, $20 and $35 each. Fall gilts $25. All registered and out of choice dams. Prices for March only. W. H. Waugh, Riverside, Cal.

Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P.P.I.E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

Superba World's Grand Champion Poland-China boar and one of the greatest sires of the breed. Spring boars ready for service, also few sows bred to this noted sire, reasonably cheap. Rough's Greenfields, Arlington Sta., Riverside, Cal.

Duroc-Jersey Sows, sired by or bred to Pathfinder, Cherry Chief, Educator, Col. King the Col, Col the King, Grand Model, Great Wonder, Grand Golden Model, P. & L's Defender, Peters, Lamson & Walker, Devore and Fontana, Cal.

Registered Poland-Chinas, prolific, fabulous, profitable, porkers. Choice young boars now ready for service, $25 each, weanlings $15 each. Dr. J. A. Crawshaw, Hanford, Cal.

Thirty Medium Big Type Poland-China boars for sale. Shipped on approval. We will send a good one for $30 and a crackajack one for $50. Bernstein Ranch, L. C. Trewhitt, manager, Hanford, Cal.

Choice Boar Pigs for Sale. Sired by Superba 220620, champion Poland boar at San Francisco. Prices right. C. R. Hanna, Riverside, Cal.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, Cal.

Cholera Immune Duroc-Jerseys of the large type. Bred for show and utility. Derryfield Farm, I.O.O.F. Temple, Sacramento.

Rancho Rubius Durocs all sold except a few extra good July and September gilts. Write for prices. Elmer Lamb, Ceres, Cal.

Carruthers' Farm Berkshire Hogs. Our herd won Premier Exhibitor prize at the P. P. I. E. Exposition. Mayfield, Cal.

Duroc-Jersey—Sow and boar pigs from registered stock. Low prices. Delta Farm and Livestock Co., Colton, Cal.

Berkshires—Two hundred pounds at six months. Ray C. Hannan, Corning, Cal.

Durocs—A few gilts of exceptional quality. H. E. Boudier, Napa, Cal.

Poland-Chinas—A few good breeding boars. S. F. Williams, Orland, Cal.

Big Type Durocs—Quick maturing, easy keeping. F. M. Johnson, Napa, Cal.

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Bourbon Red Turkeys—Blue ribbons at Panama-Pacific, California and Arizona State Fairs, Los Angeles, since 1914. Eggs for April delivery, $5.00 per 12. Mating list. The Ferris Ranch, S. Reservoir, Pomona, Cal.

LUMBER

AAA—Lumber, New and Second-Hand; rough, $10 M; finished, $15 *A*R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St., San Francisco, Cal.

LIVE STOCK

Drafters and Orchard Chunks, from 1300 to 1600 pounds, well broken. Prices from $75 to $175 per head. Also horses and mules to rent in lots to suit. Hord's Stock Yards, 478 Valencia St., San Francisco.

Butte City Shorthorns, Shropshires, Berkshires and Ponies. Stock of all ages for sale. Can supply one or a carload. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., Cal.

At Last the Perfect Silo—the Stay Round. No hoops, no bolts. No experiments. Any one can erect. Close price. Address D. O. Lively, 125 Hobart Bldg., San Francisco.

For Sale—20 head registered Hampshire ewes and one Hampshire ram. A great opportunity to start a pure bred herd. D. O. Lively, 215 Hobart Bldg., San Francisco.

Geo. H. Croley Co., Inc., 681-687 Brannan St., San Francisco, manufacturers of Calf Meal, Balanced Dairy Feed, Balanced Hog Feed. Write for samples.

For Sale or Exchange, 30 Toggenburg grade and thoroughbred goats, 25,000-gallon redwood water tank. Pearl guineas. Mrs. J. Lenert, Chino, Cal.

The Best By State Fair Test Percheron stallions, mares and first and second prize filly colts for sale. H. G. Learned, R. 4, Box 22, Stockton, Cal.

Twenty-four Mules for sale, cheap for cash. Nine coming two, 15 one year olds. C. Hubbard, Riverdale, Cal.

Registered Shires — Blackhawk Stock Ranch. Importers and Breeders. Easton & Ward, Burlingame, Cal.

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For Sale—From 1 to 70 extra fine, straight, well marked, light colored, registered Holstein heifers, from 8 to 20 months old. Those old enough are being bred to a first prize son of Prince Geischo Walker, whose dam has a high yearly record. Some of these heifers are sired by bulls whose dams have from 35 to 37-pound records. They carry the very best blood of the breed and are good enough for any herd, anywhere. Prices to fit any pocketbook. Geo. A. Smith, Corcoran, Cal.

Registered Shorthorn Bulls for sale. I have just from Iowa, 30 registered Shorthorn Bulls, 4 of that lot are Herefords. I have 18 grade Shorthorns, all yearlings, and 2-year-old, all ready now for service, on my ranch, 9 miles northeast of Delano, Cal. Will make special price on car load lots. E. B. Armstrong, Parlimart, Cal.

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D. O. Lively Stock Farm, Inc., 215 Hobart Bldg., San Francisco. Breeders of Hereford cattle. A few choice heifers for sale. We buy and sell live stock on commission. Farm at Mayfield, Cal.

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For Sale—Ayrshire Bull, 4 years old February, Santa Maria Prince No. 16266 Ayrshire Breeders' Association. Bred by Brown & Brandon. Santa Maria Ranch Company, Watsonville, Cal.

Venadera Jerseys, the herd with official yearly records. Calves of both sexes for sale. Guy H. Miller, Route 1, Modesto, Cal.

Nine Months Bull Calf, the best Island breeding. A show calf at $75. Rolling Meadows Farm, Silverton, Ore.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

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Free for Six Months—My special offer to introduce my magazine, "Investing for Profit". It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

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Eureka-Peet-Humus. From Franks Island Nitrogen for citrus orchards $9 ton sacked. F. R. Drinkhouse, 222 Alma St., San Francisco.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St. San Francisco.

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Buff Ducks—Weigh like a Pekin, lay like a Runner. White egg strain. Winners at the best Western shows for past three years. Eggs, settings and small incubator lots. Ducklings in early April. Mating list. The Ferris Ranch, S. Reservoir, Pomona, Cal.

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Penn's Quality Rocks and Reds—Specializing in strongly vitalized hatching eggs from a selected few of our well known Barred Plymouth Rocks and S. C. Rhode Island Reds. Eggs $7.00 per 100, $1.50 per setting. Golden Rule Poultry Farm, St. Helena, Cal.

Baby Chicks, reasonable prices—White Leghorns, R. I. Reds, settings, 100's-1000's. Hatched right in our $60,000.00 brick and concrete hatchery from our quality heavy layers. Stock, hatching eggs. Pebbleside Poultry Farm & Hatchery, Sunnyvale, Cal.

Baby Chicks from mothers with 180 to 240 eggs each per year. S. C. White Leghorns, the best ever, $10.00 per 100, $90 per 1000; also Mammoth kale plants for sale 35c a hundred—$2.50 a thousand. Delivered free. A. P. Ward & Son, Box 100, Calistoga, Cal.

May and June Chicks will lay this fall if from our early maturing strain. Our Leghorns and Reds begin laying at 4½ to 5 months. Leghorns $10 per hundred, Reds $12.50 per hundred. BROOKS FARM (Rancho Del Paso), 807 J St., Sacramento, Cal.

East Side Poultry Yards, Established 1904. Our object, egg type and size for ideal utility stock. Thoroughly Hoganized, correctly hatched baby chicks, dozen or 1000. White Leghorn 8c, R. I. Reds 12c after April 1. Satisfaction guaranteed. 255 S. 18th St., San Jose.

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Want to buy first class material. No junk wanted. Pioneers in our line. Trade us your machinery and little cash for what you need. DEMMITT CO., UPSTAIRS, 120 N. MAIN, LOS ANGELES.

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LIVE STOCK SALES

California Breeders Sales & Pedigree Co., Holstein cows, heifers and herd bulls, Lakeside. San Diego County, Thursday, March 15.

California Breeders' Sales and Pedigree Company, Dispersal sale, Modesto, April 19, 1917.

Stephenson Holstein Herd, Lake Mills, Wisconsin, April 6 and 7, 1917.

D. O. Lively Stock Farm Sale, Hereford Cattle, Mayfield, May 3.

Lake Mills Holstein Breeders' Consignment Sale Co., Lake Mills, Wisconsin, May 8 and 9, 1917.

California Breeders Sales and Pedigree Co.—Willowwood herd registered Jerseys of C. G. McFarland, Tulare, May 17.

California Breeders Sales and Pedigree Co.—Holsteins, Jerseys, Percherons. Rosamond Farms, Stalder Bros., Riverside May 22.

California Breeders Sales and Pedigree Co.—20 registered Holstein bulls, Chico, May 24, 1917.

California Breeders Sales and Pedigree Co.—180 registered Holsteins, University Farm, Davis, first week in June. Date to be announced later.

R. H. Whitten announces purchase of three-year-old boar, Big Long Jumbo, the second of the six herd boars in the herd of Chas. Herring of Columbus, Nebraska, the birthplace of Big Joe, Big Ben, Oakland's Equal and many other noted boars. This boar weighs 850 pounds in his working clothes and has weighed 1050 pounds when in show condition. His sire weighed 1050 pounds and his dam 920 pounds. Big Long Jumbo has sired some of the highest priced pigs that Herring ever sold, and at his recent sale, January 23, gilts sired by this boar averaged $175 and sows bred to

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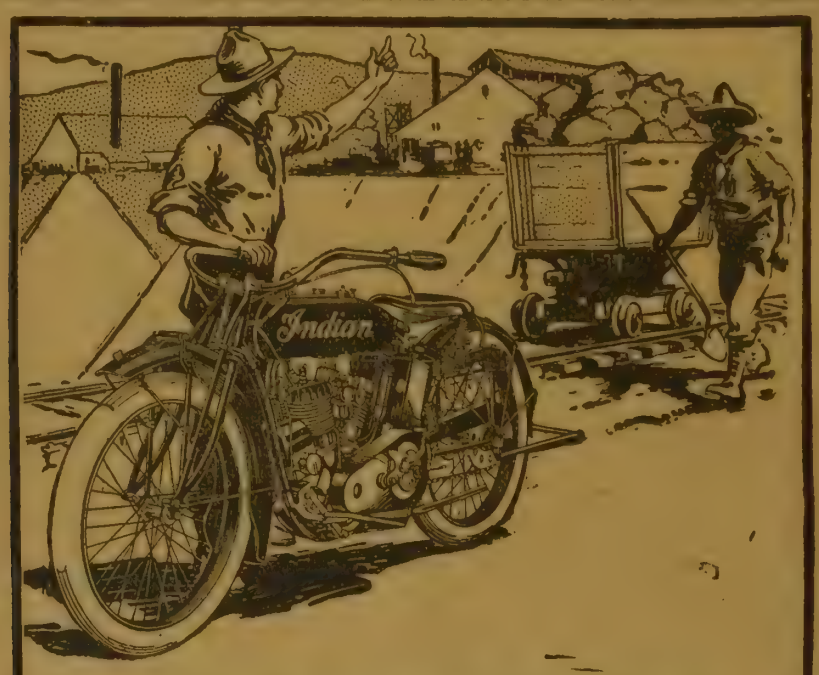

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  In an arbor overhead.
And the laden cherry trees
Murmur with the hum of bees.

All the earth is fairy green,
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Full of ecstasies unseen,
  Full of mysteries untold.
Who would not be out-of-door
Now the spring is here once more!

—Bliss Carman.

THE MEAT THAT GOES FARTHEST

Written for California Cultivator
By Mrs. W. M. Taylor, San Bernardino

MEAT like every thing else has advanced so much in price in the last few months that we who once enjoyed porterhouse and sirloin must be content with something else. To do entirely without meat is not the proper thing, for young as old need to be supplied with this nourishing food, and I doubt if one saves in the long run at the present price of vegetables.

I have found that there are a great many cheaper cuts of meat that can be made very palatable. True, it may take a little more time in preparing, a little more care in selecting. If possible buy your own meat. We have a right to see and be pleased with what we pay for. No woman would think of going into a dry goods store, accepting the first pattern of dress goods shown her, then why should we do so with meat?

Our family standby now, when everything is so high, is brisket boiling meat. To you who have never used it the name may not sound very promising, but I have tested it over and over and am sure that it is the cheapest and best tasting meat for the money. Five or six pounds will supply meat (and various dishes) for three days, if managed right. This meat four months ago was selling for ten cents per pound; today it is 14 cents. Five pounds will cost 70 cents. Do not buy less than that, for the same fuel will cook five or six pounds as easily as two or three and besides you will get a better piece of meat. Do not get one too lean, (for therein lies the secret). One member of my family has often said he did not care so much for the meat as the trimmings, in other words, dressings, gravy, dumplings, or any of the various dishes made from meat. Well, one can not make these without a nice fat piece of meat. I wash my meat very carefully, pour plenty of boiling water over it and boil slowly but constantly. Continue to cook like this for several hours. Salt when partly cooked. If you need to add more water be sure it is boiling. Do not let the water boil away; you should have at least three pints when your meat is cooked. When the meat is perfectly tender lift it from the broth and place in a hot frying pan and place in oven until it is a nice rich brown. Put your kettle, which contains the broth, away; that is to be used later. You will find that your meat resembles a roast, the heat from the oven will bring enough fat from the meat to make a delicious gravy by using brown flour. This, with your meat, mashed potatoes, some kind of a salad and simple desert makes a very nice meal for the first day. We do not have meat three times a day. The children carry their lunches to school, so at the noon hour we only have a light lunch, so as to have the substantial meal in the evening when we can all enjoy it together.

When you serve this meat it isn't entirely necessary to say to your family, "Now, this is the very cheapest meat that I could buy." Use a little tact and let your family think once in a while that they are eating a roast, for even people of limited means like to think they're having the best sometimes.

Now for the second day you will find that when the broth which the meat was cooked in is cold, all the fat rises to the top and can be easily taken off. Use this fat for seasoning dressing, or it is nice to add boiling water to it and boil drop dumplings in it or noodles on busy days. I find a nice substitute for noodles in macaroni. Cook this until tender and serve plain, or it is nice with a good tomato sauce. After you have taken the fat off you have a clear stock left, and this makes a foundation for vegetable soup. You can see at a glance that this will furnish material for another nice meal; vegetable soup first, and one of the dishes I have already mentioned, with some of the meat sliced cold and a different vegetable from what you had the evening before.

For the last and third day you can guess, perhaps. Yes, hash. Some do not like it, that is true, but I think it is very nice. I cut the scraps of meat up with one large onion, brown together and add some cold potatoes, and just before serving add a cup of hot cream. But you do not need to use the scraps this way; a very nice meat pie may be made instead. Only add a little flour and milk to it so that it will not be too dry, and bake in rich biscuit dough.

I do not see how any one could get any meat that could possibly go farther than that.

We are also very fond of meat loaf, and especially is it nice for Sunday dinner, for what is left is so nice and handy to slice cold for supper or to use for lunches on Monday morning, which is usually a busy day. I get three pounds of Hamburger and one pound of pork sausage. This will cost 60 cents. Mix all together, and this will make a nice loaf by adding two or three eggs, eight soda crackers, enough cream or milk to make it moist enough to mould; season as you like; bake slowly for one and a half hours.

Again, the round steak is not to be despised. I often purchase 20 cents worth, pound it well, flour and cut in small pieces and fry in suet fat until

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it is brown on both sides. Add one pint of boiling water and steam until it is tender, or about 30 minutes. Have a large baking dish hot, slip meat and gravy into it and place it in the oven while you prepare the following.: 2½ cups of flour, two heaping teaspoons baking powder, pinch of salt and enough water to make a stiff batter. Put this in spoonfuls over your meat and bake 20 minutes and you will have a dish that all the family will enjoy. By using the baking dish you do not disturb your baked dumplings and besides it looks much nicer. Garnish this with parsley, give it some fancy name, forget it only cost 20 cents and enjoy it. This served with creamed potatoes, green peas or cauliflower is especially nice. These three kinds of meat I use more than any other at the present time and find they cost according to their food value.

MEETING H. C. OF L.

Written for California Cultivator
By L. E. B.

WITH a family of growing children whose appetites are increasing in size, with a salary which does not increase, and the H. C. of L, I find with others that the problem of balancing rations is rather a task of juggling with the proper foods, to keep up growth and health, and costs which for some foods are almost prohibitive. Having our own milk and eggs has been a wonderful help, and my problem has been to supplement these in the most economical way.

Albacore

I discovered a brand of canned fish labeled Albacore, which is the dark meat and being in small bits does not cost so much. I get two cans for 25 cents and find the following an excellent meat dish at little cost: One can albacore, two eggs beaten, two cups milk, two bread crumbs, salt and pepper to season; mix well and pack in greased pan or mold, cover tightly and steam for one hour This can be baked, but I find steaming makes a lighter and better meat loaf.

Beef Heart

I find a beef heart to be an economical meat, but the usual ways of cooking did not appeal to us, so I tried putting it through my meat chopper and making a meat loaf. I cut the heart in four or five pieces and boil in enough water to cover for half an hour and then chop it and proceed as for Hamburger loaf, adding bread crumbs enough to absorb the broth.

Today I got two loaves of bread from the bakery for five cents as it was too hard and dry to sell at the regular price. Half I used to make a bread pudding and the rest I cut in strips and toasted to serve with a cream soup. The increased cost of flour has made even home made bread high in price, so I tried one of the cheaper grades of flour. The result is cheaper bread, and though it does not look so fine and white it is light and just as nutritious as that from the higher priced flour.

RABBIT CHEAP AND GOOD

Written for California Cultivator By
Clara E. Remington.

THE solution to the problem of economical meat, is found, I consider, in raising a few rabbits.

There are many ways of cooking rabbit, and I suppose there is none more popular than frying. But the age when they can be fried passes so quickly while the period of roasting and stewing is unlimited. Our favorite way of cooking it is en casserole.

After it has been disjointed, washed and dried, salt each part and roll it in flour; then fry in casserole or any baking dish or pan. Have cut up one or two onions, carrots and a bell pepper, if in season, which fry and place with meat. Make a thin gravy of the fryings and cover contents of casserole. Cover the dish and bake until meat is tender. If a stew is preferred, simply pour water instead of gravy over the meat and simmer.

A rabbit pot roast too is delicious. Any of these methods of cooking rabbit can be used to excellent advantage with chicken too old to fry.

MY STAND-BY CUT OF MEAT

Written for California Cultivator
By Eva M. Snedaker, Pomona

MY standby cut of meat. Take three pounds of shoulder, cut wash and drain. Put three tablespoons of shortening in meat-roaster or any dish that can be closely covered. When hot add six tablespoons of flour and stir until a dark brown; slowly add water to make a smooth thick gravy. Add salt and also rub salt on the meat. Put the meat into this gravy, cover closely and set on back of stove or in the oven where it will cook slowly; never hurry it.

I like to put it on Saturday while I am doing my baking. Then it will have hours to cook without keeping a fire for it. Sunday, a few minutes warming and meat and gravy are ready for dinner.

We like heel-meat cooked in this way, and it is a fine way to cook rabbit or a tough old rooster.

SEA FOODS.

Written for California Cultivator By
Caroline M. True, Lancaster

CURED meats used to be the every day standby of the rural housewife, but now that they have been promoted to the luxury class it behooves us to look elsewhere. Those of us who live near the old Pacific with its teeming millions of inhabitants have one supply of meat that even the war can not materially affect.

Fish is rich in protein and more easily digested than other forms of meat. Those who are out of reach of the fresh fish markets can always fall back on the canned product. The following are some palatable recipes for canned fish:

Creamed Salmon

Cut the entire top from the can and remove without breaking up the contents. Place in a baking dish in the oven to heat through while you are preparing the following dressing: To one heaping tablespoon of butter melted in a skillet add one tablespoon of flour. When thoroughly mixed stir in two cups of milk. As soon as it thickens add one beaten egg and salt and pepper to taste.

Arrange your salmon carefully on a platter. Cover with the dressing, garnish with slices of hard boiled egg and your salmon has become a delicious and dainty dish.

Salmon Loaf

Remove the bones from a can of salmon and add two cups of bread crumbs dissolved in milk. Stir in two well beaten eggs, salt and pepper to taste and place in a well greased individual bread pan to bake for one-half hour in a hot oven. Slice and serve with the same sauce used in creamed salmon or serve as cold sliced meat for luncheon.

Tuna Salad

Smooth to a paste one well beaten egg, one teaspoon mustard, one tablespoon flour. Thin with one-half cup cider vinegar. Place on the stove and add one tablespoon sugar, one tablespoon butter and salt and pepper to taste, and one cup boiling water. Stir constantly until it thickens. When cold mix with a can of tuna and serve with crisp lettuce leaves. No chicken salad could be better.

PRIZE WINNERS

In the March prize contest the first prize goes to Mrs. W. M. Taylor of San Bernardino; second to "L. E. B." Others are so excellent that we wish there were more prizes to award. All others published this week and in later issues will entitle senders to three months' extension of subscription.

April Contest

Announcement of April contest will be made next week.

The chicken coop doesn't look as good as a garage in the back yard, but it's a darn sight more profitable.

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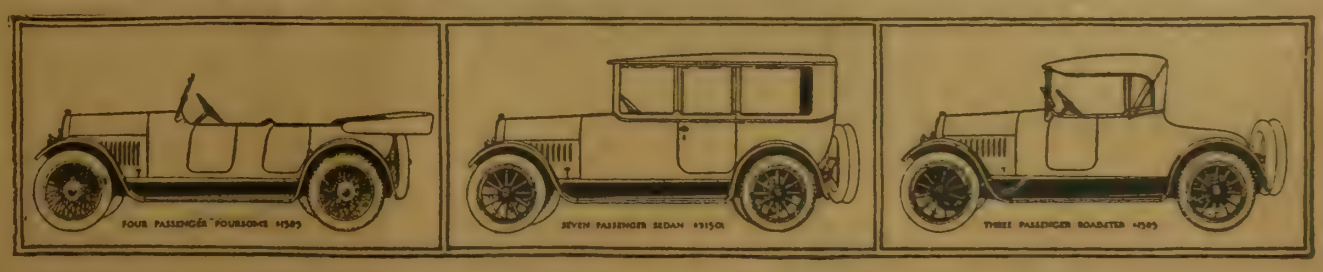

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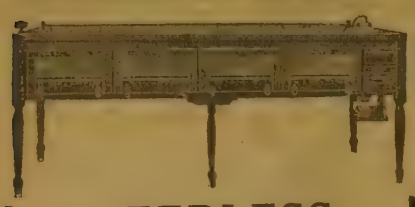

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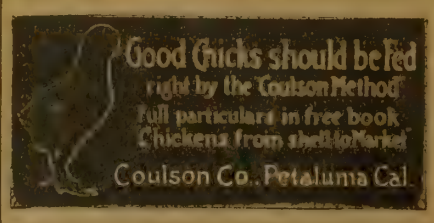
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A Living on a Back Lot

Written for California Cultivator By Jean A. Koethen

CAN a man make a living on a back lot with poultry? This question has been answered in the negative a good many times, but every now and then some man with more enterprise than others rises up and disproves all that the wiseacres have said. John Hollway of Glendale is one of these enterprising persons, and his back-yard poultry plant is an example of what common sense and indefatigable industry can accomplish.

The lot on which this plant is located is a little larger than the ordinary city lot. The entire lot, including residence, lawn and poultry yards, is 75 x 300 feet. Taking out about 50 feet for house and lawn there is left a space about 75 x 250 feet, on which Mr. Hollway keeps year in and year out between 600 and 700 adult fowls, to say nothing of the thousands of youngsters which are hatched every spring.

To provide accommodations for so many fowls in such small space requires careful planning, for every inch must be utilized. That each pen and house may be reached with the fewest possible steps and the least waste of ground in passageways, an alley is run straight through the middle of the place. This alley goes directly through the feed and incubator house, connecting with the brooder house and one large laying pen before it reaches the house and then passes at the rear each of the 20 or more breeding pens. Nests and mash hoppers are arranged along the alley so that the care of the birds may be simplified as much as possible.

Mr. Hollway gave up his business in the city seven years ago and came to Glendale to rest. Idleness soon proved irksome. Friends said, "Do try keeping a few chickens", and he tried, first for amusement, afterward, as he came to realize the possibilities of "a little place well tilled," for what there was in it. The dozen or two hens was gradually increased. To the sale of eggs was added the sale of baby chicks, of broilers and of breeding stock. Different breeds were added as there was demand for them, till now five varieties are kept: S. C. White Leghorns, White Minorcas, Rhode Island Reds, Barred Rocks and Anconas. Last year 600 baby chicks were sold and about 1000 broilers, while hundreds of orders were filled for hatching eggs. Mr. Hollway plans to raise 500 hens each year for replenishing his own stock, and in order to do this he must raise about 1000 chicks to broiler age. To make room for these new hens, 250 of the older hens are sold off each summer.

The most interesting building on any poultry plant is the brooder house. Mr. Hollway's has the south front which every well regulated brooder house must have, with windows along the floor, and is divided by full height partitions into four compartments, each large enough for 100 chicks. The brooders are of the hot water type, the water being heated by a small gas stove, and the temperature in both brooder and play room is kept so high that the chicks are perfectly comfortable wherever they are. The simple device of raising the window a few inches gives the chicks access to their sunny outside run, and after the first few days, except on chilly days, they may be seen running in and out, cooling off in the yard, then running back into the play room or, if they are chilled, to the brooder for warmth.

The first 24 hours after hatching the chicks get nothing but the dry sand which covers the floor of the brooder house. They pick at this and thus get something into their crops ready for grinding the first meal. The second morning they are given their first meal, commercial chick feed scattered over the sand. The same day a hopper of dry laying mash, the same that is fed to the hens, is set before them. Mr. Hollway has no time for concocting fancy dishes. Believing that warmth is the first need of baby chicks he gives them abundant warmth, grit, charcoal and fresh water, a daily feed of greens, dry mash and chick feed in hoppers and feeders, always accessible, a feeding of dry bread crumbs now and then for dessert, only this and nothing more. Bread and egg, cottage cheese, clabbered milk, breakfast foods, are for those who have time to coddle their chicks. They are not necessary, and these simply reared chicks, with warmth, sunshine, green feed, exercise, and always simple food at hand prove by their thrifty appearance that chickens, like children, will "eat what is set before them and be thankful" when they must.

When they are four or five weeks old the chicks are removed from the brooder and placed in the cold brooders in a yard adjoining the brooder yards. These cold brooders are simply boxes with glass fronts. Each box is divided into four compartments, holding 25 chicks. "We don't like to keep them in larger flocks", said Mrs. Hollway, "because they are so apt to pile up and kill one another." They remain in these cold brooders several weeks until they are ready to roost.

To keep so many hens in such close quarters requires absolute cleanliness. Every water fountain is rinsed every day—this is one of Mrs. Hollway's tasks — dropping-boards must be scraped and yards swept almost every day. Every minute Mr. Hollway can spare from attending to the wants of his customers and minding the incubators, every hour Mrs. Hollway can spare from housework and the care of the baby chicks, must be spent in cleaning. Lazy people would find this constant house cleaning irksome, but they enjoy it, for is not a clean, well-ordered poultry plant as much a thing of beauty in its way as a garden or a home in its way? Besides, the business gives them a good living. "We don't expect great things," said Mrs. Hollway, "but it gives the two of us a good, comfortable, living. Last year we cleared a thousand dollars. This year we shall not do quite so well because of the price of feed, but we shall hold on and do the best we can".

The presence of several cases of typhoid fever in Santa Ana has called attention to advice of physicians to drink no water from the irrigation canals unless it has been boiled.

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E. J. Reefer, the poultry expert, 426 Reefer Bldg., Kansas City, Mo., is giving away free a valuable book entitled, "White Diarrhoea and How to Cure it." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every batch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

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Keeping OUT DUST and RAIN — Keeping IN OIL

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ARNOTT & COMPANY, Inc.
112-18 So. Los Angeles St., Los Angeles

Los Angeles Market

LOS ANGELES, Mar. 28, 1917.

BUTTER

Wholesale prices:

Rcts. wk. ending March 27, 274,060 lbs.

California extra creamery 34
Prime first 32

Extr. Cr'y	Exch.	past	week.		
Mar. 21	22	23	24	26	27
'17 33	33	33	33	33	34

CHEESE

Brokers' prices:

California flats, lb. 27½
Longhorn 28
Tillamook Triplets 25

EGGS

Exchange quotations:

Rcts. wk. ending Mar. 27, 3194 cases.

Fresh extras 28½
Case count 27
Pullet 26

Fresh Ranch	Exch.	past	wk.		
Mar. 21	22	23	24	26	27
'17 28	28	28	28	25½	28½

POULTRY

We quote from growers:

Broilers 34
Fryers 34
Hens .....21@22
Roasters 25
Geese, Young 22
Ducklings, lb. 22
Roosters, old 13
Turkeys .....24@30

POTATOES

Wholesale selling price:

Northern 4.25
Local 4.00
Oregon Burbanks 4.00
Idaho Russets 4.25
Sweet, lb. 7½
New, lb. .....8@10
Seed: Early Rose, cwt. 4.75
White Rose 4.00

ONIONS

Wholesale selling price:

White 10
Brown, lb. 9½
Onion Sets, Brown 20
Garlic, lb. 8

VEGETABLES

Wholesale prices:

Artichokes, doz. .....85@1.15
Asparagus, lb. .....15@20
Brussels Sprouts, lb. 13
Beets, doz. bunches 60
Cabbage, lb. 4½
Red, lb. 5
Carrots, doz. 50
Chicory, doz. .....40@50
Cauliflower, doz. 1.25
Celery, cr. 9.00
Cucumbers, Hothouse, doz. .....60@2.50
Horseradish, rt. lb. 15
Lettuce, doz. 35
Leeks, doz. .....40@50
Mint 40
Onions, green, doz. 20
Oyster Plant, doz. 40
Peas, lb. .....8@10
Peppers, Chile, 15; Bell 55
Parsnips, lug 50
Radishes, doz. 25
Rhubarb—Crimson Winter .....1.35@1.50
Strawberry .....2.15@2.40
Romaine, doz. 50
Spinach, doz. 25
Turnips, doz. 50
Tomatoes, cr. .....2.15@2.25

FRUITS

Wholesale prices:

Apples—
Bellflower 1.50
W. W. Permain .....1.75@2.00
Newtown Pippin, Yellow .....1.60@2.00
Avocados, doz. .....5.00@10.00
Bananas, lb. .....4¾@5
Pineapples, lb. 12
Pears—Winter Nelis, lug 2.00
Pomegranates, ½ bx. 1.35
Strawberries, basket .....15@20

CITRUS

Navels .....2.25@2.75
Lemons .....1.75@2.75
Juice 1.25
Grapefruit .....3.00@3.50
Limes, basket 85
Tangerines, lug 1.25

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J.B.WAGNER

Rhubarb-Berry & Cactus Specialist
PASADENA, CALIFORNIA

NUTS

Prices named by Cal. Walnut Growers' Assoc.

	1914	1915	1916
No. 1	16.50	13.50	15.50
No. 2	12.00	10.50	12.50
Pkgs., 16 oz. Net	.....	.....	16.50
Budded	20.00	17.00	19.00
Jumbos	18.50	16.50	17.50

HAY

We quote ton f.o.b. L. A. to producers:

Barley .....16.00@20.00
Oat, tame .....18.00@21.00
Alfalfa, local .....19.00@.22.00
Northern .....17.00@19.50
Stock .....13.00@16.00
Straw .....10.00@12.00

GRAIN

Wholesale selling price f.o.b. L. A.

Wheat—No. 1 .....3.50@3.55
Corn—No. 2 yellow, 3.00; white 3.10
Oats—California feed 2.80
White 2.55
Texas Red 2.90
Cal. Seed Oats 2.60
Barley—Recleaned 2.60
Milo 2.95
Egyptian Corn 2.95
Rye 3.25

FEED STUFF

Wholesale, cwt. f.o.b. L. A.

Alfalfa Meal 1.45
Bran, heavy 2.05
Shorts and Middlings 2.60
Alfalfa Molasses 1.50
Meat Scraps 3.60
Beet Pulp 1.60
Cracked Corn 3.05
Cracked Wheat 3.75
Cotton Seed Meal 2.30
Bone Meal 2.45
Feed Meal 3.10
Green Bone 2.25
Middlings 2.50
Oil Cake Meal 2.40
Fish Meal .....3.60@3.70
Rolled Oats 2.55
Hulled Barley 2.95
Hulled Oats 2.60
Scratch Feed, grit, in 10-sk. lots 3.05; 5-sk., 3.20; 1-sk. 3.25
Scratch Feed, 3.35, 3.40 and 3.45
Oil Cake Meal 2.40
Pigeon Feed 3.70
Chick Feed 3.80
Blood Meal 4.20
Cocoa Meal 1.95

San Francisco Markets

SAN FRANCISCO, March 27, 1917.

BUTTER

Dairy Exchange quotations, lb.:

Rcts. wk. ending March 26, 507,000 lbs.

Fresh extras 35½
Prime firsts 35

Extr. Cr'y.	Prod.	Exch.	past	wk.	
Mar. 20	21	22	23	24	26
'17 35	36	36½	36	35½	35½
'16 28	28	28½	28½	28½	..

CHEESE

Dairy Exchange quotations:

Cal. Flats....20@21½ Y. Am....22½@24
Ore. Triplets..23½@24 Y. Am.....24

EGGS

Rcts. wk. ending March 26, 21,960 cs.

Dairy Exchange quotations:

Fresh extras 27
Firsts 26
Select Pullets 25½
Firsts 25

Fresh	Extr.	Prod.	Exch.	past	wk.
Mar. 20	21	22	23	24	26
'17 .....26½	27	27	27	27	27
'16 21	21	21½	21½	21½	..

POULTRY

We quote from producers, lb.

Hens, large .....23@25
Fryers, lb. .....30@35
Broilers .....35@40
Roosters, old..15@16; young .....28@30
Squabs, doz. .....3.00@4.00
Ducks .....21@23
Geese .....19@20
Turkeys, live .....22@24
Belgian Hares, live 13@14; dr.....17@18

LIVE STOCK

Prices gross weight:

Cattle:

Steers, lb., 8@9¾, cows and heifers, 5¾@8¼; calves, 6½@9.

4½@8; calves, 6½@9.

Sheep:

Wethers, 11@11½; shorn, 1½@2c less; ewes, 9½@10; lamb, lb., 12½@13.

Hogs:

Hard grain fed, wt. 100 to 150 lbs., 12¼@12½; 150 to 300 lbs., 13¾@14; 300 to 400 lbs., 13¼@13½, undesirable, 8.

POTATOES

Wholesale selling prices at wharf:

Delta .....3.65@3.75
Oregon Burbanks .....3.65@3.75
Yakima Gems .....3.75@4.00
Sweet, Cellar 5.00

ONIONS

Wholesale selling price on wharf:

Onions, cwt. .....7.00@8.00
Garlic, lb. .....1@3

VEGETABLES

Wholesale selling price:

Asparagus, lb. .....7@12½
Artichokes, doz., large70-75; small, 35-50
Celery, cr. .....1.00@2.00
Cucumbers, bx. hothouse.....1.50@2.50
Lettuce, cr. .....1.50@2.00
Mushrooms, lb. .....12@15
Peas .....6@8
Rhubarb, box .....1.00@1.50
Squash—Hub., lb. .....2½@3½

FRESH FRUIT

Wholesale selling price:

Apples—Newtown Pippins.....1.00@1.50
Bananas, bunch .....1.50@2.50
Pineapples, doz. .....2.25@2.50
Strawberries, cr. .....2.25@3.75

CITRUS FRUIT

Wholesale selling price:

Lemonettes .....1.25@2.25
Lemons .....1.75@3.50
Lemons .....1.50@3.50
Grapefruit .....2.00@3.00
Navels .....1.50@2.90
Tangerines, half orange box.....1.75@2.00

NUTS

Jobbers' Prices:

Almonds.—Exchange opening prices: Nonpareil, 19c; Ne Plus Ultra, 17c; IXL, 17½c; Drake, 16c.

Peanuts .....5½@6½

BEANS

Jobbers' prices, cwt. recleaned:

Limas .....12.25@12.50
Bayous .....8.25@8.50
Garbanzos .....4.25@4.50
Small White .....11.75@12.00
Mexican Red .....8.00@8.25
Large White .....11.75@12.00
Pinks .....8.75@9.00
Horse Beans .....5.50@6.00
Black Eyes .....7.00@7.20
Red Kidneys .....11.75@12.00
Cranberry California .....9.50@10.00

HONEY

Jobbers' prices:

Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. .....11@12
Ex. Fy. lb.....9c; Lt. A.....6@8
Beeswax .....20@32

HOPS

Prices to growers at shipping points:

Sacramento .....7@8½
Sonoma .....7½@8½
Mendocino .....7@9
Oregon and Wash., lb. .....6½@8½

RICE

Cal. Rough, cwt. .....1.90@2.00

HAY

Under date of March 24, Scott, Magner & Miller say:

Arrivals week ending today 1683 tons. Stocks in city light. Market strong and steadily advancing. Present stocks in California not sufficient to carry until new crop. Continuous movement of hay into cattle sections to maintain stock where feed is short. Impossible to furnish various grades of hay owing to limited stocks. Demand for export active. All offerings good quality alfalfa readily sold.

We quote the average wholesale price of hay in carload lots on today's market as follows, viz:

Wheat, Fy., lt. bales .....27.00@28.00
Wheat or Wh. and Oat, No. 1.25.00@26.00
Wheat, or Wh. and Oat, No. 2.22.50@24.00
Oats, Choice Tame .....25.00@26.00
Other Tame .....23.00@24.00
Wild .....19.00@24.00
Barley .....22.50@25.00
Alfalfa .....20.00@23.50
Stock .....15.00@16.00
No. 1 Barley Straw .....90@1.10

GRAIN

Grain Exchange prices, ctl.

Wheat, California Club.....2.85@2.95
Wheat, No. Bluestem .....3.15@3.17½
Corn, Eastern Yellow, cwt.....2.36@2.38
Corn, Egyptian White .....2.20@2.35
Oats, White Feed .....2.15@2.17½
Barley, feed .....2.25@2.27½
Shipping .....2.32½@2.37½
Rye, cwt. .....2.65@2.75

FEEDSTUFFS

Wholesale prices per ton:

Bran .....33.50@34.50
Cornmeal feed .....55.00@56.00
Cracked Corn .....55.00@56.00
Middlings .....43.50@46.50
Alfalfa Meal, carlots.....25.50@26.50
Shorts .....36.50@37.50

SEEDS

Prices in round lots, lb.:

Millet, recleaned .....3¼@4
Alfalfa .....20@21
Flax .....5@6

Citrus Fruit Market

LOS ANGELES, March 28, 1917.

Shipments heavy, good prices and firm condition prevailing in all markets. Lemons selling satisfactorily.

Shipments

Shipments of oranges from Southern California to date since November 1, 1916, 14,141 cars, lemons 2532, total 16,673; to same date last year, oranges 11,405, lemons 2214, total 13,615. From Central California to date this season, oranges 4049, lemons 163, total 4212; to same date last season, oranges 4199, lemons 143, total 4342. From Northern California this season, oranges 843; last season 619 cars oranges, 1 car lemons.

FROM THE AUCTION

March 21

New York: 31 Nav., 3 mixed, 2 lemons. Higher. Nav., $2.60@3.85 (nearly all sales running above $3.00); lemons, $3.90@4.15.

March 23

New York: 5 Nav., 1 lem. Nav., $3.15@3.80; lem., $4.55.

March 26

New York: 61 cars Nav., 1 blood. Prices slightly lower. Nav., $2.40@4.15; tang., $3.50; bloods, $1.70@1.80; lemons above $4.00, some sales around $5.00.

Boston: 33 cars sold. Nav., $2.45@3.45; lem., $3.25@3.65.

March 27

Boston: 23 cars. Nav., $1.65@3.75; lem., $3.25@3.80.

WEATHER CONDITIONS

For the Week Ending March 24, 1917

	Wk.	Season	Norm.	Temp. Max.	Min
Eureka	.94	25.66	37.12	54	38
Red Bluff	.00	15.67	20.53	83	36
Sacramento	.00	12.19	14.30	75	40
San Francisco	.00	15.28	18.94	66	44
San Jose	.00	12.05	14.09	68	34
Fresno	.00	6.82	7.94	68	34
San Luis Obispo	.00	22.46	17.23	73	40
Los Angeles	.00	14.59	13.39	76	46
San Diego	.06	8.74	8.54	70	54

NORWALK TIRES

The scientific construction of the Norwalk tread makes possible the amazing, non-skid efficiency for which Norwalks are famous. A remarkable feature of this tread is that it covers over 80 per cent of the casing's wearing surface—thus giving thousands of miles of extra service.

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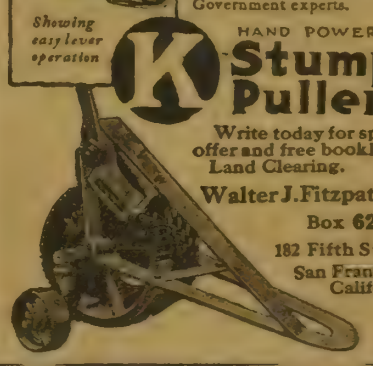

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THE FARQUHAR VIBRATOR SEPARATOR

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Ranging in Price from $210 to $1,000
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Saved this Orchard

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GIANT FARM POWDERS
STUMPING — AGRICULTURAL

you can insure better drainage, save fertilizer, and keep your trees in heavy bearing. By planting in blasted holes you can make your new trees grow faster, bear earlier, and yield better, bigger crops.

Using just *any* dynamite for soil blasting is like taking medicine in the dark. Get Eureka Stumping Powder, one of the Giant Farm Powders. It has a slow, disruptive, heaving, far-reaching effect, entirely different from the quick, shattering, cutting, localized action of most powders and dynamites. Its use in your soil will prove profitable, because it does the work right.

Five Books FREE

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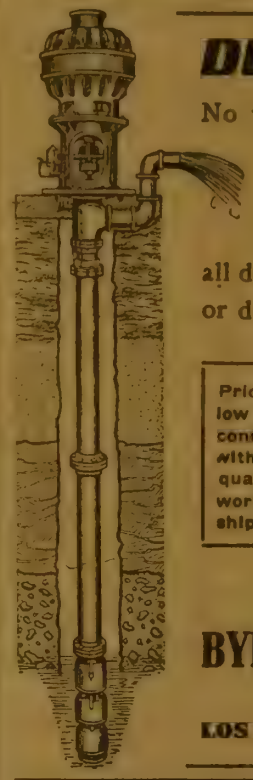

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A complete line of irrigating pumps of all descriptions, horizontal and vertical for belt drive or direct connection to electric motor.

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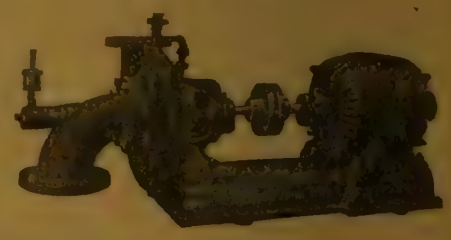

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STANDARD OIL COMPANY (California)

MICA AXLE GREASE

CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES April 7, 1917 SAN FRANCISCO

Spring Irrigation in Tulare County Vineyard

Oakland Sensible Six

The Practical Car for You

Up any hills—over any roads—the *Oakland Sensible Six*—$875—will take you with ease, comfort and economy.

It's a big car, though it weighs but 2150 pounds, and its long, semi-elliptic springs—51 inches in rear—over-size tires, (32x4), long wheelbase, (112 inches), all give the *Sensible Six* that easy riding quality which wins the enthusiastic praise of owners everywhere.

The valve-in-head motor develops 41 h. p. at 2500 r. p. m.—one horse power for every 53 pounds of car weight. On the hills or in bad going the *Sensible Six* has more actual power and more proportionate power than any other car of its weight.

This power with light weight means fuel and tire economy. Average drivers get from 18 to 25 miles per gallon, and from 8,000 to 12,000 miles per set of tires.

Oakland Eight—$1585—is built for those who need a big, luxurious 7-passenger eight cylinder car of maximum pull and speed.

Our new book "How to Buy your Car Intelligently" will prove helpful to you no matter what car you buy. Write for it to-day—it's free. (54)

OAKLAND MOTOR COMPANY, Pontiac, Mich.

"Sturdy as the Oak"

California Cultivator

Vol. XLVIII No. 14 LOS ANGELES: April 7, 1917 One Dollar Yearly

Deciduous Fruit Prospects

More Reports from all Sections of the State. Some Sections, Because of Frost, Indicate Lower Production Than Estimated Last Week. As a Whole, More Hopeful Outlook Because of Vigorous Second Bloom. More Definite Information Shortly

IT is wonderful the amount of bloom which the apricot is persisting in showing this year. After one crop has been injured so that it drops the fruit buds continue to come and even yet there is much bloom coming in many sections. But as to apricots, there have been many discouraging reports. However, let us not be too discouraged, and it is possible we may yet get one-half or three-fourths of a crop. In any case futures are up. Offers have been made around 12½ cents, and some have even maintained that a 15-cent price on dry 'cots is possible. Prunes are hanging around six cents, peaches seven, or better. Demand will plainly be great. Let every grower be true to the organizations which are working to the end that all that is possible shall be secured for the grower. There should be no effort at combining and holding up prices beyond reason. In fact, that is impossible with farmers constituted as they are, but every grower should keep control of his own fruit through his own association rather than permit it to get into hands which will use it to batter down prices later in the season.

Continuing the reports of last week:

J. B. Neff, Anaheim, Orange County

The very small acreage of deciduous fruits in this locality neither swells nor diminishes totals. There is no frost damage noticeable here.

I have just returned from Santa Barbara and made some injury in Ventura County as to crop prospects. There has been considerable frost damage in places while others only a mile or two away have escaped. The general opinion seems to be that only about 30 per cent of a normal (apricot) crop will be gathered. A few orchards on the Castaic which had never suffered from frost are a total loss.

Early blooming varieties of peaches have had some damage but not so great as the apricots.

H. M. Armitage, Horticultural Commissioner, San Diego County

As to condition of deciduous crops in San Diego County, I have the following to offer: Apricots, 10 per cent; almonds, 90 per cent; cherries, 100 per cent; peaches, 100 per cent; prunes, 100 per cent.

Aside from peaches none of these crops are of commercial importance except as they relate to the local market. There is strong promise, however, that before many years San Diego County will be a strong competitor in other of these fruits.

The apricots were severely hit by the frost, as were also a few of the almonds. Otherwise the season has been very favorable for heavy deciduous fruit crops.

Wm. Gould, Horticultural Commissioner, Yolo County

I can report at the present time that there is a good prospect for a 50 to 75 per cent crop of almonds in Yolo County. Apricots will go about 60 per cent of a full crop. Too early to say as to cherries. Peaches look like a 100 per cent crop now. Most too early to say as to prunes, but if the blossoms count for much there will be a 100 per cent crop. The rain did some damage to the almonds and apricots.

There was a large planting of prunes and seedless grapes in this County this year.

Harry M. Foss, Horticultural Commissioner, Modoc County

Too early for any information as we still have winter weather here.

Dudley Moulton, Horticultural Commissioner, San Francisco County

As you know this county is not a producing but a marketing county. We have only about 2000 acres given over to truck gardening, with no orchards at all. I do think we will play an important part if the new standardization bill passes. My action in placing frozen oranges under quarantine when they arrived in San Francisco, and of sending many to the crematory to prove that we meant what we said when we advised growers not to send frozen oranges into San Francisco, had a direct and positive influence in helping growers to take more care in grading their fruits. We expect to see that the standardization of fruits is maintained here if this new bill goes into effect.

A. Everett, Moorpark, Ventura County

The apricot crop in this vicinity will be above the average. I would estimate it at 110 per cent average.

The frosts of about three weeks ago killed most of the early settings, but other bloom came on most of the trees, which is setting well.

Peaches, prunes and other deciduous fruits are not raised here in commercial quantities. The few trees growing here promise good crops. The early growth on walnuts was nipped by the frost and will likely cut the yield considerably as the blossoms come largely from this growth.

C. G. Marchus, San Pasqual, San Diego County

Apricots were badly frosted March 16. Can not tell how much of a crop is left. A neighbor reports total loss in young orchard. Local paper reports almost total loss from freezes of March 16. It goes without saying that our prospects in this valley for a fine crop of cots is much less since March 16th.

D. C. Funk, Upland, San Bernardino County

It looks now as if we would have a big crop of both apricots and peaches.

Wm. B. Jackson, Ontario, San Bernardino County

There will be a full crop of 'cots and peaches if there is no late frost or any bad weather conditions. Trees are full of bloom.

A. L. Rutherford, Horticultural Commissioner, Stanislaus County

Apricots, half crop, killed by frost the 15th; almonds, full crop; cherries, full crop, just blooming; peaches and prunes, full crop.

Leonard Coates Nursery Co., Morgan Hill, Santa Clara County

Apricots, one-fourth crop; almonds, half crop; cherries, peaches and prunes look good.

Continued on Page 403

State Dairy Cow Competition

The University Announces Results from Which We Quote as to Cows Which Produced Over 40 Pounds of Butter Fat During the Month of January

IN the following report the name of the owner is given first, then a list of the cows with the performance. The abbreviations Gr., Ay., G., H., J. stand for grade, Ayrshire, Guernsey, Holstein and Jersey.

The first figures after the name of the cow indicate age (or where age is not given it is indicated by dash). For instance "Riverside Beauty 2d, H. 7-8" means that animal is a Holstein aged 7 years and 8 months. The next figure (55) indicates number of days in milk at beginning of the month, the next number (1806.1) production of milk in pounds for the month, and the last two numbers, percentage of fat (3.52) and pounds of fat (63.575) for the month.

Abbott, K. W.: Riverside Beauty 2d, H., 7-8, 55, 1806.1, 3.52, 63.575; Charlotte, Gr. H., —, 23, 1510.9, 3.33, 50.313; Melba, Gr. H., —, 58, 1304.0, 3.83, 49.943; Rilla, Gr. H., —, 110, 1494.7, 3.25, 48.578; Pet, Gr. H., —, 38, 1359.0, 3.52, 47.837; Ella, Gr. H., —, 105, 1194.2, 3.81, 45.499; Della, Gr. H., —, 8, 1368.3, 3.29, 45.017; Gretchen, Gr. H., —, 9, 1227.0, 3.60, 44.172; Illa, Gr. H., 3-11, 21, 1022.0, 4.27, 43.639; Emeline, Gr. H., 4-4, 85, 1303.7, 3.25, 42.370; Rose, Gr. H., —, 112, 1031.9, 4.00, 41.276.

Beebe, Floyd; Rosie, Gr. H., 11, 95, 1237.6, 4.1, 50.736; Brownie, Gr. H., 3-2, 61, 1195.6, 3.8, 45.444; Olga Petrova, Gr. H., 3, 35, 1142.4, 3.9, 44.548.

Bohnett Bros.: Murne, Gr. G., 5, 49, 1122.9, 5.63, 63.219; Flossy, Gr. J., 9, 23, 1181.9, 4.53, 53.540; Spot, Gr. J.-H., 5, 87, 989.1, 5.25, 51.928; Reddie, Gr. S., 7, 38, 1189.8, 4.10, 48.782; Fayne, Gr. J.-H., 6, 54, 1146.9, 3.97, 45.532; Dorris, Gr. H., 7, 151, 1045.3, 4.33, 45.261.

Bomberger, J. M.: Rose, Gr. J., 8, 78, 1041.8, 4.4, 45.830; Pedralida, J., 15-3, 78, 739.4, 5.8, 42.885; Edith, Gr. J., 5, 99, 954.2, 4.3, 41.031.

Christen, J. M.: Snail De Kol, Gr. H., 4, 20, 927.5, 4.57, 42.387.

Cornwell, H. E.: Abbie De Kol of East Bank 2d, H., 5-3, 76, 1933.5, 3.83 74.053; Lady Holland Crane Kakenstein, H., 6-9, 6, 2048.0, 3.46, 70.861; Hermana Mechthilde Ciruela 3d., H., 7-2, 12, 1912.5, 3.16, 60.435; Ciruela Maid, H., 5-1, 6, 1706.4, 3.10, 52.898; Holland Aaggie Belle Colantha, H., 7-9, 6, 1872.2, 2.77, 51.860; Hermana Ceres Ciruela (twin), H. 3-4, 5, 1565.6, 3.12, 48.847.

Elliot-Brant Rancho: Butternut Queen, G., 8-1, 64, 1249.6, 4.98, 62.230; Little Beauty 2d, G., 5-1, 23, 1121.5, 5.24, 58.767.

Gross, Dr. H. G.: Cynthia of Butter Valley, J., 8-6, 16, 1143.5, 4.54, 51.892; Marion of Butter Valley, J., 4-10, 74, 808.6, 5.85, 47.268; Undulators Gussie Loe, J., 3-11, 52, 759.0, 5.41, 41.062.

Guill, J. H., Jr.: Piebe Laura Inka D. K., H. 11-3, 16, 1362.2, 4.25, 57.894; †Alice, Gr. H., 7, 5, 1018.0, 4.0, 40.720; ‡Midget, Gr. H., 8, 5, 998.0, 4.95, 40.419; Kate, Gr. H., 4, 58, 1352.4, 3.3, 44.629; Bessie, Gr. H., 5, 5, 1255.8, 3.2, 40.186.

Guise, N. J.: Guise Beauty, Gr. J., 5, 9, 966.0, 5.28, 51.005.

Henderson, Dr. J. W.: Clementine Mabel, G., 11-11, 10, 1280.8, 4.56, 58.404; Kitchener's Clementine of Bella Vista, G., 2-1, 83, 1062.9, 3.82, 40.602.

Hewins, Homer Jr.: Silver Gloss Poplar 2d, H., 7, 35, 1324.5, 3.68, 48.742; Pauline of Bloom, H., 6-7, 90, 1113.6, 3.95, 43.987.

Higdon, W. J.: Paula Segis, H., 6-2, 67, 2091.7, 3.43, 71.402; Leda Hartog Ormsby 2d, H., 4-1, 33, 2036.5, 3.49, 71.074; Imp. Amy of Ore Hill, H., 4-2, 6, 1133.7, 4.98, 56.458; Imp. Acadia of Linwood, H., 4-2, 6, 819.9, 5.14, 42.143.

Hollow Hill Farm: Imp. Brittleware Mistletoe, G., 4-9, 67, 1352.1, 5.19, 70.174; Imp. Cherry 3d of the Effords, G., 4-7, 107, 1132.3, 4.82, 54.577; No. 482, Gr. G., 4-9, 42, 1044.6, 5.13, 53.588; No. 459, Gr. G., 6, 9, 1053.5, 5.08,

Continued on Page 417

COW TESTING ASSOCIATIONS

SOME rmarkable lessons are being taught by the state dairy cow competition, report of which for February is given on this page. Even more remarkable are the lessons being shown to members of cow testing associations. There are today more in the state than ever before and they are being formed every day. Hundreds of worthless cows have gone to the block and more should. To encourage this movement the California Cultivator offers three prizes of $100 each to members of cow testing associations whose herds show the highest average during the entire 12 months of the competition. Several entries have already been made. More may be made between now and May 1, at which time the entries positively close. Join now.

Write Prof. F. W. Woll, University Farm, Davis, for entry blanks.

The OILPULL burns the fuel that is cheapest for you to get

"It is remarkable," said a prominent OilPull owner the other day, "how flexible the Rumely tractor is on the fuel proposition."

This man uses "stove tops" in his OilPull—it's easy to get and the cheapest fuel oil he can buy.

The point we emphasize is that the same ***high degree of efficiency*** is possible whether it is cheaper for you to buy low test stove oil, distillate or kerosene, and our ***written guarantee*** holds good on whatever of these fuels you use.

Other OilPull advantages that Coast owners appreciate are strong, sturdy construction, and protection to all parts, which mean ***low cost of upkeep.*** The air intake extends high up out of the dust.

Oil cooling does away with need of hauling water and prevents the radiator from freezing. A pre-heater and self-starter are recent added features of importance to the prospective tractor owner.

As a threshing engine the OilPull is unequalled, because of its close regulation. The power the OilPull furnishes is smooth and steady regardless of the load—the speed of the engine is ***automatically*** and ***instantaneously*** adjusted to meet every change in the load.

For all around work, draw-bar or belt, money can buy no better value than the OilPull. Two sizes—15-30 and 30-60 horsepower.

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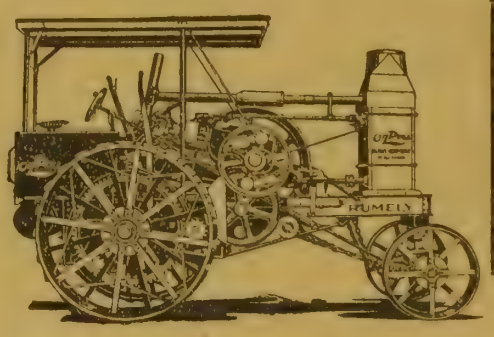

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There's Only One OilPull—Rumely, LaPorte

Salt Method of Curing Olives

Written for California Cultivator By George C. Roeding

RELATIVE to the salt method of curing olives, it is not necessary to know just how much salt is used, because all that must be done is to take a barrel, bore a hole about an inch in diameter and close to the bottom, have the other end open, then place a layer of salt a couple of inches thick, then a layer of olives three inches, alternating the salt and olives until the barrel is about three quarters to seven-eighths full. Every two or three days pour from two to three gallons of water over the olives and allow it to run out through the bottom rather slowly. Within a month the olives will begin to shrivel. After this period the olives on the top should be placed on the bottom and the salt more or less intermingled through them and pour water over them about every five days. It is very easy to determine when the olives are cured because practically all of the bitterness will be extracted from them. After the bitterness is practically out of the olives, their flavor may be very materially improved by pouring a little olive oil into a vessel of any kind and filling it full of olives. The surface of the fruit will become covered with a thin film of oil. If it is desired to keep the olives for a year or more, a small sprinkling of salt on them is all that is necessary.

During my travels in Asia Minor and in Greece I noticed a number of these olives in barrels. The barrel was usually tilted and there was a small quantity of brine in it. The olives were usually above the brine. How often they changed the brine or whether it was changed at all I am not in a position to say. I thought I had some definite notes on this subject but fail to find them. However, as soon as the war is over with I can get full particulars from my friends there without any trouble.

The olives treated in this way are those which the peasant class use so much when taking their noonday meals in the field.

Marketing Culls

Touching upon marketing methods and the duties of the county horticultural commissioner, Commissioner Dudley Moulton of San Francisco County, in an address given before the last State Fruit Growers' Convention, refers to methods of some orange handlers as follows:

"In one instance I found three men associated together who were bringing cull oranges and lemons from Southern California. One of their number remained in the South and bought his fruit while the others opened a store in San Francisco, graded, wrapped, and packed their oranges and lemons, and sold them to a cheap trade, mostly street peddlers. They bought culls only, which were infested for the most part with red and purple scales. They had in some way procured a lot of "Sunkist" wrappers from some exchange packing house in the South and had gathered together many used "Sunkist" boxes, and they were putting up a "Sunkist" brand out of their larger sizes of culls. I notified these traders that future shipments which were infested with scale insects would be returned to whereever they came from. As they themselves were the buyers and shippers their business stopped at once. I called the use of the "Sunkist" wrappers to the attention of Mr. King, who represents the exchange in San Francisco, and he stopped their use. Now after a lapse of several months I again find these men bringing in more cull oranges and lemons and I feel that it will be necessary to take more drastic action to stop this kind of business. The better class of merchants do not want cull fruits offered for sale in the market."

Keeping Out the Pests

Frederick Maskew, chief quarantine officer, has submitted his report for the month of February to Commissioner Hecke. The report covers imports received at San Diego, Los Angeles, San Francisco, and Eureka stations and possesses matter of vital interest. Inspection is made of ships, passengers' luggage and every service which might act as a carrier.

Ninety-six per cent of the horticultural imports were passed as free from pests; three per cent was accepted after proper fumigation and less than one per cent destroyed. These consignments caused the inspection of 119 ships during the month and the number of parcels inspected was 263,667.

The above figures will convey an idea of the magnitude of the work involved in the protection of the interests of the fruit industry of California and something of the multiplicity of duties assumed by the commissioner of horticulture.

China, Japan, Hawaii, San Domingo, Tahiti, Mexico and other points are numbered in the foreign countries to import. Florida, Illinois, Ohio, Oregon, Texas, Washington and Pennsylvania are numbered among the tates.

Among the fruits intercepted because of pests were sweet potatoes from China, pineapples from Hawaii, oranges and bamboos from Japan.

P. S. C.

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Rosin Spray

is not a liquid

P. S. C. Rosin Spray contains Rosin, Fish Oil and Caustic. Easily dissolved—no boiling required. Will kill all varieties of scale on fruit trees. Nothing better known for Mealy Bug, Woolly Aphis, Black Peach Aphis and plant lice. One pound will make 2½ gallons of spray, full strength as specified by the Horticultural Commission of Los Angeles County.

Put up in following sizes:

1-lb. tin 25c, 2-lb. tin 40c, 4-lb. tin 75c. 40-lb. tin $4.00.

Prices in bulk on application.

Nurserymen save time and money by using P. S. C. Rosin Spray for dipping nursery stock. For sale at the best seed stores and nurseries. If your dealer cannot supply you we will ship direct on receipt of price.

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Guatemala Avocado Nursery

E. E. KNIGHT, Yorba Linda, California

Bulletin No. 77, U. S. Dept. Agriculture

"The avocados of Guatemala form a distinct group * * and from a commercial standpoint, the most promising for introduction into our tropical possessions. The Thick-skinned round and Thick-skinned oval are probably the most promising owing to the thick skin, good keeping qualities and fine flavor."

Write for booklet or call.

E. E. Knight

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ranges and lemons from Tahiti, weet potatoes from Mexico, potatoes nd apples from Washington and ther products from other states.

The report is interesting and carries ith it a very good knowledge of im-ort conditions of the country, so far s these conditions apply to the fruit ndustry and the growers.

CITRUS FRUIT IMPROVEMENT

A. D. Shamel of Riverside is the uthor of "Citrus Fruit Improvement, low to Secure and Use Tree Perform-nce Records," Farmers Bulletin 794, . S. D. A. It is the latest in fruit nprovement. From the summary we uote:

"Many California citrus growers eported in recent years that they ere securing lower yields of fruit per cre than in the earlier history of eir industry. Complaint also has een made that an increasing propor-ion of the fruit of the leading com-ercial varieties of oranges and mons was abnormal or 'off type' in ze, form, color, smoothness of skin, r other important characteristics.

"Systematic and continued investi-ation of this subject in the groves California since 1909 has disclosed at a considerable proportion of the eterioration observed is traceable unintentional propagation of unde-irable strains of the leading varieties sulting from bud variation.

"The results obtained in bud-selec-on experiments carried on during the ast five years indicate that by top-orking with buds from those having onsistently good records for produc-veness and quality the inferior or drone" trees of such varieties as Washington Navel and Valencia ranges can be made productive and rofitable.

This bulletin describes the meth-ds that have been found effective nd practicable in locating the desir-ble and undesirable trees in groves nd for transforming the latter when ound."

CITRUS CANKER

We do not want citrus canker in California, and this for financial rea-ons, as is shown by the following tatement by Commissioner Hecke in he last number of The Monthly Bul-etin.

"Cost of Controlling Citrus Canker—Upon an inquiry by the state commis-ioner of horticulture directed to the hief of the bureau of plant industry, United States department of agricul-ure, to ascertain the cost of the at-empted control of citrus canker in Florida, Assistant Chief Kellerman vired:

"'Federal appropriation for citrus anker, 1915, $35,000; 1916, $550,000; Florida legislature, $195,000; Florida itrus interests, $100,000; estimated otal cost this year, $600,000.'

"This means that the initial cost f attempted control in 1915 was 35,000, and in 1916 a total of $845,-00, divided as follows: Federal gov-rnment, $550,000; Florida legislature, 195,000; citrus interests, $100,000. The cost for 1917 is estimated at $600,-00.

"It is not necessary to use superla-ive language to impress upon us the ecessity of maintaining the most areful watch in the citrus districts f California. For fear that in spite f our strict quarantine order, en-orced by diligent inspection, some in-ested fruit or plant might slip hrough the quarantine in the bag-gage of transcontinental travelers and start citrus canker in California, sus-picious infestations of a bacterial nature should be immediately reported to the state commissioner of horti-culture."

Thompson Seedless Grapes

Written for California Cultivator

FOR the growing of Thompson Seedless grapes a rich deep soil is necessary in order to get the best results. Soils which are shallow or those underlaid by hardpan are not to be recommended. A rich loamy soil is likely to give the best resuts. Before planting the grape vines the soil should be well prepared, that is to say, it should be plowed deeply, if possible at least 15 inches or more, and noxious weeds, such as morning glory, Johnson grass, etc., should be eradicated before the grape vines are planted. This can be done by continuous summer cultivation, cultivating at least once in ten days and thus keeping the weeds from reaching the surface of the ground.

Before planting the vineyard should be laid out with the greatest care. If it is a heavy rich soil the vines should be planted farther apart than in a sandy light soil, but for Thompson Seedless under ordinary conditions, the avenues or rows should be at least 12 feet apart and the grape vines in the row at least eight feet apart if not more.

In order to get the best results with this variety of grapes they should be trellised, and if it is intended to dry the grapes in the vineyard it would be best to run the rows from the east to the west in order to be able to expose the grapes on trays as much as possible to the sun, whereas if the rows run from north to south this would be more or less impossible.

The grape vines which are to be planted in the vineyard may be procured from a nurseryman or, as has very often been done, may be raised by the farmer himself. It is perhaps not advisable to plant any unrooted cuttings, for a good many cuttings when planted in the field will not make roots on account of the fact that they cannot get the best of care as they would in the nursery. On the other hand, if the cuttings are planted for one year in the nursery and rooted there, we have the chance to discard all undesirable stock and plant only the very best.

The planting should be done as

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TIZIT SPRAY

Tizit

Wonderful Results Attested by Many Prominent Citrus Fruit Growers who SPRAYED INTO BLOOM

TIZIT is a thoroughly tested tree spray made in California, a combined fungicide and insecticide designed after many years' experimenting by experts to meet the conditions that confront the Western Coast citrus fruit grower.

J. D. Enyart of Kaspare Cohn Ranch, Montebello, says "My orchard last spring was very bad with black scale, and I felt confident would not set a crop in that condition. I sprayed immediately with TIZIT. The trees were then in full bloom, with the result that the smutty mold fungus was destroyed, the trees cleaned very perceptibly and a splendid crop of fruit set. I unhesitatingly recommend spraying into the bloom with TIZIT for crop setting. Later on as the scale hatched it died and at present writing (March 8, 1917) our trees are commercially clean."

We claim for TIZIT;

—that it will eliminate the necessity of fumigation;

—that it will clean trees of moss and lichen, leaving trees and fruit perfectly clean;

—that trees sprayed with TIZIT have proven immune to red spider;

—that it is the cheapest and most efficient spray you can use;

—that as a SPRAY INTO THE BLOOM to prevent fruit dropping it has no equal.

TIZIT contains no oil to damage your trees. We want you to read the letters we have received from TIZIT users and see results we can show.

Write today for circulars, price list, and testimonials.

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APRIL is an ideal month in which to plant orange and lemon, pomelo and lime trees. The advent of warm weather as the rainy season draws to a close, renders the soil ideal for tree growth. Ideal conditions call for ideal trees, which are the only kind we have to offer, hence are anxious to serve you. Correspondence a pleasure; a telephone message a joy; and a personal interview a delight.

What are Pedigreed Trees? We want You to Reason Before You Buy Citrus Trees.

If it did not cost so much to produce our trees, we could sell them at competitive prices with other nurseries.—why, our methods of selecting our budwood alone would sell our stock. We have had over 20 years' experience in Citrus Trees, and were among the first to advocate bud selection from fruit-bearing wood. The price of the tree is the smallest item in the cost of bringing into bearing. Fertilizer, labor, investment tied up in land—these are the big factors that go to pot if, years after the trees are planted, the grove bears miscellaneous offspring.

50,000 Valencia, Navel Oranges

Eureka Lemon Trees

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Twenty years manufacturing all kinds of bean and beet tools. Write for descriptive circulars.

POTATOES

9 4-5 Bushels from One Pound of Seed

Three potatoes, planted in 56 hills in Huron Co., Ohio, yielded this amount. The seed, the planting, and the crop harvested are matters of county record. You can do as well or even better by following my instructions. It is not a matter of variety of seed, or soil, or fertilizer used, important as each of these matters is, but it is the selection and cutting of seed and treatment. It was these elements that enabled me to produce the yield of 552 lbs. of potatoes from one pound of seed. Full information as to how it was done, the seed used, the soil, the fertilizer employed, the tillage and the methods of producing this large crop will be sent for One Dollar. Send your order now and grow more potatoes from less seed. Any one who feels too poor to spend a dollar to learn how to increase the yield in raising potatoes send me your name and address. Planting time is near. Send your order today and raise more potatoes from less seed.

A. R. Gibson, Brookfield, Ill.

early as possible, that is to say, not later than the middle of March, providing the soil conditions permit of doing so. If the soil is light and sandy there is no reason why the planting should not be done in January if the weather conditions are right. On the other hand, where we have a heavy adobe soil we may have to wait until very late.

In planting the grape vines the roots should be pruned, that is to say, if they are bruised or otherwise injured they should be cut back into the healthy portion, and the soil around the roots should be made firm. All shoots are removed except one, and this one is cut back to two good buds, and in order to protect the young grape vine there is no reason why a half inch or inch of soil should not be placed on the top of the plant. In districts where we have the phylloxera it is well to plant resistant grape vines only. These grape vines can be procured of a nurseryman and should be planted with the greatest care. In planting phylloxera resistant vines we should endeavor to plant the union, that is to say, the place where the stock and scion are united, about one inch above the surface of the ground, and afterwards cover up the whole grape vine in order to protect it from drying out the first two or three months.

The California Prune and Apricot Growers

A DECISIVE forward step in the organization of the prune and apricot growers of the state was taken early in February of this year when the 24 members of the board of trustees were elected and a twenty-fifth member appointed by the state market director.

To hold this election it was necessary that at least $500,000 in stock be subscribed. Previous to the date set for the election there was needed something over $75,000 to make up the total. This amount was subscribed at a great mass meeting of growers in San Jose on January 13. Then followed the election of trustees, completed about a month later, and the election of the board of directors and officials of the organization. The executive heads of the association command the universal confidence of the growers and stand high in their respective communities.

T. S. Montgomery, president of the organization, is a well known resident of San Jose, who has proved his worth in every undertaking with which he has been connected. For 40 years Mr. Montgomery was one of the largest realty operators in the Santa Clara Valley; is now president of the Garden City Bank & Trust Company, and a fruit grower in addition.

H. G. Coykendall, chosen for general manager, has for 25 years grown and packed prunes and apricots in the Santa Clara Valley and is known as one of the biggest operators on the coast. The past season his firm handled one-fourth the prune crop of Santa Clara County and one-eighth the crop of the state. His knowledge of marketing conditions is broad, and he combines all the qualities that go into the making of the high type of executive. Mr. Coykendall was responsible for the cleaning up of the stock of the old Cured Fruit Association at 2¼ cents when the association was willing to close out at 1¾ cents and has in many ways contributed to the prosperity of the growers.

For vice president, Mr. W. A. Yerxa, of Princeton, Colusa County, was selected. Mr. Yerxa has had a very broad business experience and for many years has been a prominent grower of the Sacramento Valley. During the past two years he has planted 250 acres of prunes in addition to his other holdings.

Jos. H. Bone, secretary-treasurer of the association, is a well known figure to nearly every grower in the state. As secretary of the Growers' Information Bureau his work brought him in contact with many growers, and through the efforts of the bureau under his direction, growers in Santa Clara County saved from one half to a million dollars on last year's crop. It was largely due to his efforts that the present organization was undertaken. Mr. Bone has a 40-acre apricot and prune orchard near San Jose and is familiar with the problems that beset the grower. He has held high positions with some of the largest firms in the country and is now a member of the board of state market commissioners.

Organizing the Prune and Apricot Men

H. G. Coykendall, general manager California Prune and Apricot Growers', a busy man perfecting arrangements for handling the coming year's prune and apricot crops. The prune men have had some severe lessons in dealing with interests which were not looking after the growers' welfare. Unfortunately, the grower has also had cooperative experience not entirely satisfactory, but the growers as a rule are clear headed and see that if permanent success is to come to the prune industry they must stand together. We believe Mr. Coykendall should be encouraged and given a fair trial in this movement.

Organization Faces But One Grave Danger

While the association was incorporated February 23, 1917, with $505,000 subscribed of the total capital of $2,500,000, 75 per cent of the total prune and apricot acreage of the state and $750,000 in stock must be subscribed by May 1, 1917.

At present over 4000 growers have signed up and the acreage is well over the 60 per cent mark.

The organization is certain of completion except for the danger of too

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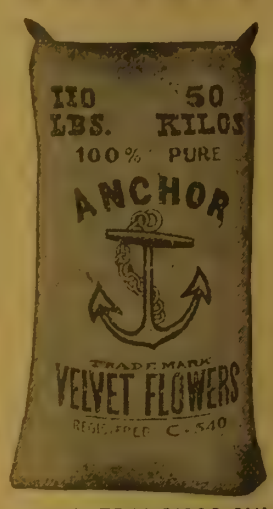

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any growers contracting their crop o outsiders at prices abnormally hign. With the crop yet unknown, such rices as are now being offered to ome growers will undoubtedly prove mpting. But growers should remem- er that with an unknown crop these rices may even go higher if they ome in and make the organization ecure. Should prices go up, as seems robable if the association is fully ompleted, growers who contract now ill lose the difference. If prices go own, much of the fruit already con- acted for may be rejected. Crop ontrol means price control, and it rowers come into the association, ndering it secure, they are certain get the highest price individually, t in scattered instances.

The directors elected are: For dis- ict 1, W. A. Yerxa, Princeton, Colu- County; district 2, H. C. Dunlap, ountville, Napa County; district 3, rank A. Brush, Santa Rosa, and G. C. lexander, Healdsburg, Sonoma Coun- ; district 4, T. S. Montgomery, San ose, H. G. Coykendall, Cupertino, J. . Hayes, San Jose, W. G. Alexander, an Jose, A. Kammerer, San Jose, athan Lester, Santa Clara, Santa lara County; district 5, D. Felsen- al, Fillmore, Ventura County; dis ict 6, C. G. Hamilton, Hemet, River- de County; district 7, J. W. Mac- lay, Visalia, Tulare County.

H. C. Dunlap is one of the best nown growers and one of the most gressive orchardists in the state. rank A. Brush is president of his ome bank, a director in many con- rns and one of the largest farmers his district. G. C. Alexander is anager of the most successful local operative dried fruit association in e state. J. O. Hayes is one of the blishers of the San Jose Mercury- erald and has large orchard inter- ts. W. G. Alexander, state market rector's appointtee, is president of e Keystone Wholesale Grocery Com- ny and a man of large affairs. A. ammerer is president of the Califor- a Farmers' Union and is a large uit grower. Nathan Lester, a well nown fruit grower of Santa Clara, s over 600 acres of orchard. J. W. acaulay has a wide acquaintance d is associated with the Mineral ing Fruit Company. He is a pro- essive fruit grower.

The trustees are: For district 1, m. J. O'Connor, Chico, Butte Coun- ; F. W. Wilson, Winters, Yolo Coun- ; district 2, Henry Wheatley and enry C. Melone, Napa, Napa County; . B. Abshire, Geyserville, Sonoma ounty; district 5, Geo. W. Glenden- ng, Cupertino, Santa Clara County, J. Stanfield, Los Gatos, Irwin E. omeroy, Santa Clara, S. E. Johnson, upertino, J. S. Williams, San Jose, . P. Van Orden, Mt. View, Jos. H. one, Linda Vista, Santa Clara Coun- ; Fred L. Barnhisel, Hollister, San enito County; Henry Hecker, Gilroy, anta Clara County; Frank T. Swett, artinez, Contra Costa County; J. C. hinn, Niles, Alameda County; Frank iFiore, San Jose, Santa Clara Coun- ; M. J. Madison, Hayward, Alameda ounty; district 5, F. E. Bagnall, Simi, . E. Mills, Santa Paula, Ventura ounty; district 6, E. O. Eggen, W. F. iesland, Hemet, Riverside County; strict 7, J. W. Arthur, Hanford, ings County; Arthur Swall, Tulare, ulare County.

Executive Committee: T. S. Mont- omery, H. G. Coykendall, Wm. G. lexander, H. C. Dunlap, A. Kam- erer.

CROP REPORTS

Continued from Page 399

alph D. Robertson, Farm Adviser, San Joaquin County

Some few weeks ago the fruit grow- s were rather worried over the num- rous frosts, but I find that most grow- rs now think that little damage has esulted, and prospects are bright for good crop.

eo. Marchbank, Horticultural Commissioner, Madera County

Apricots, 20 per cent; almonds, 100 er cent; peaches, 100 per cent; runes not out enough to tell but no amage so far.

. W. Waite, Horticultural Commissioner, Imperial County

It looks like full crop of apricots, ut too early to make any estimate.

E. Hassler, Horticultural Commissioner, El Dorado County

In regard to the coming fruit crop will say it is too early yet to make a reasonably correct estimate as our main fruit crops, plums and pears, are just getting ready to burst into bloom. Indications promise a normal crop of these fruits. Peaches have been hurt a little by last week's frost, but not enough to affect the crop, probably save some thinning.

There will be a large acreage of potatoes planted here this spring. Growers have ordered about 100 tons of commercial fertilizer for this purpose.

G. C. Kreutzer, Farm Adviser, Kern County

Apricots, not more than 15 per cent; almonds, about 25 per cent; cherries, too early to say, not many grown; peaches, 35 per cent; prunes, have not given much attention, perhaps 35 per cent.

W. H. Volck, Horticultural Commissioner, Santa Cruz County

Present indications are for a 75 per cent crop of apricots. Cherries, peaches and prunes are blooming well and look like a full crop.

It is yet too early to give an estimate of the fruit crop in this county, but everything looks well at present. The frost did no material damage to apricot, and unless late spring rains cause "rain rot" there will be a full crop in most orchards. The quality of the apricot crop may be somewhat impaired by smut, as young black scale are very abundant in most of the orchards.

Cherries are blooming well, but that is true every year. The crop depends on weather conditions from now on.

Apples have budded out well with extra strong fruit buds and promise a heavy set.

M. Sharpe, Vacaville, Solano County

Regarding fruit prospects in Vaca Valley and vicinity to date I will say that they were never better, although most varieties are in the blooming stage. Apricots are good in some orchards and light in others, but will average a fair crop. They suffered somewhat from wind and cold weather during the blooming period although they bloomed heavily.

Pears will probably be the lightest crop we have, possibly due to the enormous crop of last year.

No almonds grown to mention in Vaca Valley, but reports from near at hand indicate a light crop.

Cherries, plums, peaches and prunes are blooming 100 per cent. The weather during the blooming season of the last named varieties has been ideal.

Fred P. Roullard, Horticultural Commissioner, Fresno County

It is rather early to get any idea regarding what sort of a setting the fruit is now making. All of the blossoms are not out on some of our peach trees. Apricots and almonds have been somewhat seriously injured by frost, to what extent I am unable to say. The peaches appear to be setting well and there seems to be plenty of bloom, so unless unfavorable conditions arise in the future I see no reason why we should not get a normal crop.

Geo. A. Lamiman, Horticultural Commissioner, Shasta County

It is almost a guess as to what crops will be, but I would estimate apricots at five per cent; almonds, 50; cherries, 100; peaches, 90; prunes, 100. The weather is so "finicky" that it cannot be depended on. We do not grow either apricots or almonds in commercial quantities. Up to the present the conditions for all our other fruits are good; apples, pears, prunes, peaches, grapes, etc. We are shy on rainfall, so the moisture conditions are not what they should be. Not much orchard cultivation has been done so far. Cover crops are decidedly short. Poor weather for vegetables and garden making of all kinds.

Chas. F. Collins, Horticultural Commissioner, Tulare County

My report to you on crop conditions and prospects here on March 21 was ancient history in less than 24 hours, as it does not at all describe the conditions at present. The night of the 21st certainly did things to us here. All through what is known as the Delta section, in the vicinity of Visalia, Farmersville and Exeter, apricots, cherries and quinces were practically destroyed. Some plums seem to be injured somewhat but I do not

Continued on Page 418

A Word to the Wise

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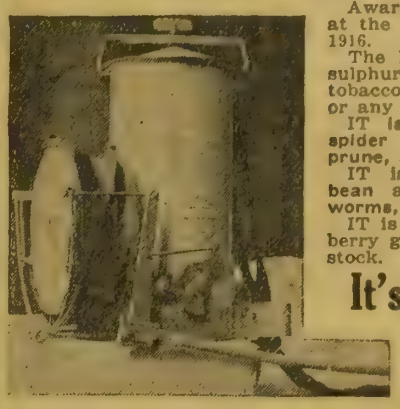

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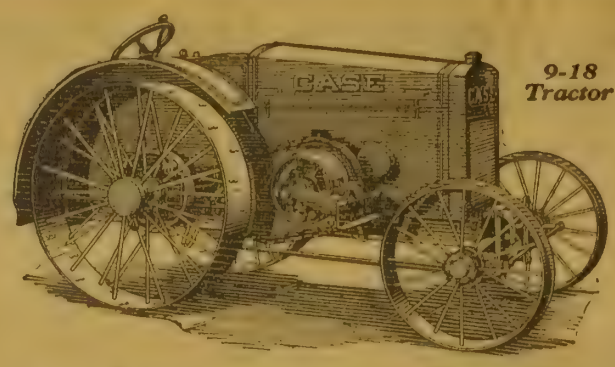

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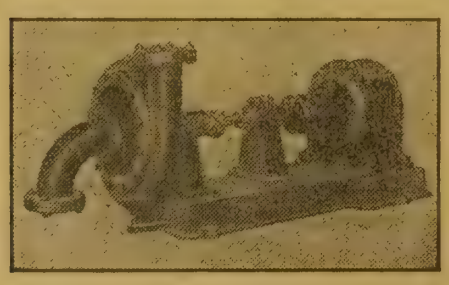

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Vegetable Planting Calendar for April

Northern California

Written for California Cultivator By A. R. Gould

THE welcome rains experienced during March have been of the greatest value and saved much work with the sprinklers. As we are not generally fortunate enough to get much rain from now on, the use of the hoe and cultivator between the crops must be the general rule, and all the time put in now in this way will result in better and more crops. Other timely advice is to keep the garden well filled with every useful vegetable. This will in a measure meet the high cost of living and save money.

Peas

You may still make a sowing of late peas, and for this purpose sow Melting Sugar variety, an edible pod which is cooked like string beans. To bring this crop to maturity keep well watered and cultivated.

Cabbage, Broccoli and Kale

If these have not yet been planted out in prepared ground do this without delay and water each plant after being set out and until well established.

Carrots

Make successional sowings of the varieties mentioned in our previous notes and see that this crop is frequently hoed or cultivated between the rows.

Turnips

Sow Early Snowball for succession and use plenty of water on this crop so that it will mature quickly. Sow thinly and thin out to at least eight or nine inches apart. A dusting of soot between the rows will prove beneficial.

Lettuce

Make successional sowings of Big Boston, May King and White Paris Cos. Do not let this crop suffer for want of water.

Radish

Sow again the varieties mentioned in our former notes.

Tomatoes

Plant out sturdy plants of Victoria Whole Salad, Trophy Earliana and San Jose Canner. They should be placed quite four feet apart each way. Water well after planting and until well established, but after this stage it is only necessary to draw the soil up around the roots to conserve the moisture. They can then take care of themselves.

Beans

This is the month to plant the bean crop on a large or small scale, and for a dry situation we recommend the Tepary variety, a small white bean which is a heavy yielder and is destined to become very popular. Other good varieties for a general situation are: Davis White Wax, Refugee or 1,000 to 1, Stringless Green Pod, Black Valentine (noted for its resistance to blight), Golden Wax. These comprise the bush types. Among the pole varieties we would recommend any of the following: Kentucky Wonder, Challenger, very early and prolific, King of the Garden, a very popular and fine main crop variety, Scarlet Runner. Sow the bush varieties one pound to 100-foot row and for a row of the pole variety the same length use eight ounces of seed. Continual cultivation between the rows is necessary to secure good crops of beans. We do not advise growing Lima beans in Northern California as they only ripen successfully in the counties of the lower part of the state.

Potatoes

Plant the varieties mentioned last month in well prepared ground which should have been highly manured. Plant in trenches one foot deep, placing the tubers 15 inches apart in rows which should be three feet apart. See that the tuber is free from disease and plant eyes up.

Corn

This is the month to plant corn, but leave it until the last two weeks. The following varieties are to be recommended: Country Gentleman, Early Mammoth, Crosby's Early, Golden Cream, Golden Bantam. Sow two feet apart in rows.

Cucumbers and Melons

Prepare hills, well manured, placed four feet apart each way, and sow the seed about the end of the month. The best cucumbers are White Spine, Long Green and Everbearing. The best melons are Rocky Ford, Gold Lined, Burrell's Gem, Acme, Hackensack, Golden Beauty Casaba and Honey Dew. Water melons should be sown in May, when we shall then deal with them.

Southern California

Written for California Cultivator By D. F. Reichard

APRIL is a month of great activity about the garden. The weather is warming up, which means all vegetation should be making rapid growth. To make quick growth moisture is necessary. If the soil has not been handled properly or it does not naturally hold moisture irrigation will have to be resorted to. Irrigate, don't sprinkle. Make wide furrows between the rows of stuff and allow the water to flow very slowly so that it soaks in very thoroughly. When the ground is in proper condition work it up as deep as possible without disturbing the roots of the small plants. Above all things keep the weeds down; they drink more water and take up more good plant food than one would realize.

During April make a new planting of most of the hardier vegetables for succession and put in any and all of the more tender varieties, as well as set out pepper, tomato, eggplant, sweet potato and the like.

In the matter of fertilizers, if you are working with new soil that has not been heavily cropped use fertilizers strong in nitrogen, such as blood meal, and phosphoric acid, such as bone meal. For soils that have been heavily cropped potash should also be used; this may be obtained from ashes. California soils in general may be considered new soils as yet, so there is still a considerable quantity of potash in our soils. Animal manures are excellent fertilizers.

POTATOES IN CALIFORNIA

Potato planters should write at once to the University of California, Berkeley, and ask for Circular 161, "Potatoes in California", by J. W. Gilmore. It gives an outline of the entire practice of potato planting and harvesting.

Seasonal Gardening

Written for California Cultivator By Ernest Braunton

THE present season is a backward one and in April much gardening work may be done that would ordinarily fall in March. In my own garden the poppies sown in October are now just large enough to transplant. This is an easy task for they bear removal well, being from one to four inches high.

Some transplanting was made necessary by harsh weather of the past winter, not alone with poppies, but with many other plants known to be hardy. In confined beds on nearly level ground seeds in the lower spots rotted through continued cold weather accompanied with steady rains. This left poppies and other plants alone on high spots. In other cases frosts were so heavy that the little seedlings the sun's rays first struck in early morning could not stand the onslaught of such allies. In shaded spots, where the sun did not strike plants until the frost had melted from them, they were unharmed.

It is not too late to sow such seeds now, together with any or all of the following: balsam, cockscomb, marigold, nasturtium, phlox, portulaca, scabiosa, petunia, salpiglossis, and zinnia. All these are annuals but you may sow seeds of nearly all perennials too, for they will not flower unless conditions are favorable and if peculiar weather prevents they will resume their normal behavior next season, and as some of them do not flower the first season, little is lost. Bear in mind the sun is hot on tender growth now, and to stimulate youthful vigor, which may slump at midday, it is well to sprinkle very early in the morning so that every plant may drink its fill and be ready for long warm days that prove exhausting to foliage in soft, immature condition.

All lawn work may now be done, whether old or new, and all lawns will be active from now to cold weather of autumn, so do not neglect the watering. If you have not fertilized, there is no time in all the year when grass needs it more or will assimilate it so quickly. Personally I prefer March and April to any other months for feeding lawn grass. Unless you have stable manure in rotted condition and free from seeds of weeds it will prove cheaper and better to use a commercial mixture.

Insect pests hatch best when seeds most do germinate, therefore when assisting flower plants and fighting weeds, do not forget that all nature is very active and that insects of all sorts may menace your garden. See that all perennials that need division or transplanting receive attention at once, for they are just about to make their most vigorous growth. Not alone the hardy plants, but all the tropic and sub-tropic classes may be divided, replanted, or planted out in warm sunny locations where an abundance of water may be given. Keep cannas in a depression in the soil, or even plant in a pit, and after the growth is up a foot or two put stable manure to fill up to surface and keep heavily watered. You will then have cannas that all will admire.

Tropical Jungles

Now is the time to build for tropical effects. Choose palms or bananas for background, or both—the bananas in front of palms, or with clumps of Fatsia papyrifera, the rice-paper plant. In front of these put cannas, elephants' ears, papyrus, callas and any plants having large leaves or thick waxy texture. In nearly frostless spots these tropical jungles may be interesting and attractive permanent features, but even if made over or made up every spring they are worth while.

Lack of Variety

In spite of the fact that our climate encourages a very great range of plant life we do not grow the wealth or variety of herbaceous plants common in eastern gardens. A few years ago I sent to Philadelphia and secured a list of a dozen each of 36 perennial flowering plants, a special offer. Every sort grew well and no garden that I could find had as great variety of bedding plants and flowers. For this one reason alone the average Eastern garden is much more attractive during summer than are ours of California.

Planting Ornamentals in Northern California

Written for California Cultivator By A. R. Gould

THIS is the busy planting month for most of the annuals as most of them will be ready to be planted out some time during April and will require a great deal of attention at this stage.

Asters

If these were not sown last month sow the following varieties: Cregos Giant, lavender, rose, pink and white; also Semples Branching in the same colors. Later on you will find these invaluable for making solid beds of color.

Begonias — Tuberous and Fibrous Rooted

These should now be started and in a few weeks will be ready to place out in flowering quarters. We shall deal with these more fully next month. In the mean time have the ground well manured and dig in plenty of well rotted leaves in which they thrive.

Dahlias

These have become very popular of late and seed so readily and are so easily grown that there are now more varieties than names in the dictionary, and it is also suprising to see the number of amateurs who have suddenly become dahlia specialists. The aim seems to be to produce the largest, and quality and form, with color, has been thus sacrificed, to say nothing of usefulness, but we are inclined to think that the "monsters" will not last, and the smaller types such as the singles and Collarettes, which are more useful from a decorative point of view either in the home or in the garden, will find a lasting place with the general public. Seed sown now in a warm situation in sandy soil will provide plants which flower this year. Try a packet of singles and watch the colors develop later on.

Tubers should be examined and planted towards the end of the month. Plant four feet apart each way in well prepared ground.

The Southern Idaho Beekeeper's Association is building a warehouse at Caldwell.

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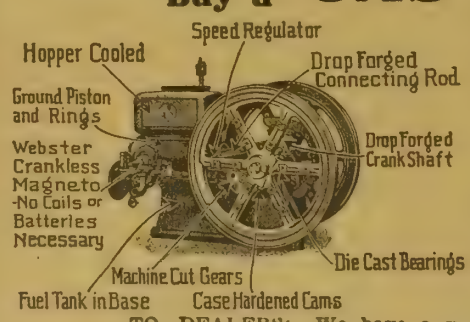

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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Silage from Beets

Is it advisable to ensile mangels or other root crops?—Subscriber.

We think not. However, the question was referred to Prof. F. W. Woll and he answers:

"You are correct in stating that there is no advantage in placing beets and other root crops in a silo, and it cannot be done successfully unless the beets are cut up fine, which is slow work and will take considerable power. Under our California conditions the practice has less to commend it than anywhere else, as the root crops can be left in the field during the winter months until wanted for feeding. They can also be stored in a root cellar if preferred, and one or the other of these methods is greatly to be preferred to trying to make silage out of the roots.

Fattening Hogs

What is the best ration for fattening hogs which are now about 100 pounds in weight? I have a supply of ground rice and barley. In what proportion should these be fed and if not a balanced ration what other feed should be used to balance it? How long should it take to fatten such hogs?—Subscriber, Woodland.

This question was submitted to Prof. F. W. Woll of the University Farm, Davis, who answers:

"The value of rice and of the by-products obtained in the milling of rice under California conditions is not yet well established. The rice industry in our state is new and but little practical feeding experience has been accumulated so far with rice or rice feds. An experiment with rice versus barley for hogs is now being conducted at the university farm. While it is too early to say much about the results as yet, the indications are that barley will prove a better feed than whole or rolled rice when either feed is fed alone with a little tankage.

Better gains will doubtless be secured by feeding the grains mixed, say two-thirds barley and one-third rice, or equal proportions by weight, if the price is greatly in favor of the rice, as is likely to be the case. The mixed grains may be fed in a self-feeder and tankage placed before the pigs in another self-feeder.

Skim milk in amounts of less than six pounds per pound of grain will give excellent results, if available. Either of these feed mixtures will furnish a balanced ration for hogs and will secure maximum gains in weight. The time it will take to fatten the hogs will depend on various conditions besides the rations fed. Good thrifty pigs of our ordinary breeds ought to gain a pound per head daily during the fattening period of three to four months.

Crippled Chicks

I have a 200-egg incubator which gives me trouble in regulating. Have it in a room where temperature varies a great deal. Always have a lot of cripples. Instructions read: First five days, with eggs, 102; brown eggs, 103. Second five days, white eggs, 103; brown 103. Third five days, white eggs, 104; brown 103. Fourth five days, white eggs, 102; brown eggs 103. have never seen other instructions recommending so much heat. Would it be better to run it lower?—Subscriber, Fillmore.

Cripples always come from too high a temperature at or near hatching time. The fact that you have them in every hatch shows that you have let the heat go too high some time. When your thermometer reads 105 degrees it was very likely more than that in some part of the egg chamber, or if you set the thermostat for 105 the temperature may have run up higher some time when you were not watching. It is barely possible, too, that the thermometer is not absolutely correct. Get a druggist to test your thermometer and then keep your heat down to 104 degrees, no matter what the book says. The hatch may be a little slower in coming off, but you will have no cripples.—J. A. K.

Keeping Weevils Out of Beans

A subscriber at San Luis Obispo, who has tried it successfully, writes of his method of keeping weevils out of beans. He says: "I used eucalyptus leaves satisfactorily by placing them in a box with the beans. Please report your experience with them."

Beans

What is best variety of dried beans to plant in home garden? Does Lady Washington or Pink give larger yield? Does Tepary differ enough in flavor to plant for variety?

Please tell something of the life of wevil found in dried beans. It seems to be under the unbroken skin of bean. At what stage in growth of bean does it enter? Can it enter a dried bean in perfect condition? I know about fumigation with bisulphide of carbon when weevils are present but wish to know about their prevention. Are early or late plantings or different varieties more susceptible to the attack of weevils?

Should same ground be used immediately for second planting?—Subscriber, Pasadena.

For so far inland we would recommend either Pink, Blackeye or Tepary beans. Teparys are very similar in flavor to Small Whites, and we recommend this variety for your location.

There are two species of weevil; one attacking the bean and depositing its egg while the bean is in the blossom, the other which deposits its egg after the bean has matured. In either case the weevil develops and eats its way out during hot weather. The embryo of the weevil may be killed by fumigation as you suggest. Late plantings seem to be less susceptible to attacks from weevil. There is no reason why you should not put in a second planting on the same ground as soon as you could get it in shape after its first crop is cleaned up.—D. F. R.

Planting Tomatoes

Am going to plant tomatoes of San Jose Canners variety. How far apart should they be planted?—Subscriber, Hughson.

Depending on your soil and whether you intend to irrigate or not would make some difference in the distance to set the plants. If you expect to irrigate they could be set as close as five feet in rows, rows six feet apart but if you do not intend to irrigate would recommend setting plants 8 x 8 feet apart.

Corn Ear Worm

Please give best method of protecting sweet corn from worms. Some advise planting a few seeds early in the hope that the moths will exhaust their supply of eggs before the regular crop comes up. Others advise the lighting of a small torch at night to attract the moths. How should this be made?—Subscriber.

If the subscriber had given his name we would have been glad to mail copy of the Cultivator of October 7, 1915, which would have answered this question.

Cooperative Dairying

Will it be a workable plan for small dairymen in one section to establish a cooperative dairy, the dairy cows to be furnished by different members but the operation of the dairy to be carried on at one plant, or farm, the members to grow feed and deliver at the central plant, the management of cows and milkers to be absolutely under direction of one manager? The idea is that sanitation and operation under the state dairy law will be made more simple, with a possble economy of labor.—Subscriber, Gardena.

This question has been submitted in a general way to farmers, and as a rule the feeling is that such a cooperative effort will be confronted by so

any difficulties that its success ould be questionable. Cooperative arketing on the part of many dairy- en has proved a complete success. id it is possible this form of work ight, but considering the expense of livering feeds to one central plant, e worth of the stock furnished, id division of profits, if any, the atter would be so complicated that e doubt whether such an undertak- g would prove successful. In any se, purely from the business stand- oint, realty values in a section like ardena are so high that overhead ex- nse would be extremely heavy.

ooking Feed

I am purchasing a dairy feed con- ining bran and other concentrates, id to be a balanced ration. Is such feed improved by cooking?—Sub- riber, National City.

Woll's "Productive Feeding of Farm nimals" says: "The method of cook- g feed was at one time much prac- ced, especially among European rmers, but it has now been gen- ally abandoned, except in the case feeding swine." Numerous trials nducted at experiment stations have own that it does not, in general, pay cook feed for farm stock. There is certain advantage in cooking pota- es. Henry's "Feeds and Feeding" says: "No one can review the large accumulation of data from the experi- ment stations without being convinced that generally it does not pay to cook feed for farm stock when such feed will be satisfactorily consumed with- out cooking. However a few feeds such as the potato and the field bean of the North can be successfully fed to swine only after being cooked. Hard grains and seeds which cannot be ground should be cooked or soaked."

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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Unsigned communications receive no attention.

Collecting Rent

A rents house and lot to B by the month. B with A's permission allows C to place small movable building and other effects on lot and charges C for taking care of them. B falls in arrears with rent and gives A an order on C for $24, B's arrears being $51. B, on notice from A, vacates the premises. If C comes to claim his building, etc., what course should A pursue to collect if possible the $51 arrears due by B? Can A by injunction or otherwise retain possession of building, etc., until the $51 is paid?—Subscriber.

The building placed on the property by C, if personal property, is subject to attachment on the order given A by B for $24. If it is not personal property, then it has become a fixture attached to the real property and cannot be moved. The other effects might, or might not, be subject to attachment, dependent upon what they were. C, of course, would not be liable for B's debts, but only that which he agreed to pay to B and for which A has an order from B.

Foreclosure

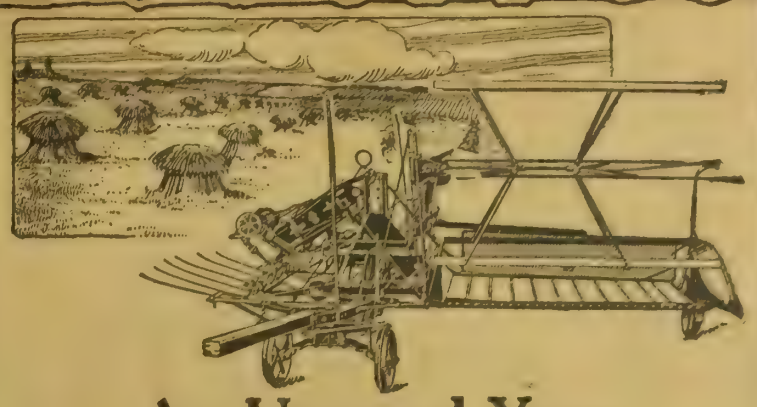
Having sold a tract of land and having taken a mortgage on same tract for almost the whole amount, and said tract having changed hands several times since without any payment having been made to me, what is the wisest course for me to take, to recover property or to get my money? How much would a foreclosure cost? The realty agent verbally promised to see that the payments were made, that he would take up the deal in the case the buyer failed to make the payments. Can I hold him to his promise?—Subscriber.

Apparently your only remedy is to bring foreclosure on your mortgage. The costs of foreclosure through to the date of sale would probably run in the neighborhood of $20 or $25, or more, exclusive of attorney's fees, which you would have to arrange with your attorney. You can, of course, procure a deficiency judgment against the mortgagor for any difference between the amount for which the property sells under the mortgage foreclosure and the amount of the mortgage, together with attorney's fees and costs. In view of the fact that the agent made a mere verbal promise he could not be held, as one cannot be held for debt, default, or miscarriage of another unless by agreement in writing, nor can one be held upon an agreement to purchase real property except by agreement in writing.

Debts of Lessee

I leased my ranch and lessee left owing a number of creditors. Now I have received a bill for work on my engine and pump and he wants me to pay the balance due for repairs. I had a contract with the lessee under which he was to keep up all repairs at his own expense. What can this man do? Can he put on a lien?—Subscriber.

Under the circumstances stated it is apparent that credit was extended solely to the lessee, nor was the engine or pump taken into the possession of the mechanic, and, even if so, it is now in your possession, and therefore such repairs merely to the engine and pump would not be entitled to a mechanic's lien nor to hold you for the value thereof. Under your contract with the lessee he alone is responsible for the repairs made, or to be made, in the ordinary upkeep of the engine.



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If your binder is not in first-class condition, get genuine I H C repairs for it at once and put it in shape. If it is too far gone for that, buy a new **Champion, Deering, McCormick, Milwaukee, Osborne,** or **Plano** binder now, while deliveries can be made and the machines gotten ready for work before harvest time. See your local dealer early in the season and arrange with him to have your binder delivered in plenty of time to assure the complete harvesting of your crop.

The twine situation this year is complicated by a number of unusual features, but we are furnishing our customers with twine of as good quality as ever. Quality in twine is more important than price. At the same time, just as a matter of insurance, it will be wise to make your twine purchases as early as possible. The dealer will appreciate any aid you can give him by placing your orders for I H C repairs, twine, and harvesting machines at the earliest possible moment.

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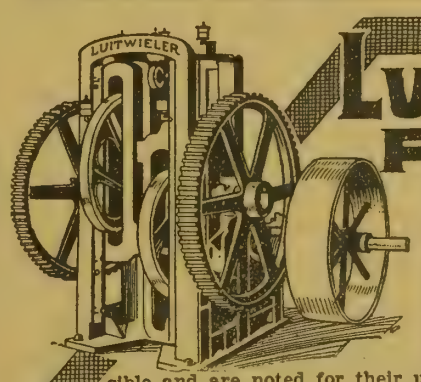

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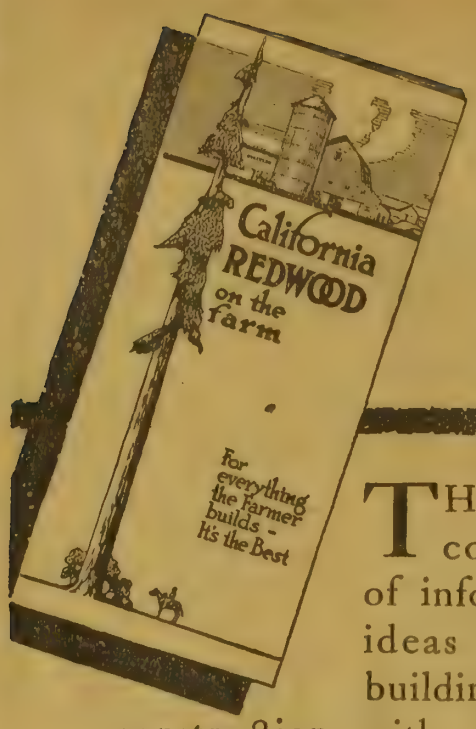

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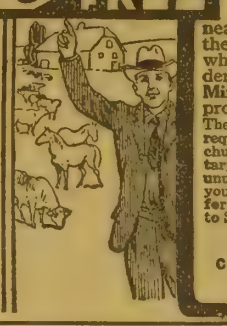

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The excellent grasses, full of nutrition, are the only food required either for beef or dairy purposes. Good schools, churches, markets convenient, climate excellent. Military service is not compulsory in Canada but there is an unusual demand for farm labor to replace the many young men who have volunteered for the war. Write for literature and particulars as to reduced railway rates to Supt. of Immigration, Ottawa, Can., or to

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Cactus

THE writer is a subscriber to your valuable publication, and is interested in the article published on March 3, 1917, entitled, "Cactus for Feed." He does not claim to be an expert farmer, but the little experience which he has had in the growing and feeding of cactus may be of interest to some of your readers.

The land upon which the experiments have been made is about 26 miles back from the ocean and at an altitude of 2250 feet.

Three years ago 65 plants of forage cactus were planted in two different kinds of soil, a red soil and a black sandy loam soil. They grew well the first year. They were cultivated and irrigated. The result showed that they would stand the climatic conditions.

The second year 7,000 leaves were planted in May in rich dark soil. We commenced to cut from these plants about the first of September. A cooker was made, five feet long, three feet wide and 18 inches deep. The leaves were put in the cooker and chopped up with a spade, and different kinds of ground grain were mixed with the cactus and cooked. This cooked feed was fed to hogs, which ate it readily and grew and fattened on it. Small shoats would steal and eat the green leaves through the fence. An old gobbler would take four or five hens and go around a plant and stick his bill through the biggest leaf and then the others would join him and eat the leaf until it would drop off. Yearling calves got into the patch and not only ate the new leaves but commenced to eat the original plants, so it became necessary to fence the patch in order to save it.

The third year about eight more acres of forage cactus were planted in May, and from this additional eight acres, with the two acres already planted, over 100 tons of leaves were cut and fed. Feeding was commenced about the first of September when the pasture was poor. The cactus leaves were ground to a pulp, which dropped from the machine into a galvanized iron storage tank, and from there into a tank below, which is used for mixing. Into this cactus pulp cotton seed meal and barley meal and ground corn were mixed, and this mixture fed to the dairy cows and growing hogs.

Each dairy cow is fed daily about 60 pounds of ground cactus, two pounds of cotton seed meal, and from four to seven pounds of ground grain, well mixed with the cactus pulp. The dairy cows run on natural grass pasture and eat the cactus freely and readily. Each growing hog is fed about ten pounds of cactus, one pound of cotton seed meal and two pounds of some other ground grain per day.

During the last month or six weeks before marketing our hogs the cactus is omitted and the meat is hardened by feeding nothing but cotton seed meal, ground barley, and ground corn. Sometimes a little barley hay as roughage is fed to hogs when cactus is fed.

We are now experimenting with the fruiting cactus. Mr. Burbank claims that his fruiting cactus will produce ten tons of pears per acre each year, and that these pears run from six to 14 per cent sugar. We fed from about one-half acre of the fruiting cactus the past season about three or four tons of pears including the mother leaves. When the pears were cut the leaf to which the pears were attached was also cut off. The pears were hauled to a field where there were about 120 or 130 young hogs, and by the time the wagon was unloaded every pear had been eaten. Seldom has the writer seen hogs eat food with greater relish. These pears were three or four inches long and two inches thick, some red and some yellow, and so ripe that some of them would break open when they struck the ground. It would seem that if an acre of ground will produce ten tons of these pears which will run from six to 14 per cent sugar it would make a very fair hog feed. Our experience has been that cactus cannot and should not be fed by itself. It is about the same consistency as green fodder corn, and some concentrate like cotton seed meal or ground barley should be fed with it to get the best results.

YIELDS OF VARIOUS SORGHUMS

ANSWERING request of the Cultivator as to average yields of various sorghums Prof. John W. Gilmore, of the university farm at Davis, writes:

"There are no statistics for the state as a whole on the normal yields of these crops. The census of 1910 gives figures for kafir, but by that term is meant practically all of the grain sorghums, no segregation being made. In our studies of these crops we find that the yields of each variety vary widely in different parts of the state, according to type of soil, preparation, and culture of soil and moisture supply. We find also that the yield varies widely one year with another, owing to various reasons of which, perhaps, moisture supply is most important. Our average yields for the past four years at Davis for the several varieties, are as follows—the figures also show the range:

Variety—	Range Lbs. Per Acre.	Av. Yield Per Acre Lbs.
Durras		
White Durra	223-2520	1015
Dwarf Milo	2214-5031	3575
Standard Milo	1492-4830	3041
White Milo	1974-4693	3176
Brown Durra	1521-5071	3151
Feterita	1953-3164	2909
Kafirs		
Dwarf Black Hulled	959-3209	1962
Early Black Hulled	618-2520	1518
Black Hulled White	64-2600	1274
White Kafir	1092-1533	1342
Red Kafir	128-1434	782
Pink Kafir	504-2667	1883
Pink Kafir	504-2667	1883
Kaolings		
Brackets Black Hulled	777-4662	2520
White Kaoliang	325-1071	698
Manchu Brown	777-4436	2404
Brown	903-4284	2962
Shallu	1816-4609	3542

"In some instances the very low yield is due to serious bird damage—this being one of the leading causes for low yields throughout the state for some varieties.

It will be noted that Dwarf Milo and Brown Durra stand about the highest. This is corroborated by general experience throughout the state. Of all the varieties these two are, perhaps, more generally adaptable."

A lot of 44 bales of cotton grown at Pima, Arizona, was recently sold at 58.6 cents. This will be used for thread making.

Growing San Joaquin Sugar Beets

SAN Joaquin is becoming a big sugar beet grower. There are two factories now being built, one near Tracy and another at Manteca. Another is to be erected near Stockton. Because of many requests for instructions in growing sugar beets, Farm Adviser R. D. Robertson gives the following cultural directions:

"The importance of leveling land properly cannot be emphasized too strongly, since the securing of the best yield will depend largely upon this feature of the work. There are many fields in the South San Joaquin district where beets have been drowned out or scalded in attempting to distribute water over uneven surfaces. The leveling of land may entail considerable expense, but usually it pays for itself many fold. It is better for the grower to restrict his area and put it in proper shape than to endeavor to handle a large area of poorly prepared land and meet with partial failure.

"In the vicinity of Manteca many fields are not surface irrigated but depend upon sub-irrigation. Where irrigation is practiced a more uniform distribution of water can be obtained by running water in furrows than by any other method. The flooding method is now commonly used, and the farm adviser hopes to carry on some demonstrations to determine the relative merits of different methods of irrigation.

"The necessity of deep plowing is generally recognized, and subsoiling in many places will be found advantageous. The preparation of a good seed bed is highly important. The seed requires a uniformly fine, firm, moist bed in order to produce a quick and uniform germination. The more quickly the seeds germinate the more certain is a good stand, which is the first requirement of a satisfactory crop. In this county from 12 to 18 pounds of seed per acre are planted in rows 18 inches apart, most of the planting being done previous to March 1. The beets should be spaced and thinned just as soon as possible after they are up. This can usually be done when the plants have from four to six leaves. The beets should be thinned to one in a place from ten to 12 inches apart in a row, although this distance is governed by the fertility and moisture-holding capacity of the soil.

"Frequent cultivation is necessary for the destruction of weeds, retention of moisture and the aeration of the soil. The constant aim should be to keep the beets growing from the time they come up until they are harvested, and to destroy just as few of them as possible. The beets are plowed out by a specially constructed plow and are topped by cutting off each plant at the base of the bottom leaf.

"Experience in the old beet-growing districts shows that crop rotation is necessary in maintaining the soil at its full productive capacity. If the beet tops are returned to the soil in the form of manure, little plant food is removed by the beet crop. Heavy yields of grain can be secured after beets are grown, due to the excellent condition in which the soil is left by the beet crop and to the depth of the root bed occupied by the beet roots The best crop rotation for this county is yet to be worked out, but will include alfalfa, grain and some cultivated crops, such as potatoes, beans, melons or corn.

"The cost of growing sugar beets will vary from $30 to $40 per acre. Average yields of ten to 15 tons per acre are secured, although many growers have obtained much higher yields. Various type of contracts are made by the sugar companies and a current price is at a flat rate of $5.50 per ton, the companies reserving the right to reject beets testing under 11 per cent sugar.

SUGAR BEET THRIPS

The sugar beet thrips is an imported insect recognized as a greenhouse pest and also injuring outdoor plants, principally sugar beets and sugar cane, according to a recent professional paper of the United States department of agriculture, by William H. White, bureau of entomology. The insect is dark brown or black in color, and about 1.3 millimeters in length. The injury caused is similar to that of other species, such as the onion thrips and bean thrips. The plant is attacked by the adults and by the nymphs, or young, in the same manner. The leaf cells are pierced, and the plant juices withdrawn, causing the cells to shrivel and turn white. When a number of these cells are destroyed they appear as irregular white or light brown spots. If the attack is severe the whole leaf surface becomes invested by these spots and finally shrivels and dies.

Spraying has been found to be the most effective means of controlling this insect, both in the greenhouse and out of doors. The following solution used in one experiment killed all adult insects and about 95 per cent of the nymphs: Nicotin sulphate, 6 ounces, fish-oil soap, 4 pounds; water 50 gallons.

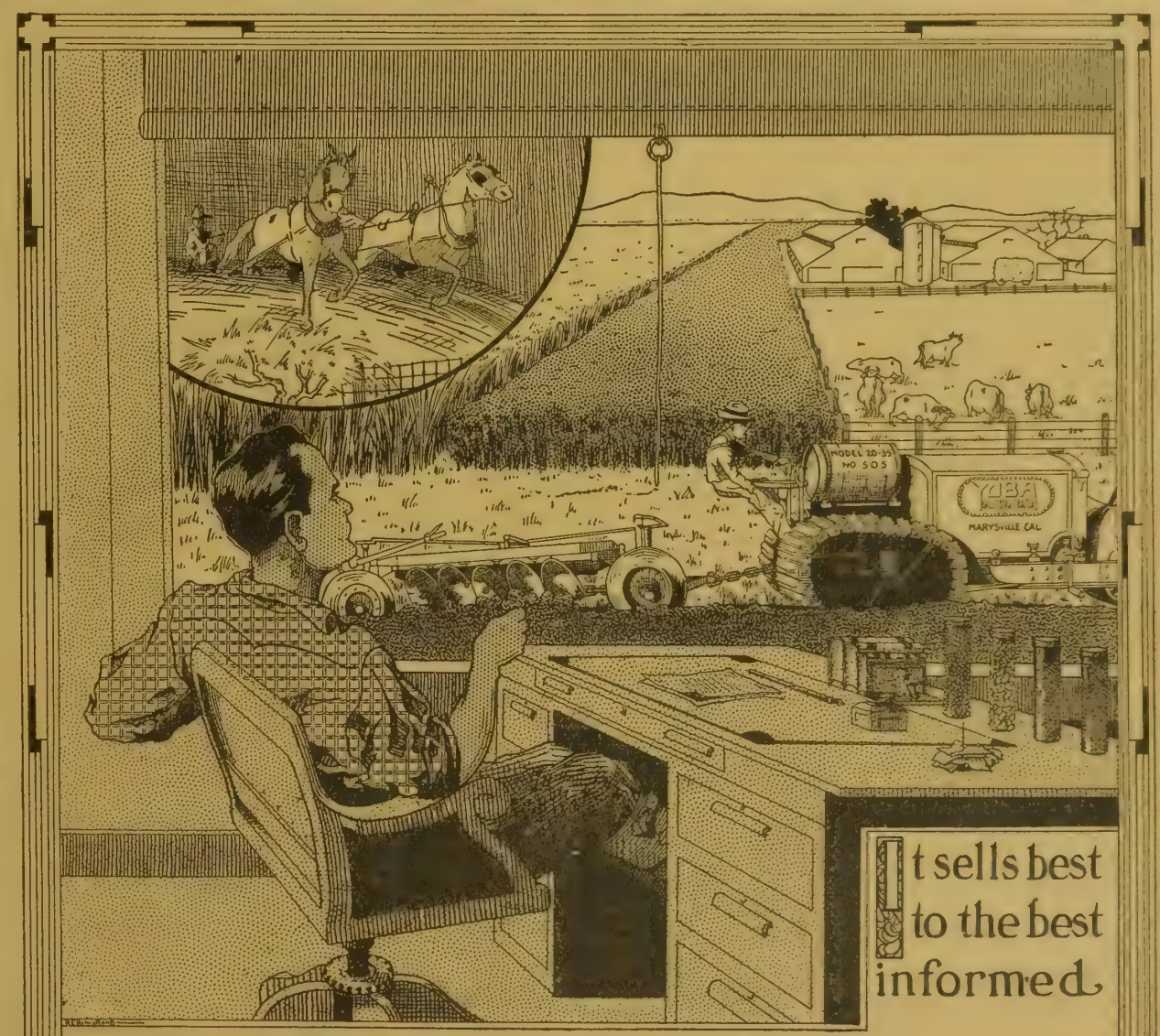
The spray should be applied to both sides of the leaves; if possible on a dull or cloudy day. The adults are not so active at this time and are therefore less likely to move out of reach of the spray.

In the greenhouse the sugar beet thrips may be held in check by the application of a strong spray of water to the foliage. This washes the younger stages from the leaf; and as these are unable to reach the food plant again they soon die.

"Just after harvest is the time to go over the farm auto and put it in shape for fall and winter use," says G. W. McCuen, motor specialist for the agricultural engineering department of the Ohio state university. "By removing the oil from the crank case at least once every spring and fall one can be sure that the crank case is free from sediment. The motor can be cleaned by washing it with kerosene. The differential and transmission will only give the best service when properly oiled, and the exhaust valves will give no trouble when they are kept well ground," he states.

Mr. McCuen recommends the use of a high-grade cylinder oil; one which will cost not less than 40 cents per gallon. Such oil will have the least carbon deposit.

How long did it take to repair your last puncture? Did the last patch you put on come off when you were half way to town? Then you ought to get a small vulcanizer, which can be purchased for $2 or $3. It can be carried with you, and if you run out of good tubes, one can be vulcanized in 20 minutes. Auto owners report trouble with patches coming off during hot weather due to the heat loosening the cement. With a vulcanizer any snag or puncture can be completely seared over, thus preventing the tire from weakening through the admission of water or moisture.



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The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

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Saturday, April 7, 1917

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

The cover illustration on this issue shows the use made by vineyardists of some of the waste waters of springtime. It also shows growth of vines in this vineyard about as it appears today. It may also be considered a reminder that we are approaching the time when mildews and other orchard diseases should be discouraged. Make use of these waste waters; make use of sulphur over the vines; keep the cultivator in motion. When harvest time comes compensation will be received.

SHOW THE COLORS

In a hundred-mile drive recently we met thousands of autos, and nine out of ten with the flag fluttering from some portion of the machine. It looks good.

Fling Old Glory to the breeze.

OLIVES

Too early yet to predict anything as to this season's output of olives, but to the olive grower we would suggest careful consideration of market conditions before contracting his crop this year. Prices will be good. This is inducing renewed interest in planting. Planting is not heavy, but the wise orchardist is considering olives, and the planting is far more liberal than anticipated.

FRUIT PROSPECTS

Apricot growers are still watching earnestly weather conditions for indications of damage by cold of the last few weeks. As a rule we think a more hopeful view is held than a week ago. Trees are in good condition, apricot bud disease is less in evidence and the second bloom looks well. We believe peaches will make a big showing. It is yet too early to predict as to prunes. Prices, however, promise to be good.

MORE TOMATOES

Already contracts are being made for more liberal planting of canning tomatoes than any preceding season. There is a shortage of almost everything eatable, and every producer with vacant ground should investigate as to what it can grow which will add to the farm's profits. To the owner of an orchard just planted the space between trees is too valuable this year to waste. Put the ground in best condition, secure best seed, give of the most experienced care and produce to the limit.

BEANS

If present estimates of bean prices the coming season are correct millions will come to California for our bean crop. It has been estimated that one ranch alone will produce this season over $1,250,000 worth of lima beans. This is the great Irvine ranch in Orange and San Diego Counties. It has been rumored that $9.30 has been offered to some growers for the coming crop, but conservative growers think no such offer has been made by thoroughly responsible buyers who could make good if a slump should occur. However, it is stated that $8.25 contracts are being freely made.

ORANGE PICKERS STRIKE

Several packing houses in the orange districts have closed because of a strike of picking gangs to enforce demand for a higher wage. During a few days of last week not a gang was picking in the Riverside district. Packers at Redlands secured an injunction compelling strikers to refrain from interfering with other pickers who were taking their places.

With prices as they are at present, and this the period of the year when the heaviest shipping should be under way, this strike means severe loss to the orange growing industry, but it is hoped that normal conditons will soon obtain.

PULL TOGETHER

It is said to be essential to complete cooperation that the grower be driven into it by his own failure. Also it is true that one of the most trying times for a new cooperative organization is a season of high prices and keen demand. With an intelligent class of producers such as we have in California these difficulties are in part overcome, for sure it is a high grade of intelligence is required for a successful cooperative organization. But in spite of this the prune and apricot growers of the state are confronted by a serious condition in their effort to organize. Prices are abnormal; the demand is of the keenest; holdover there is none; and every man feels that he can stand alone. All are aware that on the average cooperation will yield greater returns to the industry, but in the hope that the mass of the growers will cooperate leaving "just me outside to market as I please", a few are refraining from signing up with the new organization.

And to encourage this the shrewd outside buyer is very genial and very free with his offers. Unfortunately he is succeeding to a degree. We note in the San Jose Mercury:

"Suppose the incredible happens. Suppose that so many growers are fascinated by this inviting offer, contract for sale on these terms and hold out of the organization in consequence, that the whole cooperative movement falls through. Then how are these contracting growers fixed?

"The packer would of course be in the position of having contracted to pay on a six-cent basis—perhaps even up to seven if he so decides—on the assumption of a high minimum price, which has now vanished. Can any intelligent grower suppose that, with a good yield and the consequent decline in price, those six or seven cents would be forthcoming? He knows perfectly well that it is easier for a camel to go through the needle's eye than for his contract to prove watertight if the packer finds it desirable that the price come down. His prunes would not pass muster for a moment with the contract conditions, and he would be fortunate to obtain three or four cents for his pains.

"The grower then will do well to study the unwonted situation very carefully before concluding an independent contract for his prunes on an apparently substantial and attractive proposition."

Thre is no use of making an appeal to these growers. It is a matter of common sense and common business foresight to support this organization. Every prune grower who is intelligent and who has a grasp of business principles must see the necessity of securing the association.

Agricultural Notes

A few years ago country highways were merely a possible outlet for cement. Last week Vermilion County, Illinois, ordered 190,000 barrels of cement for concrete road construction now in progress.

U. S. A. Apple Forecast.—The forecast of the apple crop this year in the United States, as estimated by the U. S. A. department of agriculture, totals 303,000,000 bushels, or 27,000,000 bushels less than last year.

Four trainloads of beans from the Orient, valued at over $1,000,000 and constituting the largest single movement of this commodity ever coming to the United States, have arrived in San Francisco to be shipped to eastern markets.

The government of Peru last fall passed a law providing for government loans to farmers and stock raisers on agricultural implements, sawmills, live stock, meat and dairy products, fruits growing or harvested, timber and lumber.

Experiments in bread making, using cotton seed flour as a substitute for part of the wheat flour, have been made by the department of agriculture for the West Indies. The bread is declared to be very palatable, having a rich, nutty flavor.

The German government announces that all grains and legumes still in the hands of consumers above limited quantities will be seized for the benefit of the public. This is a result of the recent census which revealed a shortage from the expectations of last fall.

The agricultural schools in South Africa, six in number, give courses of one or two years to boys intending to become farmers, not with any idea of their becoming specialists. Special courses of six or nine months are, however, arranged for dairying, qualifying students as managers of cooperative dairies.

The exceessively cold weather of January throughout European countries has seriously injured fall plantings. In Great Britain and Ireland heavy snowfalls with icy winds prevailed during the greater part of the month and caused much retardation in field work. In Italy the weather was almost as inclement as in the other two countries mentioned.

The British Tommy, home on leave from trench digging, now passes most of his time digging and hoeing truck gardens. The first of February there were 25,000 plots of allotted garden land under cultivation, giving some idea of the speed with which the people have taken to the spade and plow since the authorities have tried to arouse them to the danger of starvation.

Texas has planted over 12,000 acres to Bermuda onions this year or more than 2000 in excess of last year. Imperial and Riverside Counties in California have planted 1435 acres this season. Louisiana, another onion-producing state, has planted 3000 acres. Last year California's shipments from the two counties mentioned was 326 cars. California's small express shipments are also very great in number.

Regulations governing exports of Hawaiian pineapples and bananas to the Pacific coast require that the shipper have the fields from which the fruit is to be taken inspected by the fruit-fly investigation bureau of the United States department of agriculture, Honolulu. Pineapples are packed in dry excelsior and bananas in banana leaves. It is required that the containers or wrappers shall be new and of materials approved by the inspector.

Agricultural News Notes of the Pacific Coast

Northern California

Santa Rosa's annual rose carnival will be held this year, May 10, 11, 12.

Jersey breeders of the Orland district of Kern County have organized an association.

State Horticultural Commissioner Hecke is distributing seed of Egyptian long fiber cotton.

Farmers of the Upper Mattole will plant heavily to beans this year, with potatoes second in acreage.

The California Ripe Olive Company will operate its Oroville plant on tomatoes during the summer.

The Arbuckle-College City Almond Growers' Association reports accession of several new members.

Supervisors of Shasta County have passed an ordinance requiring every dog in the county to be licensed.

Boys of the agricultural club of the Ferndale high school will grow potatoes for their this year's contest.

Stockmen of Napa County report pasturage in excellent shape and cattle and sheep in best of condition.

The Napa County Agricultural Association has been organized and is ready to start plans for the 1917 county fair.

The Poultrymen's Association of Cotati, Sonoma County, has decided to hold its meetings the first Tuesday in the month.

Yolo County is reported to have over 2500 cows signed up in the Sacramento Valley Cooperative Dairymen's Association.

The Trinity Land and Cattle Company has bought 5000 acres of grazing land in the Bald Hills country near Cottonwood, Shasta County.

The recent campaign of extermination against rabid coyotes in Modoc and Lassen Counties has resulted in the d struction of 2707 coyotes.

Humboldt County has just paid out over $80,000 for its share of the expense of constructing the new bridge across Eel River south of Scotia.

Berry Growers of Happy Valley, Shasta County, have formed a marketing association with C. C. Cutler president and I. N. Millsap secretary.

According to report of County Horticultural Commissioner Lamiman of Shasta County more olives will be set out in that county this season than any other variety of orchard trees.

The Yolo Democrat reports sale of $40,000 worth of sacked barley and wheat from the Hershey Estate of Woodland and says this was one of the last big lots of grain held in the state by farmers.

H. G. Asselstine, who has been cow-tester of the Napa-Sonoma and Napa-Petaluma Cow Testing Association, has been appointed by the state dairy bureau, inspector for Siskiyou, Lassen, Modoc and Shasta Counties.

Almond growers of the Chico and Durham districts of Butte County have organized as a branch of the California Almond Growers' Exchange. The association expects to build an almond warehouse on the line of the Northern Electric at Durham.

The board of supervisors of Eldorado County has rescinded its action, taken at the February meeting, and has reestablished the office of county horticultural commissioner. This action will automatically continue J. E. Hassler in the office of county commissioner.

Central California

Lindsay, Tulare County, reports an immense acreage being planted to citrus fruits.

The Kings River Irrigation District has applied for 20,000 feet of the waters of Kings River.

A. R. Bates of Modesto has been appointed by the governor to membership on the state dairy board.

A new plant of the National Ice Cream Company is to be built at Stockton, San Joaquin County.

A lime mill has started operations at Porterville, Tulare County, with a daily capacity of about 70 tons.

The recent frosts are reported to have done some damage to almond crops in the eastern section of Stanislaus County.

Forty-two thousand acres in the Chowchilla Ranch in Madera County are reported to have been sold to Swift & Company of Chicago.

The San Joaquin County farm bureau will hold local meetings at Lockeford April 9, Linden April 11, Bellota 12, Escalon 16, Ripon 19, Manteca 20.

President Wilson will press the button that will open the Third Annual Butte County Spring Exposition in Chico May 21. The fair will last six days.

The Tulare Cooperative Poultry Association transacted a total business of $11,122.98 last February, more than doubling its February business last year.

Stanislaus County had a big roads celebration on March 22, the occasion of the opening of the new $110,000 concrete bridge over the Tuolumne River at Modesto.

Many of the smaller stockmen of the state are objecting strenuously to the proposed hide and brand bill introduced by Assemblyman Horbach of Tulare County.

The San Joaquin Valley Counties Association will send its three-car advertising special on a tour of the San Joaquin Valley before taking it East. The tour will begin April 15.

A meeting of the Tulare County Canning Peach Growers' Association was recently held at Visalia to name a sales commission to take charge of the entire crop of members.

Alfalfa growers of the district about Dinuba are planning to form an association which they hope will lead to the organization of a state body to take hold of marketing problems.

The California Prune & Apricot Growers' Association has opened its final campaign of stock sales, which must net another $200,000 to bring the association into control of 75 per cent of the state's crop.

Manager Niswander of the Peach Growers' Association has issued a statement to packers that no more orders can be received for 1917 unpeeled peaches as advance sales are now up to the estimated crop.

The Tulare County Swine Raisers' Association is holding a meeting at Visalia today, March 31. The association is considering whether or not it will take part in the stock and swine show to be held at Visalia this fall.

Contracts of the peach company were upheld in decision of the suit brought by the California Peach Growers against a peach grower of the Fowler district for $200 for dried peaches not turned over to the company.

Southern California

Corona now feels assured of securing a cannery.

Imperial shipped out its first carload of asparagus last Tuesday.

Ventura County will hold its fall fair the last week in September.

The Lankershim Laconic estimates damage to apricots at 50 per cent.

The Riverside district shipped out 199 carloads of citrus fruit last week.

The Santiago Citrus Growers' Association is planning to erect a precooling plant.

Many hundred acres will be planted to Tepary beans in the Hemet Valley this season.

Citizens of San Jacinto are much interested in the securing of a sugar beet factory.

Orange County has between 10,000 and 12,000 sacks of Lima beans held in storage by owners.

Fruit men of Banning are planning to ship most of their fruit to Arizona, New Mexico and Texas.

R. L. Taber of Riverside has been appointed secretary of the Riverside County Fair Association.

Machinery is being installed in the walnut house at Garden Grove for the handling of the orange crop.

Riverside is panning to organize a county farm bureau. Several locals have already been organized.

The Arlington Cannery has leased a building which it will fit up with machinery in time for the canning season.

The Temescal Water Company has subscribed $1000 toward the work of building firebreaks and trails in the Temescal Range.

Bean growers of Santa Paula held a meeting last week in conjunction with business men of that city to discuss possibility of establishing a bean cannery.

The area of early Irish potatoes in the San Gabriel Valley, San Fernando and Los Angeles districts, and Orange County is stimated to be 8700 acres this year.

A suggestion has been made that Imperial Valley orchard planters unite and ship in carloads of trees for this year's planting. The demand for orchard trees is heavy.

Manager Shipley of the Lima Bean Growers' Association announces that the association has secured a market at $7.50 for all beans that can be delivered in September.

San Jacinto has been promised a beet sugar factory if growers will sign up 10,000 acres. Fifty thousand acres are said to be available for beet culture in that district.

Says the Hemet News: "Old H. C. L. has put the fear of added expense in the hearts of Hemet housewives, and the garden spots are much more plentiful than usual.

Last year's campaign of the Anaheim Sugar Factory lasted 116 days, the longest in the history of the factory. Eighty thousand tons of beets were sliced, producing 28,000,000 pounds of sugar.

Directors of the San Antonio Growers' Assocation are canvassing in the Chino district to ascertain the feeling of the members as to advisability of building a cannery at Chino this year to handle fruits and vegetables.

The Coast

The Coquille Valley of Oregon shipped 1,500,000 pounds of cheese during 1916.

The Puyallup Valley of Washington expects to plant 2200 acres to potatoes this year.

Farmers of Crook County, Oregon, have formed the Central Oregon Bull Association.

A grain farmer of Enterprise, Oregon, has contracted his 1917 crop at $1.50 per bushel.

Rosalia, Washington, will hold its annual fair and live stock show September 27, 28, 29.

The Fruit Growers' Agency of the Northwest will hold its annual meeting April 9 at Spokane.

Several loads of hogs were sold at the North Portland union stockyards last Monday at $14.00 and $14.25.

Fruit growers of Peach, Lincoln County, Washington, have formed a corporation to market their products.

Arizona cattlemen now have a freight rate of $94 per car to Los Angeles as against the old rate of $126.85.

Many Northwestern wool growers are holding and urging their neighbors to hold for the big prices which they feel sure of getting later.

The Lakeside Farm Association of Arizona has arranged to purchase a carload of dairy cows, bringing in Shorthorn and Herefords from Iowa.

The Pomona Grange of Lane County, Oregon, will hold a corn show in Eugene next fall. This will be the first show of this kind in the county.

Stockmen of Willcox, Arizona, are feeding the wild yucca stalks to their cattle. The leaves are cut or burned off and the stems sliced in an ensilage cutter.

The question is up whether the 130,000 boxes of Hood River apples now in storage shall be taxed as personal property or whether they were taxed in the orchards last year.

The new grain standards bureau for the Northwest will be located at Spokane, Washington, and will open for business on April 1. The new grain standards law goes into effect on July 1.

A special train of 30 tank cars filled with Japanese soy bean oil has just been sent from Seattle to Cincinnati to be used in a soap manufactory there. The oil is used in replacing beef and pork fats which have become too expensive for soap making.

The government wool car has been making a demonstration tour in Washington throughout the month of March. The car carries a moving picture outfit showing handling of sheep from the range to the market and of the wool from the fleece to the cloth.

Over 2,000,000 acres of grazing grounds of the Western states have been freed of prairie dogs and other rodents through the activities of the United States biological survey. A large part of the work was done in the naional forests of Arizona and New Mexico.

The newly appointed state highway commission of Oregon is now organized and ready to begin the study of the highway needs of the state. The commission has divided the state up into three districts, which will be personally inspected by three divisions of the commission.

Make the REMCO Silo YOUR Silo

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it is constructed throughout of nothing but AIR DRIED REDWOOD.

Because

it is made by skilled mechanics who use the most modern wood working machinery.

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it will last longer and make better silage than any other silo.

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SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three-year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars, Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent Santa Anita, Cal.

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Live Stock Notes from Northern California

Written for California Cultivator By W. S. Guilford

SILO BUILDING PLANS

ALVA Slocum built one of the first silos in Glenn County. He has filled it two or three times. In 1916 a good many other silos were built in different parts of the district, and according to present plans 1917 will be a regular "landslide" year in silo building. Almost every farmer within two miles of Slocum's will build this year. We counted 12, all close neighbors, who are planning to buy one or another of the good stave silos that are advertised in the Cultivator.

Silo building progresses in much this same way in every county, with the exception that in older countries, like districts in Northern Illinois, for instance, it takes ten years to accomplish what can be done here in three.

This silo building activity is very gratifying to me. When I started to talk silos for Glenn County in 1910 there was not very much interest in the subject. Some said: "What do we need of silos when we have green feed the year round?" Others said "Well, a silo might be all right for the first cutting of alfalfa, but we can never grow corn enough to fill silos." But most folks were just indifferent to anything like an innovation.

Silo building did not really start until about three years ago. In two years more it would not surprise me if Glenn County had more silos in proportion to the number of farms than any other county in the state.

And more Indian corn will be grown to put in silos in 1917 than ever before. Many enthusiastic silo advocates have thought that feterita, milo, Egyptian and other durra and sorghum corns would need to be used for silo filling, but "that's good enough" was their idea.

Now it has been found that a big tonnage of Indian corn can be raised. The worms bother it some, and there is considerable smut some seasons and on some fields, but it is the great silage crop in spite of this.

Silos accompany successful agriculture everywhere.

THE MEAN BULL

Sometimes we hear a recommendation for a dairy bull that is like this: "He is as kind and gentle as a kitten; any one can handle him."

But this kind of dairy bull, one with no evidence of a highly organized nervous system, is apt to produce very few high testing cows. But when you have a real dairy sire, and he is inclined to be mean, every convenience should be provided for handling him so that no one will be in danger. The bull pen and shed and gates should all be of heavy plank, and extra heavy hinges and locks should be provided.

Bloat in Live Stock

Cattle and sheep are very susceptible to injuries from bloat when pastured on alfalfa. Extra care is necessary to avoid deaths, and many times not a few animals will die in spite of the greatest care possible. It is always wise to give animals a full feed of alfalfa hay, corn fodder or other food before turning them out on alfalfa pasture. The alfalfa should be fairly well matured and of a dark green color, for it is the light green alfalfa which causes bloat. Animals that have not been accustomed to alfalfa should follow those having grazed the field down, leaving nothing but the coarse woody stems and a small portion of green shoots. After being left on such a pasture for a while they may be graduated to other fields with more alfalfa. Supplying the animals with alfalfa hay or other dry food along with the alfalfa will also have a good effect in checking the bloat.

Since the new shoots are the portions of the plant which cause bloating, it is wise to turn animals into an alfalfa field for only a few minutes for the first time, ten minutes is probably sufficient, and not more than 20 minutes at a time for the first week. After this time the period may be lengthened and the animals allowed to graze at will. It will thus be necessary to turn the stock into the field two or three times a day, and they should be taken off before they begin to bloat. By allowing some of the animals to graze over a fresh area and secure a small amount of heads and turn them back onto the main stems little bloat will result. This is probably one of the best ways of preventing the trouble.

Cure

It has been found that moving animals around and compelling them to exercise relieves somewhat those that are suffering from bloat. A dose of formalin, consisting of 40 cc (or three tablespoons), for a mature steer, or one-fourth of this amount for a calf, has a specific effect in relieving the formation of gas in the stomach. Some run a rubber hose down the throat into the paunch and the gas is liberated through it. A small teacup of kerosene and one-half pint of sweet milk is also a good specific for this trouble. A small amount of turpentine in this mixture would also facilitate relief. When an animal is so far gone as to stagger and be almost ready to fall, it will be wise to use the trocar and canula, by puncturing the rumen just below and in front of the hip bone. In extremely bad cases where the attendant cannot secure these instruments the animal may be given relief with a pocket knife, but it is best not to puncture unless necessary, as this leaves a wound which heals slowly and the stomach contents may ooze out of the paunch into the stomach cavity, and thereby cause infection.—R. H. Williams, Animal Husbandman, University of Arizona.

Cooperative Bull Associations

There are now more than 30 active cooperative bull associations in the United States. On July 1, 1916, there were 32 representing a total membership of 650 and owning about 120 purebred bulls.

The cooperative bull association is especially adapted to herds which are so small that a valuable bull for each herd would be too heavy an investment to be justified by the extent of the business. Through cooperation, cattle owners are enabled to obtain the benefits which come from the use of a purebred sire at an expense which is no greater, and in many cases is even less, than the cost of maintaining a scrub.

"Better and fewer bulls" is a phrase which represents the aim of these associations. A typical organization is composed of from 15 to 30 farmers who own jointly five bulls. The territory of the association is divided into

five breeding blocks and one bull assigned to each block. To prevent inbreeding each bull is moved to the next block every two years. Barring losses from death or other causes, therefore, no new bulls need be purchased for 10 years. It is customary to apportion the purchase price, and the expense of supporting the bulls, among the members according to the number of cows owned by each.

FOUR HUNDRED LAMBS ON NURSING BOTTLES

Written for California Cultivator
By C. A. Briggs

Twice a day on the farm of the J. S. Gibson Company at Williams, 400 lambs fill up on milk through rubber nipples. Mr. Gibson has designed a novel rack holding 15 quart bottles and it is an interesting and amusing sight to see the line of lambs working on their foster mother. The lambs are taken from the ewes having twins, leaving one with the mother who, owing to the scarcity of feed, is unable to care for them both. Mr. Gibson is feeding about 175 gallons of milk a day and will by this means save hundreds of lambs that would otherwise have died. The little fellows are plump, strong and active and will without doubt pay handsomely for both the feed and labor used in their care.

SAVING RANGE CATTLE

Notwithstanding efforts on the part of the forest service and stock owners to reduce the loss of live stock on the national forest range in California, a recorded loss of almost 7000 head of cattle and sheep was reported during 1916. Twelve hundred and forty-six head of stock died from disease, 1552 from poisonous plants, 2249 from predatory animals, 380 from accident, and 1465 from miscellaneous and unknown causes.

The diseases responsible for 42 per cent of the cattle loss are blackleg, anthrax, and abortion. Blackleg, it is said, can be prevented if stockmen will practice systematic vaccination on all young stock each year in communities where the disease is known to be prevalent.

An experiment on the Inyo national forest during the past season showed the value of the serum-vaccine treatment for anthrax. One thousand fifty cattle were treated out of a herd of 2000. After the period of incubation, five days, only three head of the treated cattle died, while 25 head of the untreated stock were lost before being removed from the allotment. The serum-vaccine treatment for anthrax can be obtained from commercial laboratories.

HOMEMADE CREAM CHEESE

Select a quantity of very rich sweet milk, or if thin milk is used, add ten per cent of sweet cream. Mix with this three to five per cent of its bulk of clean well soured skim milk, or better still, this amount of a good starter.

Set the mixture with rennet at about 80 degrees Fahrenheit, and when well coagulated, cool down to 60 degrees Fahrenheit, by placing in the refrigerator, or allow cold water to run around it. Care should be taken not to break the curd. After it has cooled for 24 hours, turn it into a cheesecloth sack and allow to drain for another 24 hours. It will then be ready to salt.

The presence of the fat makes a very soft smooth cheese. It can be moulded into balls or printed in a butter printer and wrapped in oil paper and tinfoil.

Owing to its high moisture content, this cheese will not remain fresh longer than a week, and should be kept on ice.

NEED PURE WATER

A farmer remarked the other day when I took dinner with him that his great problem was how to secure a pure water supply for house use. It was apparent from the drift of his conversation that he was not concerned about the quality of water for his livestock, anything was good enough for them.

The same laws that govern health pertain to the lower animals as well as to man. After dinner I looked around a little and found that the water for his animals came from a surface well near the stables. As it happened it was not strongly alkaline, but it was stagnant, teeming with animal and vegetable organisms, the result of contamination with animal excreta and barnyard refuse. The amount of organic matter in it made it unfit for any animal to drink. This man complained of having had "hard luck" with his livestock.—Geo. H. Glover, Colorado Agricultural College.

THE FAMILY COW

The family cow should be a constant source of cheap, pure and delicious milk. Such may be the case if a few precautions are taken, says Percy Werner of the Missouri College of Agriculture.

A cow may be suffering from tuberculosis, the worst disease to which she is subject, and still show no signs of it. For the sake of the children who drink the milk a qualified veterinarian should be called upon to inspect and test each cow every year.

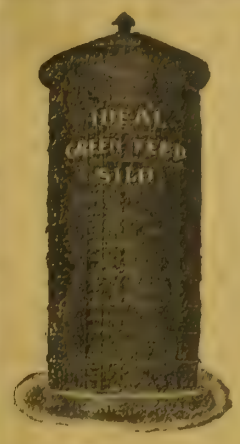
With the assurance of a healthy cow she should be housed in a clean, well lighted shed and provided with a clean yard in which to exercise. The milk should be drawn into a clean, small topped milk pail and kept cool until consumed.

Milk sours and spoils because of the bacteria which enter it with dirt from the cow and from pails not thoroughly washed. Keeping these bacteria out of the milk and preventing their growth by keeping the milk cool, are easy and efficient means of procuring the best of milk from the family cow provided she is free from disease.

If thinking of building a hog house or remodeling the old one a few timely suggestions may be of value. In the first place locate the house in such a manner that you may get direct rays of sunlight into every pen, as sunlight is a most effective germ-killer. Arrange for a system of ventilation; a hole cut in the roof is not sufficient. Have plenty of pure air, but do not allow the hogs to sleep in a draft.

An authentic gestation table is of value to every breeder of livestock and should be kept in a convenient place where he can refer to it at any time. We never get strong pigs under 111 days; sometimes ewes will wean at 145 days; a very few cows will calve at nine months even; mares usually run a few days over eleven months.

To look only at the pedigree without considering the individual or the performance record back of it is a poor method of improving the herd, no matter what kind of live stock is kept.



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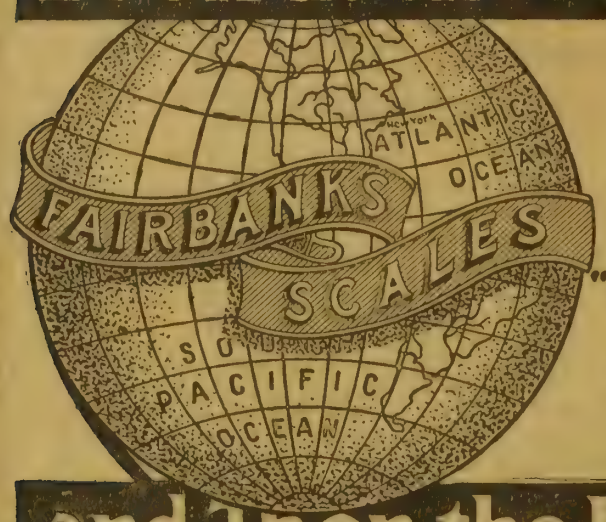

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Will be held under the auspices of the American Hereford Cattle Breeders' Association at

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The offering will be made up of sixty-five head—twenty bulls and forty-five females. A splendid opportunity to start a pure bred herd. Write for catalog.

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from milk fever. Attacks heaviest milkers—50 to 60% succumb quickly. Yet the **new air treatment saves nineteen out of every twenty** cases. With the Pilling "Easy to Use" Milk Fever Outfit you can give instant treatment—no dangerous wait for veterinarian.

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A Great Holstein

Under practically dairy conditions Gerben Abbekerk Maid 180387, a Holstein owned by Stalder Brothers, Riverside, has made a wonderful record. As to the results of the official test, she lacks a fraction of a pound of equaling the California record.

But in addition, and not considered in the official test showing equal amount of butterfat produced, Gerben Abbekerk Maid has produced from May 12, 1913, to February 26, 1917, five of her offspring, three heifers and two bulls, which promise also to be record breakers: First, Stanislaus Abbekerk Maid, calved May 12, 1913, as a senior three-year-old produced 25.75 pounds butter in seven days from 571.7 pounds milk. During the same test her 30-day record was 2315 pounds milk from which 102.449 pounds butter were produced. The next calf was a bull, calved May 9, 1914, King Pontiac Netherland Segis 3rd. Next came a heifer, March 29, 1915, Aralia Maid; February 29, 1916, Prince Aralia Skylark, and February 26, 1917, Abbekerk Pontiac—five calves in less than four years.

Officially Gerben Abbekerk Maid, who was calved April 18, 1911, has now tested as a senior five-year-old, seven days, 27.367 pounds fat from 686.9 pounds milk; for 23 days she produced 83.75 pounds fat from 2381.8 pounds milk. Her best seven-day milk production was 806.9 pounds.

Besides the above record of 34.209 pounds of butter it is worthy of note that this cow produced within the same 12 months—or in February, 1916—from 671 pounds of milk 30.1 pounds butter as a senior four-year-old.

The persistence of this cow is also remarkable, for since her first calf in May, 1913, she has been dry less than six weeks during the entire period.

California Wool Growers

Secretary Ellenwood of the California Wool Growers' Association writes that the association was formed some ten years ago:

"The first year we only had about 30 members. We have had our ups and downs since that time regarding membership, sometimes having about 150 paying their annual dues and sometimes not over 50. When things are running along without any serious obstacles confronting the industry members are careless about their dues and let a few good men keep up the work of the association, but if something happens where they really need an organization to do something for them, and they think they are going to lose a lot of money unless the association saves their lives, then a lot more will join for a year or two. So it goes.

"Of course we need a good association and ought to have every man in the state who owns a bunch of sheep, as a member, but it is very discouraging to a few of us who have spent a great deal of time and hard work for ten years trying to build up an organization that is worthy of the name. The few we have are good earnest workers and have always kept annual dues paid as a member of the National Wool Growers' Association and have done many other things that were beneficial to the industry, but we have not the membership that we should have."

JERSEY ORGANIZATION AT ORLAND

Written for California Cultivator
By C. A. Briggs

On March 31 the Jersey breeders of Glenn County met in the Orland theatre to complete the organization of the Orland Jersey Cattle Club. Constitution and by-laws were adopted and the

Great Tulare County Cow

Fidessa Helena, 152737, property of Walter F. Mitchell, 609.9 pounds milk, 25.346 pounds fat, or 31.682 pounds butter on 80 per cent basis.

llowing officers were elected: Presi-
nt, S. F. Williams; vice-president,
L. Leonard; secretary, D. F. Nick-
l; treasurer, A. J. Morey. Directors;
H. Bangham, H. F. Harrold, W. G.
rnett, Chris. Myhre. The organiza-
on starts with a good sized member-
ip roll of exceedingly active and en-
usiastic members who plan to put
e Orland district very much on the
rsey map.

J. M. Roberts, field agent of the Am-
ican Jersey Cattle Club, was pres-
t and made a good talk, on the need
r more and better cows. A moving
cture film, secured from the national
organization by Mr. Roberts, was shown. A number of pictures of the great cows of the breed were shown with their records. Orland has soil, water and progressive local banking support, and now this live organization. The Jerseys and their owners will succeed at Orland.

PASSING OF A CHAMPION

Kilnford Bell 3rd, the greatest of Ayrshires and grand champion of champions in show rings of internationals, state fairs and elsewhere, died recently in Wisconsin. She was an imported animal, having produced in Scotland before being brought to this country 12,000 pounds milk in nine months which tested 4.4 per cent.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Skin Disease in Horse

I have a horse whose hair is coming off in spots. The curry comb pulls out tufts of it, leaving the skin bare. The hair has something like dandruff attached to the roots. It does not come out clean as it usually does at the time of shedding. Only the top of the back and the hips seems to be affected. The horse does not seem to itch and does not try to scratch itself, but does like to be curried.—Subscriber, Riverside.

The sample you sent looks like equine pox. It will probably all shed out in time and get all right, but to hurry it up give green feed and keep the bowels loose. Mix a handful of ground flaxseed with the grain twice a day. The best medicine to clear the skin quickly is Fowler's solution of arsenic. Give one ounce once a day in the drinking water or on the feed. Better begin by giving half an ounce once a day for a few days and terminate the treatment in the same manner by reducing the dose. Get a pint of the solution and it will last about three weeks, which will be all you will need.

Ruptured Pigs

Lately we have among our week-old pigs an unusual number of ruptured ones. What may be the cause and how can we prevent it?—Subscriber, Colton.

In a general way one might say rupture was due to overexertion, but why there are more at times than at other times under the same conditions can not be accounted for, so there is no way of preventing it. The remedy is to castrate them by what is called the covered operation. This is done by cutting through the skin in the regular way but being careful not to cut the inner coating or covering of the testicle, drawing this out with the testicle, being careful that the bowel is not included, tying a suture tightly around it all and allowing it to slough off. It takes an experienced operator to do this successfully.

Cow Not Coming in Heat

Will you suggest something to do for a cow that does not come in heat although she has been milked six months.—Subscriber, El Centro.

Your cow needs more exercise and a change of feed. Similar questions have been answered in this column and will refer you to the article in the Cultivator of November 4, 1916, page 440 and March 24, 1917, page 359. You might also get some good suggestions by reading the article on "Preparing a Stallion for Service" in the Cultivator of March 24.

To Reach Cow's Throat

Is there any safe way in which one can put his hand down a cow's throat to remove foreign substances?—Subscriber, El Centro.

The only safe way to reach a cow's throat is by using a speculum, which is an instrument that holds the mouth open and has an opening in it through which you can pass your hand. Veterinarians usually have such instruments for examining the mouths of horses and cattle.

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Buyers who appreciate good registered Holsteins will have an opportunity to secure members of this herd at their own price when we sell the entire herd, excepting a few heifer calves, consisting of
38 REGISTERED HOLSTEIN COWS, HEIFERS AND BULLS
at Public Auction to the highest bidder on
THURSDAY, APRIL 19, 1917
on Mr. Cornwell's farm, two miles north of Modesto, California, on Prescott Road.
Here are a few that would look well in any herd in the country:
Cows with official records up to 26.50 pounds butter in 7 days.
Cows with semi-official yearly records up to 707.31 pounds butter in one year.
A 22.10-pound granddaughter of Paul Beets De Kol, 105 A.R.O. daughters with records up to 32.06 pounds butter in 7 days.
A great 4-year-old sired by Oakland Paul Beets De Kol, 39 A.R.O. daughters, and out of a daughter of Sir Gelsche Walker Segis, 33 A.R.O. daughters.
A daughter of Woodcrest Hengerveld De Kol, 38 A.R.O. daughters, and out of a daughter of Sir Spofford Beets, 10 A.R.O. daughters with records up to 26.76 pounds butter in 7 days, all under mature age.
Splendid heifers and cows with high official and semi-official records, bred to PRINCE HISKE WALKER, son of the famous Prince Gelsche Walker and Hiske of Riverside, 26.68 pounds butter in 7 days, 711.57 pounds butter in one year. He is full brother to Lady Hiske Walker, 25.61 pounds butter in 7 days as a 3-year-old, 654.59 pounds butter in one year as a junior 2-year-old.
Prince Hiske Walker Himself will be sold
And any breeder looking for a richly bred herd header of real herd heading quality should be on hand prepared to take this fellow home when he leaves the sale ring.
There will also be a choice offering of young sons of Prince Hiske Walker out of well bred and high record dams.
We will also sell for Mr. Cornwell 6 head of high grade Jersey cows and heifers.
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NOTICE—A meeting of California Holstein-Friesian Association will be held at 8 o'clock on the evening of April 18 at Hotel Hughson, Modesto. A good program is assured and all interested are cordially invited to attend.

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Ask ME — I know
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and about 20 head of high grade Holstein and Jersey heifers from the herds of Stalder Bros., ROSAMOND FARM, near Riverside, Cal.
Buyers of registered Holsteins have never before been offered such high record blood from one herd in California. Here are some of the 60 head to be sold:
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15 granddaughters of Prince Gelsche Walker and Aralia De Kol, former world's record cow.
20 cows and heifers in calf to a 34-pound grandson of King of the Pontiacs.
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BULLS
A son of a 34-pound cow and sired by a 29-pound son of Prince Gelsche Walker.
A son of a 28.91-pound cow sired by a 29-pound son of Prince Gelsche Walker.
5 sons of a 34-pound sire and out of good dams.
Catalog now in preparation. Write for a copy.
Sale under management of
California Breeders' Sales & Pedigree Co.
Auctioneer: Col. Ben A. Rhoades, Los Angeles
Sales Mgr. C. L. Hughes, Sacramento, Cal.

Highgrove, Riverside County, has formed a local of the farm bureau.

How to Eliminate Coyotes

I believe the sheepmen themselves can do most toward the destruction of the coyote. Every one of them should have a hunter out each season trapping and poisoning. We cannot allow ewes to be destroyed. I think poisoning is by far the most effective method of destruction. I take a little lard and roll it on a board with sugar. When you get a ball of lard about one inch in diameter, make a hole in the center of it and insert a three-grain capsule of strychnine. These baits can then be scattered around, but preferably on old bed grounds just as the sheep are leaving. As soon as the sheep leave, you will find the coyotes flock to the old camp and pick up everything, and they will take the poison if it is there. These lard baits stay hard in cold weather, but when it gets warm, they melt, so dogs will not pick them up the next spring. We put out a number of these baits around our camp in Wyoming this fall and killed 35 coyotes in two nights.

Many sheepmen are afraid to put out poison because they fear their dogs may get it. I believe I could well afford to tie up the dogs and put two herders with each band during the winter. Some outfits are losing from coyotes a sheep a day from each band. If this could be stopped it would soon pay the cost of the extra herder. This winter I have sent out 5000 capsules of strychnine to Southern Wyoming.—A. H. Christensen in National Wool Grower.

Hereford Breeders to Meet

The Pacific Coast is naturally a Hereford country. Herefords are being extensively used in the Hawaiian Islands. Practically every other breed of cattle represented on the coast is already represented by an association Secretary Kinzer writes that such an association should be organized.

Breeders of Herefords in the states of Washington, Oregon, Idaho, Nevada and California and in the territory of Hawaii are urgently requested to attend a meeting to be held at the Palace Hotel, San Francisco, at eight p. m. Wednesday, May 2, in order to organize a Pacific Coast Hereford Cattle Breeders' Association.

The first public sale of registered Herefords ever undertaken in California will take place on the D. O. Lively stock farm at Mayfield, which is about 30 miles from San Francisco, on May 3, and the evening preceding that date occurs to us as the opportunity for breeders of white faced cattle to get together. Secretary Kinzer, Director A. B. Cook and perhaps other officials of the American Hereford Cattle Breeders' Association, will be present.

There was never a time in the history of the industry when there was so much interest in pure bred cattle as at this time, and certainly the breeders of Herefords have come in for a full share of prosperity.

Charles Rule, H. H. Gable, D. O. Lively, Committee.

Carob

In a University of California circular we note reference to the Carob, or St. John's Bread tree, the pod rather, as a valuable stock feed. It must be borne in mind however that seedling trees may or may not produce the feed and to be sure of getting a bearing tree of worth one should graft or bud. The circular says:

"Beans that grow on a tree, a promising crop comparatively new in California, will prove a good constituent of the grain mixture for calves. This feed is the pod of the carob, an evergreen tree highly prized in Southern Europe and the islands of the Mediterranean as feed for live stock. These tree beans are used also as a food for humans, for cooking, ground with cereals. The carob tree grows well in the central and southern coast counties of California. It may be planted on nonarable land, in pastures, hillsides, and stony and other waste places, etc., and in time yields a regular supply of a highly palatable and valuable feed for stock, without further effort and expense than the harvesting of the crop. The carob is reported to yield 300 to 500 pounds of pods per tree per annum when full grown. Before feeding the pods should be crushed with machinery for rolling barley or oats and mixed in equal proportions by weight with ground milo. Calves relish the pods greatly because of their high sugar content. The carob pods are equal to barley in nutritive value, at least as a feed for calves.

Field Notes from the Live Stock Men

Maurice Rucker has recently sold a Duroc-Jersey sow and pigs to Geo. P. Robinson.

The Roselawn Stock Farm of Woodland is consigning eight Shorthorns to the Northwestern Breeders' Association sale at Portland, Oregon, on April 3, and six to the same association's sale at Spokane, Washington, on April 5.

H. P. Eakle Jr. reports Duroc-Jersey sales as follows: R. M. Holt, bred sow; Jay Reith, ten gilts and a boar; Geo. Hayes, boar; A. S. Cowder, boar; A. Crawford, bred sow. Mr. Eakle reports his sows as having fine litters, seven sows farrowing with a total of 69 pigs.

California Breeders Sales and Pedigree Co., announces two more sales: Dispersal of Willowwood herd of 60 head registered Jerseys, owned by C. G. McFarland, Tulare, May 17; 60 head registered Holsteins; 17 head registered Percheron stallions, mares, and colts; 20 head grade Holstein and Jersey heifers. Rosamond Farm, Stalder Bros., Riverside, Cal., May 22.

H. L. and E. H. Murphy have recently sold seven registered Berkshire porkers at 12½ cents a pound. They dressed out 83 per cent, commanding a premium of 60 cents a hundred. The total price paid them for the seven was $400.08.

H. L. (Harry) Murphy returned from the East last week with 31 head of registered Shorthorn cattle. Nine of these were for W. H. Hammond, and the balance (22) for the Elder Creek Ranch. W. H. Frisselle, manager of the Tehama ranch, was with Mr. Murphy on the trip and assisted in the selection of the cattle. Mr. Murphy plans to go east again to make further purchases in a short time.

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Canadian Branch: Chatham, Ontario

CALIFORNIA BREEDERS' SALES AND PEDIGREE COMPANY
PUBLIC SALES OF REGISTERED LIVESTOCK
THE WEST'S BEST
Jerseys
at your own price
We are instructed by Mr. C. G. McFarland, owner of Willowwood Herd of registered Jerseys, Tulare, Cal., to sell the entire herd numbering about 60 head, at public auction, absolutely without reserve or limit, on Thursday, May 17, 1917.
This herd contains some of the very greatest Register of Merit cows on the Pacific Coast, and all of them together with their daughters will be sold to the highest bidder.
There will be a splendid selection of young bulls, many out of dams with high Register of Merit records and by richly bred sires.
This is absolutely the best herd of registered Jerseys ever offered for sale in the state of California.
Catalog now in preparation. Write for one.
Sale under management of
California Breeders' Sales & Pedigree Co.
Auctioneer: Col. Ben A. Rhoades, Los Angeles
Sales Manager: C. L. Hughes, Sacramento, Cal

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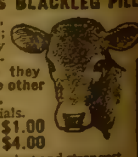
Low-priced, fresh, reliable; preferred by western stockmen, because they protect where other vaccines fail.

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Use any injector, but Cutter's simplest and strongest. The superiority of Cutter products is due to over 15 years of specializing in VACCINES AND SERUMS ONLY. INSIST ON CUTTER'S. If unobtainable, order direct.
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My Herd is all Register of Merit Stock---Averages as High in Butterfat as any Herd on the Coast
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Sows, gilts and a few boars of the best breeding FOR SALE
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Berkshire Hogs—Milking Shorthorns

Breeding Stock For Sale

G. A. Murphy - - Perkins, Cal.

C. B. Cunningham reports a widespread interest in Chester Whites, having made recent sales in Oregon, Arizona and Hawaii. This speaks well for the popularity of California breeding stock.

H. E. Coit, Woodland, has sold his entire herd of registered Herefords at a very satisfactory price. Mr. Coil is not intending to quit the business but is already making plans to have a larger and a better herd this fall along the best blood lines in the country.

The Peters, Lamson & Walker Co. writes that with their idea of building up the finest herd of hogs in the country, they have made some wonderful importations in the last few months. Among them is Model Lady Fourth, one of the very largest type sows in the Waltmeyer herd of Melbourne, Iowa. She was 2nd at Iowa in 1916, being beaten by the sow who later was grand champion at Iowa and the National swine show and considered about the best Duroc sow ever shown. Model Lady 4th has just farrowed nine fine pigs sired by Waltmeyers Great Wonder, the grand champion boar at the Iowa state fair. 1916. We also have one of Hanks & Bishops highest priced gilts bred to Pathfinder, the boar that is rated by all the papers as the best boar of the breed today. Then we bought from O. S. Larson a Redeemer gilt bred to King The Col, the boar that has sired so many herd headers in the Middle West. We also bought a splendid yearling golden Model gilt from R. Widle which we have mated with out Grand Golden Model. This boar by Grand Model, the grand champion at Iowa, Minnesota and South Dakota is a real boar, and has been shown but once, winning first at Riverside. His litter mate showed first at Iowa this year and later defeated all the futurity winners at the various state fairs when they came to Omaha (a gilt). The smallest litter this boar has sired is nine living. He is a great big high backed boar and has the typical feet and legs of the Golden Models. He is a line bred Golden Model.

Ray C. Hannan, Tehama County Berkshire breeder, says the demand for boars is good. In the last 30 days he has made sales to V. C. Cleek, D. B. Deeter, W. B. Carpenter.

DAIRY COW COMPETITION

Continued from Page 399

53.518; No. 811, Gr. G., 4, 61, 1159.7, 4.56, 52.882; Imp. Brittleware Wild Rose, G., 4-11, 51, 895.2, 4.93, 44.163; No. 812, Gr. G., 4, 66, 858.2, 5.08, 43.597; No. 480, Gr. G., 4-9, 6, 1031.1, 4.06, 41.863; No. 485, Gr. G., 4-5, 137, 820.1, 5.03, 41.251; Capellis Jessie, G., 6-6, 78, 828.2, 4.83, 40.002.

Kell, F. J.: No. 447, Gr. H., —, 2534.0, 2.9, 73.486; No. 65, Gr. H., 3-2, 4, 1764.0, 3.9, 68.796; No. 102, Gr. H., 3-1, 12, 1573.6, 3.6, 56.650; No. 63, Gr. H., 3-2, 5, 1752.8, 3.1, 54.337.

McAlister, J. W. & Sons: Maud Rachael Segis, H., 7, 26, 2267.2, 3.49, 79.125; K. P. Tola, H., 4-6, 9, 1802.8, 4.21, 75.898; Segis Spring Farm Pontiac De Kol, H., 2-2, 22, 1628.3, 3.52, 57.316; Lockhaven Colantha Segis, H., 3-10, 39, 1763.9, 3.17, 55.210; *K. P. Baby Walker, H., 1-11, 5, 1053.7, 4.73, 49.840.

McFarland, E. B.: Willowmoor, Vesta 4th, Ayr., 4-7, 157, 1449.8, 3.99, 57.847.

Mealey, S. A.: Beauty, Gr. H., 5. 136, 1254.4, 3.42, 42.644.

Miller, Guy H.: Goldie of Venadera, J., 7-1, 62, 1120.2, 4.75, 53.210; Lorna of Venadera, J., 2-8, 61, 1015.8, 4.89, 49.673; Pearl of Venadera, J., 10-6, 156, 783.0, 5.91, 46.275; Wanda of Venadera, J., 10-3, 164, 704.9, 6.24, 43.986.

Morris, A. W. & Sons Corp.: Aaggie Acme of Riverside 2d, H., 6-1, 87, 2373.0, 3.98, 94.445; Aralia De Kol 3d, H., 6-2, 85, 2136.2, 3.77, 80.535; Hartog Creamelle De Kol, H., 7-5, 89, 2492.0, 3.08, 76.754; Aralia De Kol Pontiac Mead, H., 2-7, 77, 1366.3, 4.36, 59.571; Cobossie Korndyke Burke, H., 2-3, 67, 1369.6, 3.57, 48.895; Aralia Mead Pontiac De Kol, H., 2-7, 91, 1502.3, 3.22, 48.374.

Napa State Hospital: N. S. H. Queen, Gr. H., 7, 61, 1955.7, 3.83, 74.903; No. 15, Gr. H., 6, 95, 1761.7, 3.86, 68.002; N. S. H. Brownie, Gr. H., 6, 51, 1999.6, 3.25, 64.987; N. S. H. Beauty, Gr. H., 3, 41, 1994.5, 3.09, 61.630; No. 67, Gr. H., 4, 71, 1658.2, 3.70, 61.353; No. 29, Gr. H., 5, 91, 1670.8, 3.62, 60.483; Shy Lady, Gr., H., 3, 31, 1944.3, 2.86, 55.607; No. 30, Gr. H., 4, 141, 1637.9, 3.19 52.247; No. 68, Gr. H., 4, 72, 1923.5, 2.38, 45.779.

Pacific States Corp.: Forest View Wayne Korndyke, H., 5, 36, 2671.6, 3.09, 82.552; Tagus, Julip Astrologess, 4-4, 8, 1921.8, 3.74, 71.875.

Palo Alto Stock Farm: Jennie Terzool Hicks, H., 7-9, 12, 2496.5, 3.59, 89.624; Imp. Miss Jane of Lewison, G., 5-8, 26, 1877.9, 4.20, 78.872; Roxie Pauline Burke Hengerveld, H., 6-3, 15, 2199.5, 3.42, 75.223; May Wa Wa De Kol Burke 3d, H., 6-11, 64, 2193.8, 2.69, 59.013; Kitchener's Dainty Lass, G., 5-7, 14, 1151.6, 4.89, 56.313; Imp. England's Lady Orange, G., 5-6, 40, 1220.3, 4.51, 55.036; Mousie De Kol Lady, 2d, H., 5-8, 72, 2111.3, 2.57, 54.260; Mystic's Jane of Alta Vista, G., 9-11, 31, 1352.2, 3.81, 51.519; Athalva 2d, H., 5-2, 86, 1970.5, 2.38, 46.898.

Standish, A. M.: Belle, Gr. H., —, 1117.2, 5.65, 63.122; Annie, Gr. H., —, 1066.8, 4.01, 42.779; Rose, Gr. H., —, 1167.6, 3.66, 43.734; Rossette of Milpitas, Gr. J., —, 865.2, 4.75, 41.097; Queen, Gr. H., —, 1142.4, 3.51, 40.098.

University Farm: Interested Jap's Santa, J., 4-2, 34, 1546.3, 4.62, 71.439; Korndyke Senorita, H., 6-2, 30, 2223.4, 3.01, 66.924; Fern Ridge Pearl, G., 7-3, 34, 1207.2, 5.27, 63.619; Cherry, Gr. S., 8, 64, 1337.2, 3.95, 52.819; Agnes Colantha, H., 5-3, 97, 1147.6, 3.68, 42.232; Willowmoor Cherry, Ayr., 7-6, 117, 1844.3, 4.91, 41.455.

Stenzel, F.: Spot, Gr., H., 3, 13, 1711.0, 3.91, 66.900; Brownie, Gr., H., 5, 11, 1446.7, 4.61, 66.693; Blackie, Gr. H., 5, 46, 1901.7, 3.29, 62.566; Carmelita, Gr. H., 3, 28, 1517.9, 3.31, 50.242; Janette, Gr. H., 5, 73, 1780.9, 2.78, 49.509; Dixie, Gr. H., —, 67, 1400.9, 3.41, 47.771; Rosa, Gr. H., —, 47, 1701.1, 2.80, 47.631; Fannie, Gr. H., —, 89, 1461.7, 2.95, 43,120; Rumpy, Gr. H., —, 101, 1778.6, 2.39, 42.509; Spot Teat, Gr. H., —, 51, 1451.0, 2.78, 40.338.

Van Derpoel, F. H.: Fern's Silver Ray, J., 7-11, 17, 1508.5, 4.86, 73.313; Lowland Lad's Lily, J., 12-10, 10, 961.2, 4.91;, 47.195.

Vina Ranch: Blanar, H., 6-2, 33, 2250.8, 2.95, 66.399; Boweda, H., 6, 79, 1913.8, 3.45, 66.026; Doremoon, H., 6-10, 79, 1577.9, 3.90, 61.538; Lady Ormsby Burke, H., 3-11, 27, 1837.3, 3.33, 61.182; Lady Spotlight Ormsby, H., 3-2, 26, 1574.2, 3.81, 59.977; Colantha Ormsby Muchacha, H., 2-7, 11, 1621.6, 3.28, 53.188; Arequipa, H., 6-7, 34, 1860.4, 2.64, 49.115; Belpil, H., 6-2, 23, 1390.6, 3.37, 46.863.

Winner of Pacific Rural Press prize for February: Napa State Hospital; average production of five grades, 63.696 pounds butter fat (Stenzel, 59.182 pounds; Hollow Hill Farm, 49.090 pounds; A. M. Standish, 46.166 pounds; Abbott, 45.102 pounds).

Winner of McAlister & Sons' prize for February; Stenzel, Gr. H., 66.900 pounds butter fat (credit 78.942 pounds); Napa State Hospital, Gr. H., 74.903 pounds, second; Kell., Gr. H. 73.486 pounds, third.

Total entries to date, 229 cows. Average production for February (166 cows) 1300.3 pounds milk, 49.081 pounds butter fat. Range 94.4—21.6 pounds.

†19 days.
‡20 days.
*21 days.

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B-K is handy. You have in one jug your treatment for calves, cows and bull, also your disinfectant for general use. No special mixing of various ingredients; saves trouble and mistakes; insures promptness, accuracy, convenience and successful results. B-K is used so successfully by leading breeders throughout the U. S. that the demand for it has increased over 400 per cent within two years. A well-known breeder of registered stock says:

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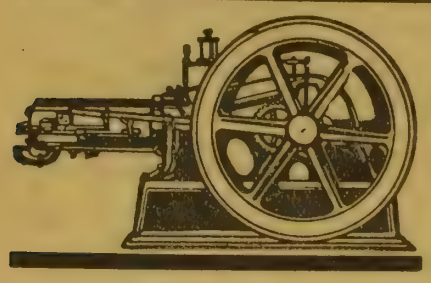

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Swarming

Written for California Cultivator By Henry Perkins

THERE are numerous artificial means of increase but only one natural one, that is swarming. Swarming is instinctive. All efforts on man's part to eliminate it by selective breeding have thus far accomplished little. The desire to swarm is promoted largely by seasonal conditions. The outlook for honey must be good. Brood rearing must have progressed to a point that finds the colony filled with young bees and a large amount of mature brood. The appearance of queen cells in the hive is the first indication of its intention to swarm. Once a colony gets its queen cells well under way it is as difficult to prevent it from swarming as it is to break up a sitting hen. Ordinarily the colony will cast its prime swarm when the queen cells are eight to ten days old. The queen and about three-fifths of the bees comprise the swarm. The remaining two-fifths of the bees remain in the parent colony and are soon reinforced by the hatching brood.

Don't knock the bottom out of your dish pan making a noise with the idea that it will induce your swarm to light. They will light just as quickly if you are away from home. You may get busy fitting up a hive with frames and a comb of brood taken from any convenient colony. As soon as the swarm has clustered on a limb place your hive conveniently near on a box or on the ground. Then shake the swarm down in front of the hive and watch the bees make a rush for the entrance. If you watch closely enough you will see the queen making her way with the others.

It is the odor of the brood that does the trick. Bees may be hived without brood by shaking them directly into the hive but a skilled beekeeper never omits the brood and never bothers to put them in the hive.

A swarm sometimes clusters high up in a tree. In such a case one needs a round open top basket and a long ladder. Climb up to them and gently slip the basket over the cluster, then give the limb a brisk shake. If the job is well done you make take your time descending the ladder and carry your swarm where you please, depositing it in front of a hive supplied with brood as above described.

There is another advantage in using brood in hiving a swarm. If the queen should be accidentally lost or killed during the operation the bees will immediately begin constructing queen cells on the brood comb. Without brood they would have no means of replacing their queen and would soon become demoralized.

Now that our swarm is safely hived let us return to the hive from which it emerged. It has no queen but has a half dozen or more sealed queen cells which will each produce a virgin queen in four to six days. If we allow all the cells to mature one of two things will happen. The first virgin to emerge will soon destroy all the others, or, as often happens, if several emerge simultaneously the colony will cast one or more after swarms. After swarms may contain all the way from two to a dozen virgin queens.

Just as soon as they settle a royal battle begins. The workers sometimes take a hand with the result that the swarm turns up queenless. So to forestall such a calamity we will destroy all the queen cells in the hive save one. This one queen cell will supply the hive with a new queen just as effectually as a dozen could do and with the dangers of the elimination process avoided.

It is a noteworthy fact that after swarming is less prevalent among Italian bees than among other races. Seasons which promise abundant forage seem to promote it. Afterswarming is a freak of domestic beekeeping. Bees in their wild state seldom cast more than one prime swarm.

CROP REPORTS

Continued from Page 403

think the crop is shortened as there is an abundance of bloom. Some peach orchards are badly enough injured to shorten the crop very materially. This applies especially to clings; freestones are not so severely injured, and owing to the fact that there is an abundant bloom we could spare more than nine-tenths and have plenty left then.

This, I think, is the condition in a great many cases, while nearly all of the bloom is destroyed. At the same time there is often enough left to produce a crop. Of course it is impossible to tell at present how much of this that now looks good will prove uninjured, as you of course know that in a case of this kind the fruit will frequently grow until the size of a hazel nut and then drop from the effects of the cold several weeks previous. This I am afraid will be the case in many instances, although I am hoping for the best.

In the north end of the county, through the Dinuba section where many peaches are grown, the conditions are much better, in fact I see no damage to date. This condition is very often the case in this county, as it always gets colder down here in the bottom lands than it does in the Dinuba section.

It will be impossible to form any accurate estimate of the peach crop here for at least two or three weeks, although we now know that in many orchards it will be somewhat shortened.

Lester C. Reed, Simi, Ventura County

Even yet it is rather early to give a good crop estimate. From my observation 60 per cent would be a very conservative estimate. Most of the fruit on the younger trees were killed; and on some of the older trees, while others have a full crop.

There seems to be a general inclination among the growers to underestimate the crop, which in my opinion is the worst possible thing to do as you say in your inquiry "The buyers are already informed." We need information for ourselves.

Winters Dried Fruit Company, Yolo County

The last half of March was favorable to all growing crops. Previous to this we experienced unusual cold and unseasonable weather. Our usual wet month, January, was dry, no rain falling from the first of January until the latter part of February. Trees were backward in blooming, although heavily set. During the blooming period of apricots and almonds heavy rains prevailed, reducing the prospect greatly. Rainfall to date little below normal. Estimates given below are based on normal 100 per cent, and still subject to further reduction from frost, etc.

Apricots estimated at about 40 per cent of normal crop of 8000 tons green. Some orchards have fair crop, others practically nil.

Almonds: Hatch varieties light, particularly the IXL's. Drakes, and Texas look good. Estimated: Nonpareils, 30 per cent; IXL's, 20 per cent; Neplus, 40 per cent; Peerless, 50 per cent; Drakes, 100 per cent; miscellaneous, 75 per cent.

Peaches: All varieties look well and show good prospect with the exception of Tuscan Clings. Estimated: Muirs, Lovells and Yellows, 100 per cent; clings, 33 per cent.

Prunes: Trees now in full bloom, prospects for good crop. Small acreage in this district.

Shipping Plums: Prospects good.

Boys and Girls Send in Your Names!

WE GIVE AWAY SHETLAND PONIES

This is the Easiest and Best way to get one. Any Reader may send in the name of any boy or girl.

The Best Pet and Playmate any Child Can Have

Wouldn't you like to have us send you a fine pony like this?

Just the Prize Every Boy and Girl Wants Most

How to Get a Shetland Pony

The California Cultivator, the big agricultural and live stock weekly of California, is going to give away some more Shetland ponies, and you might just as well have one as anybody. Send in your name and address today so we can tell you all about it. It costs no money to enter or take part. Already the Pony Man has given away 151 Shetland ponies to boys and girls for doing a little work that you or any boy or girl can easily do during spare time. Many other boys and girls say it is easy, and I believe you will say it is too.

These Shetlands we give away are fine, valuable little horses, all trained for children to ride and drive. Read the letters we are printing and see what the other boys and girls say who have won our prize ponies.

A Shetland pony is the nicest pet and playmate any child can have. They are fine to ride and drive to school for they are perfectly safe and by nature are great pets and very strong, useful animals, too. Many boys and girls who have to walk to school have sent to California Cultivator for a Shetland pony.

The Pony Man had never heard of any of these other boys or girls until they sent him their names and addresses so he could write and tell them how to go ahead.

Three more fine Shetlands and outfits will be given away Thursday, May 31, 1917, to boys and girls who do some work for us that will be easy to do. The sooner you send in your name the sooner you can get started.

Each Pony Is Gentle and Broken to Ride and Drive

These Ponies Are Fine to Ride to School

A PRIZE FOR EVERY BOY AND GIRL

And here is another important point. If you send us your name and address at once you will be entitled to take part in the Extra Prize Awards and you can sure earn a fine camera and gold watch or other valuable prize. You cannot lose, everyone taking part will receive a prize or cash for the work done.

"King," a beautiful young Shetland and pretty outfit consisting of a fine four-wheeled pony runabout and nickel mounted leather pony harness is the first prize, and that is the one you want and you might just as well have "King" as anybody. Send us your name and address right away so you can get started at once and get a pony for yourself. Besides "King" we are going to give away two other fine Shetlands, "Stepper" and "Beauty", and a pretty saddle outfit with each one. As soon as we hear from you we will send you pictures of other boys and girls and the ponies they got and tell you how to go ahead. If you already have a pony and know some other boy and girl who would like to have one, please tell them about these ponies we are going to give away.

WAS OFFERED $200 FOR HIS PONY AND OUTFIT

Here is a letter from Earl Frederick, who won first prize pony and outfit about a year ago. He was offered $200 for his prize, but would not sell it. "King" and his pretty outfit are just as nice as Earl's pony and outfit. Here is Earl's letter:

"Dear Pony Man: I received 'Bingo' and the buggy and harness which I was fortunate enough to win, and I am well pleased, as it is a better outfit than I really expected. I have been offered $200 for it, but of course it is not for sale. I want to thank you for it and advise any boy who wants a Shetland pony to enter and work and earn one, for it is sure a pleasure to ride or drive a pony like the one I got. I will have my picture taken with the outfit and send you one. Again thanking you, I remain, your friend,

EARL FREDERICK."

DELIGHTED WITH THEIR PONIES

I have already given away 151 Shetland ponies and pony rigs to boys and girls and if you haven't a pony now is your time to get one. You will be just as well pleased as the others. I have not the space here to print all the nice letters the boys and girls have written me, but I will send many more when I hear from you. Some have been offered $200 for their ponies and outfits, and would not accept it, so you see these are valuable prizes we give away.

Rialto, Cal., December 27, 1916.

Pony Man, California Cultivator.

I take pleasure this morning in writing you a few lines for Percy, thanking you for the nice prizes he received. He certainly was delighted with them. If the other contestants were as pleased as Percy they certainly were a happy lot on Christmas morning. Yours truly,

MRS. W. F. FOWLER.

TAUGHT HIS PONY TRICKS

"I am sending you a picture of myself and 'Colonel' and his outfit. I was sure glad to get him, for I think him peaches and cream. He drives fine and I ride him also. He will lie down, shake hands, jump over a stick, stand on his hind legs, and try to do most anything I tell him. He seems to understand what I say. Again thanking you for 'Colonel' and outfit, also those who took the paper, I remain, "ELMER LINDSAY."

WINNERS OF OTHER PONIES RECENTLY GIVEN AWAY

Beulah DeWitt, Ventura County.
Raymond Moyer, Riverside County.
Margaret Rae, San Bernardino County.
Marguerite Rinn, Sacramento County.
Gertrude Fawcett, San Joaquin County.

WINNERS OF PONIES GIVEN AWAY MARCH 24, 1917

Earl McAllister, Kern County.
Torance G. Spike, Jr., Fresno County.
Verna Cole, Ventura County.

Marina, Cal., January 14, 1917.

Dear Pony Man:

I am very much pleased with my watch. It keeps accurate time. I have only had to set the hands once. I feel very well rewarded with it for the little work I did for you. I feel as though I have not done enough for you. I would like to enter any other campaign that you have, so please let me know about it.

Very truly,
THOMAS SAMUELS.

Sacramento, Cal., February 12, 1917.

California Cultivator, Los Angeles.

Dear Sirs—I wish to thank you very much for the way in which you conducted the recent campaign in which I took part. Your paper is very well known throughout the country which makes soliciting much easier and encourages one to work harder. The system you have in keeping the contestants informed as to their standing could not be improved upon.

I worked as hard as I knew how and although I was not fortunate enough to carry off the first prize I am very well satisfied with the second, which at present I would hate very much to part with.

The pony is just great. I am growing more fond of her every day and she is as gentle as a kitten. So far I have been riding her but as she either drives or rides I intend to get a small cart so that I may give some of my interested friends a ride.

Again thanking you for your kind treatment during the contest and dandy pony and saddle I received, I remain Yours very truly,

JACK HENDERSON.

Sign This Blank and Mail Today:

Pony Man, California Cultivator,
115-117 North Broadway, Los Angeles.

Please tell me how I can become the owner of one of the Shetland or Hungarian ponies you are going to give away.

My Name _____

My Address _____

R. F. D. or St. Address _____ State _____

My Father's or Mother's Name _____

(BE SURE AND FILL THIS BLANK OUT COMPLETELY AND CAREFULLY AND MAIL TO THE ABOVE ADDRESS.)

Address All Communications to
THE PONY MAN, CALIFORNIA CULTIVATOR
115-117 No. Broadway, Los Angeles, Calif.

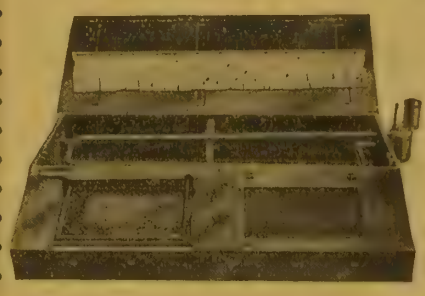
The Pride of Petaluma Fresh Air Brooder Stove

Well, here we are again, and our No. 20 catalogue is now ready for you. It's a HUMDINGER, and if you are interested in poultry you should have it. It's full of splendid information about brooding in bunches from 300 chicks on up with the brooder stove system. If you are satisfied with your present brooding system, get our catalogue and learn how you can BEAT IT. If not satisfied, GET OUR CATALOGUE No. 20, it will put you RIGHT. We also have a splendid HOT WATER SYSTEM, but we can't tell it here, so Get our CATALOGUE No. 20. IT'S FREE FOR ASKING.

Pride of Petaluma Fresh Air Brooder Stove Factory

Petaluma **J. E. KRESKY** **California**

"PIONEER" HOT WATER BROODER



Storm proof. The best made brooder in America at the price. 18 square feet floor space, easily heated to 100 degrees; copper boiler; oil saving jacket; will run 30 days on $1 worth of oil; holds 200 chicks easily. Free 50-PAGE ILLUSTRATED CATALOG gives full details.

"PIONEER" INCUBATORS USED BY 43 WESTERN HATCHERIES. We sell on easy payments, ship incubators anywhere on approval; no money in advance.

If you are interested in Iucubators or Brooders or Baby Chicks, etc., write us today.

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World's Largest Baby Chick Dealers 320 S. Spring, LOS ANGELES, CAL.

APOLLO ROOFING

— FULL WEIGHT —

Fireproof—Strong—Durable.

Gives unexcelled *protection* to your farm buildings.

APOLLO-KEYSTONE COPPER STEEL GALVANIZED SHEETS are unequaled for Culverts, Tanks, Silos, Flumes, Cisterns, Roofing, Siding, and all forms of exposed sheet metal work. These sheets are highest in quality and should be used wherever a highly rust-resisting and durable material is required. Accept no substitute. Look for the stencil with the added Keystone—it indicates that Copper Steel is used, and insures service and satisfaction. Sold by weight by leading dealers. Our "Better Buildings" booklet is sent free upon request.

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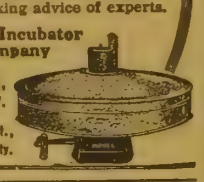
Your Eggs

They would if you hatched them in a MODEL INCUBATOR and raised the chicks under a Model Hover. These machines are guaranteed result-getters.

Incubators, $10 to $48. 100% hatches three consecutive times. Coal-Burning Hover, $15. International Sanitary Hover (Oil-Burning) $10.00 Model Machines Have All Latest Improvements. *FREE BOOK* tells all about them and gives profit-making advice of experts.



Model Incubator Company

66 Henry St., Buffalo, N. Y.

39 Barclay St., New York City.

A Great Feed Saver

Lee's Egg Maker

Assists assimilation. Prevents disease. Shortens the moult. Makes hens lay when eggs are high.

A 25-lb. pail enough for 500 lbs. of feed.

100-lb. drums
25-lb. pail
5½-lb. pkg.
2½-lb. pkg.

Globe Mills Los Angeles San Diego San Francisco Colton

BARGAINS - BARGAINS

Mandy Lee Incubators

We are selling out our line of Mandy Lee Incubators. While they last we will offer 140-egg Mandy Lee Incubator for $15.00 f.o.b., Los Angeles. This is less than we paid for them. Absolutely guaranteed. Other sizes for sale. Send for catalog.

GLOBE MILLS Los Angeles, Cal.

Tells why chicks die

E. J. Reefer, the poultry expert, 426 Reefer Bldg., Kansas City, Mo., is giving away free a valuable book entitled, "White Diarrhoea and How to Cure it." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

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Every time you buy an article, advertised in the California Cultivator, at the local store you do your town some good.

Letters to a Beginner

Written for California Cultivator By Jean A. Koethen

WATCH THE MITE

DEAR George:—Did you ever go out to the chicken house on a warm spring evening to take a broody hen from the nest? And did you, after you had come in and were seated by the shaded lamp to enjoy the evening paper, begin to feel a mysterious crawling on your arms and your neck? Did you call on each member of the family in turn and finally on all together to hunt and catch the mysterious crawler on the back of your neck before it hid in your hair? If you did, you know a little, just a little, of the agony a chick endures when it is persecuted by the little red mite, an enemy so small you can hardly see it, so clever a hider that you cannot find it in daylight unless you know exactly where to look.

Now just multiply the dozen mites that crawled onto your arms when you handled the hen by 100,000, and put them on a chick that weighs at the most one-three hundredth part of what you do, that has no family or friends to hunt and kill the creatures and is absolutely powerless to reach them, even if it could see them—put that million of mites on one poor little helpless chick and let them crawl and crawl and crawl, not for an hour or so, but all night, and not for one night, but night after night, would you think it strange if the chick, unable to get a minute's sleep, should begin to droop? And if those million mites were not only crawling as they did on your neck, but biting, as they never do on us humans, sucking the blood of the poor little chick night after night till it had hardly a drop left, would you think it strange if that chick some night gave up the struggle?

Careless feeding and overcrowding kill their thousands every year, but the mighty mite kills its tens of thousands. I am amazed again and again at the number of people who tell me. "We have no mites". Yes? And how do you keep them off your premises? "Oh, we don't do anything. We don't have them." Now, George, as a practical poultryman you know better than that, of course. You know that mites are never long absent from any plant unless precautions are taken to keep them out, and you are painting your houses every week or so with kerosene and crude carbolic acid. That is all right, but are you sure you know what to look for and where to look in your brooders when the chicks begin to look tired and droopy?

One year when Dorothy and I were raising chicks in an outdoor brooder we were much mystified by the evident presence of mites. The chicks were droopy. We painted and cleaned, and still the chicks drooped. Finally it occurred to me to look under the strip of asbestos which protected the top of the hover, and there we found them, millions and millions of them. Do you know what they looked like? One doesn't look for anything large when he is looking for mites. These looked like nothing so much as the grayish dust that surrounds or belongs to (I hardly know how to put it) a cobweb. Yesterday, as I was brushing down cobwebs in the feed house I came upon one that looked so much like a nest of mites that I had to rub it with my finger to make sure. This is the test: If you put your finger on one of those grayish patches, and on removing it can see nothing move and feel nothing move, it isn't mites. If something crawls, look out.

Well, when we saw that grayish dust under the asbestos of the brooder, we knew we had our work cut out for us, for the creatures have a trick of burying themselves in cracks and even in the interstices of a wooden board, which is very annoying. We took off the asbestos and washed and painted. I rather think we used boiling water that time before we put on the kerosene and crude carbolic, for boiling water is very effective if only it reaches the mites, and we painted with the disinfectant more than once before we dared put the chicks back in the brooder. I never felt quite easy about that brooder afterward, for there is nothing harder than getting out mites once in, but we kept washing and painting, and if the mites were there they never dared to come out.

You might suppose they would starve to death if only the surface of the wood were kept saturated with disinfectants, and I suppose they would in time, but it takes a long time. A brooder or coop that has once been infested must always be watched. That is why I prefer, for my hen-mothers and their broods, to buy clean new boxes every year or so for coops. A good, solid dry goods box, such as you can buy for 50 cents, makes a splendid brood coop. The first season, if you are careful and use disinfectants freely, you will probably keep the mites out of it. The second, you will need to be more watchful, and when this season is over you can split the box up for kindling.

Raising chicks as you do in lots of from 600 to 1000 you cannot employ this simple method of evading mites, and so you will have to be doubly watchful. If your brooder house is freshly whitewashed on the outside every spring before you put chicks into it, it will be easier to keep them out, but it is only by thorough cleaning and disinfecting between hatches and the greatest watchfulness while the chicks are in the house that you can be sure it is clean.

I spoke of the mite as gray, but this is only when it is empty. As soon as it begins to feed on the blood of a hen or a chick its color begins to brighten, and when it is full it is a deep red. Perhaps this is why a good many people have trouble in recognizing them. They are looking for something red and so do not notice the little gray spot which, when you see it on your arm, can hardly be distinguished from a freckle.

If the little red mite could only be eliminated California would indeed be the Poultryman's Paradise it has sometimes been called. As it is, early hatching is a great help in its elimination, for these pests do not breed in cold weather and are far more troublesome in May and June than in March and April. If you get your chicks out early the mites will have comparatively little chance at them and you will save yourself a lot of trouble.

Affectionately,

Aunt Jenny

The "Egg Bill"

Written for California Cultivator By C. A. Wilkins

A HEARING on Senate Bills 462, 463, 464 and 565 was held in the senate agricultural committee rooms on March 27 to give the proponents and opponents an opportunity to present the merits and demerits of the bills. These are known as the "egg bills" and have been discussed in previous issues of the Cultivator.

Former Assemblyman Knox Boude of Sebastopol; Howard Hansen of Penn Grove; J. M. Abeel of Sebastopol, and the writer appeared as proponents.. Opposition to the bills, with the exception of 462, was presented by Wm. M. Foley, secretary of the California Master Bakers' Association.

Foley contended the legislature has no right to enact legislation requiring the manufacturer to state the contents of products offered for human consumption; that inspection of imported eggs under the federal government and the state board of health makes it unnecessary to pass further legislation.

Hansen, Abeel, Boude and others contend the bills are health measures and the public has a right to know the character of any product offered by manufacturers, citing the provisions of state and federal laws requiring the labeling of food products containing preservatives, etc.

Senate Bill 464 regulates the sale of eggs which have been in transit more than 31 days. Eggs of local origin may be held in storage 30 days and still be sold as fresh. If kept in storage 31 days or longer they must be sold as storage. Why then, say proponents of 464 should imported eggs that have been in transit covering a period from 31 to 42 days, often under most unfavorable conditions, be allowed to enter California and be sold as fresh eggs? These are largely Oriental eggs, and around this point considerable discussion developed.

No action was taken at the hearing, the opponents of the bills asking permission to submit evidence in reports of the University of California and photographs of poultry raising in the Orient, to prove that imported eggs are produced under sanitary conditions and as good as California eggs.

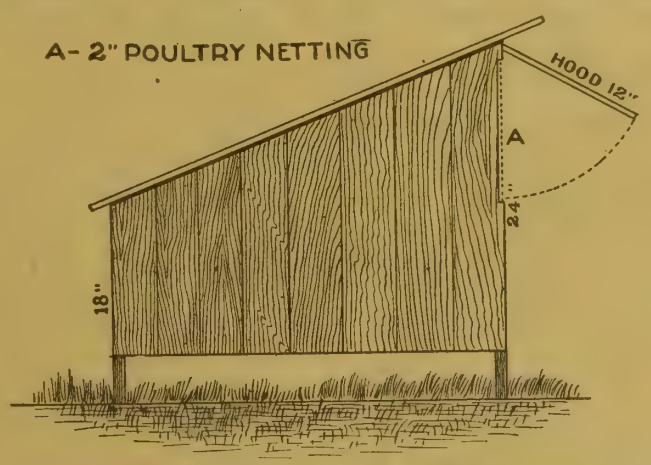
Comments on "Thirty-One Cents Profit"

By Henry Langenschwadt

After reading the poultry articles in the Cultivator of two weeks ago (March 10, Page 296), I would have liked to have written you had I the time then. How true they were to facts, and I wish more matter like that could be kept before the reading public instead of so much that we find in the journals.

I do want to express myself about the article you have in last week's issue, March 22, "Thirty-one Cents Profit per Hen in February." To me this is misleading. It puts one under a false impression because facts are only half stated. Practically only one cost item is taken into consideration (two if you count the egg cases mentioned) viz., the feed necessary to produce the eggs. How about the plant, interest on investment, taxes, depreciation, repairs, growing green feed, superintendence, cost of growing hens, loss in value when egg laying capacity ceases, death in flocks, and other items which should be reckoned before profit can be determined. I would not be surprised if all cost items were considered this 31 cents would figure down to about one-third that amount.

I should say from my experience that one man doing this work alone must go some. He will have to be a good man that cannot be secured every day. Yet the writer says that one man can care for three or four times as many hens. Eggs in February were higher in price this year than they ever have been to my knowledge. The average egg yield in previous contests for February is given as 12.8, this February 16.3. Remember these hens are the cream (yes very cream) of 50 or 60 flocks. How about the labor involved and cost of producing and selection, and so on? I could not help calling your attention to my viewpoint of this article.



Coop for Chicks Just Out of Brooder
—From Mrs. Koethen's Poultry for Profit.

THE NEXT STATE POULTRY SHOW

The Coalinga Poultry Association has been given the third annual state poultry show, to be held November 14-18, inclusive (dates not definite). This also will be the fifth annual show of the Coalinga Poultry Association.

In the application of Coalinga Association $425 in gold specials is offered in addition to the regular cash premiums in all classes. This amount probably will be greatly increased.

Regular premiums will be paid on singles as follows: first, $2.50; second, $1.50; third, $1.00; fourth, 50 cents. Pens, first, $7.00; second, $5.00; third, $2.00; fourth, ribbon.

The state show committee of the Coalinga Association consists of C. T. Walker, W. T. Zimmer and T. P. Smith.—By C. A. Wilkins, Secretary California State Poultry Breeders' Association.

CHEAP GAINS ON POULTRY

It is just as important to fatten chickens sent to the market as it is to fatten hogs or beef cattle. In fact, when the chicken comes from the range it is in the proper condition to put on economical gains. Students in the poultry department of the University of Missouri found in recent tests that chickens will gain about 23 per cent in 12 to 14 days' feeding. That this gain is economical was shown by the fact that the grain required to put on a pound of gain was approximately three and a half pounds.

The total cost of a pound of gain with corn meal at $2.25, bran at $1.50, middlings at $1.75, and sour milk at 20 cents a hundred pounds, was eight cents. Even at the present high price of feeds, economical gains can be made.

The ration consisted of corn meal, seven pounds; shorts three pounds; and bran one pound. To every pound of this mixture two pounds of sour milk was added. This wet mash was fed twice daily. The length of the feeding period, which was ten minutes the first day, was increased a minute a day as the period advanced. The chickens were confined in coops two by two and a half feet square, each coop having a wire bottom. Slats were placed up and down, one and a half inches apart, permitting them to reach the food which was placed in a trough outside. The close confinement not only discourages exercise, thus promoting gain, but the inactivity causes the tendons to soften. The fat is distributed through the muscles by the fattening process and the result is a luscious flesh which comes only in a finished product, put on cheaply.

PEERLESS 66
INCUBATOR
$7.00 Delivered Anywhere

The Master Hatcher of all small machines

Write for Catalog
GLOBE MILLS, Los Angeles, Cal.

Limited Number of Chicks from Hens That Laid 194 Eggs Each Last Year

Wishing to help poultrymen to get high grade stock for building up their flocks, we have made arrangements so as to offer a small number of chicks from F. M. Molby's famous 194-egg hens.

So long as they last we make this offer: With every order for 500 White Leghorn chicks we offer FREE 25 Molby chicks and with every order for 1000 chicks we offer 50 Molby chicks free.

SCHOFIELD and OLSEN AT VAN NUYS will sell choice pullets 10 weeks old, all broken to roost at 55c each. This is for a short time only. Address all communications to

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Absolutely Dependable

That's the boast of the CORRECT Coal-Burning Hover

BUILT ON a correct, patented principle—and built RIGHT. You can depend on it to raise your flocks, to reduce chick mortality, and give you big, sound birds. Costs only 2c. to 5c. a day to run. *PRICES, f. o. b. Factory,*
41-Inch CANOPY, $11.75 52-Inch CANOPY, $12.85
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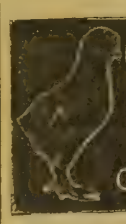

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Want to buy first class material. No junk wanted. Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. MAIN, LOS ANGELES.

Several new and slightly used engines at a bargain. Best makes. 1 to 35 h.p. Arnott & Company, Wholesale Machinery and Implements, 112 South Los Angeles St., Los Angeles, Cal.

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As has been our custom in the past, we are offering alfalfa seed both retail and wholesale. This is tested stock and up to our usual high standards. Samples, prices, etc., on application. Wire, write or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.
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Giant Winter Rhubarb Plants. Big profits. From ⅝ acre first season after planting I sold 675 boxes rhubarb, receiving $673.70. Grand prize San Diego Exposition. Big discount on plants for prompt orders. Booklet Free. W. A. Lee, Covina, Cal.

For Sale—The very best seed corn, white or yellow. Selected for years. Makes large uniform ears. Chas. McNeely, Alpaugh, Cal.

The "Himalaya", best blackberry; enormous bearer. Splendid shipper. Strong plants 50c dozen, postpaid, $20.00 per 1000. Louis Bahrs, Loomis, Cal.

Alfalfa Seed—The very best, guaranteed 16c. Wm. Stuthman, 1239 West Pico St., Los Angeles, Cal.

Nurserymen—Pot grown conifers, palms shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

Alfalfa Recleaned—Old tested kind, 14c pound in ton lots. Grown by me. H. Garrison, Murrietta, Cal.

Sudan Seed—Pure, extra heavy; $4 10 lbs., $35 cwt. Amarillo Seed Co., Amarillo, Texas.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, report for the twenty-first week ending March 27, 1917.—The hens in the contest at Storrs have now laid a grand total to date of more than 50,000 eggs and the best part of it is that this point has been reached a week earlier than it was last year and they are still gaining. The total yield for the twenty-first week amounted to 4423 eggs, a jump of nearly 200 over last week's figures and nearly 100 eggs better than for the corresponding week a year ago.

In addition to a better average yield in the current competition there is also a better pen record. In the contest now running a pen of Leghorns stands first with a total score to date of 884 eggs or 30 eggs ahead of the English Wyandottes that were leading last year at this time; this pen is over 300 eggs ahead of the best Leghorn pen at the corresponding date a year ago. All of this seems to warrant the prediction that the flock of hens now at Storrs need not fear the pace that has been set by their predecessors.

The three best pens in each of the principal varieties are as follows:

Barred Plymouth Rocks

Fairfields Poultry Farms, 722; Jules F. Francais, 602; Merritt M. Clark, 565.

White Wyandottes

Merrythought Farm, 746; A. L. Mully, 664; Brayman Farm, 644.

Rhode Island Reds

Jacob E. Jansen, 742; Geo. W. Harris, 702; Allan's Hard to Beat Reds, 689.

White Leghorns

A. P. Robinson, 884; J. O. LeFevre, 728; Hilltop Poultry Yards, 716.

Miscellaneous

Obed G. Knight (White Orpingtons), 662; Cloyes & Sullivan (Buff Wyandottes), 641; Holliston Hill P. Farm (White Rocks), 617.

The acreage planted to early potatoes in the southern states is estimated by the United States bureau of crop estimates to be 17 per cent greater than last year.

DEVELOPMENT BOARD MEETING AT STOCKTON.

The annual meeting of the Counties Committee of the California Development Board will convene in Stockton, Friday morning, April 13, at 10 o'clock for a two days session. Matters of great importance will be discussed, and it is hoped that the attendance will be large. Special entertainment features are being planned by the Stockton Chamber of Commerce. These, together with the program, will be announced later.

TAX COMMISSION

The report of the tax commission of the state of California of investigations covering the period of the past year is being mailed from the state printing office. It is a book of 280 pages filled with information of interest to every taxpayer, and as taxpayers in California are some tax payers we doubt not this report will have very general reading. Of course the aim of the commission is to make more equitable distribution of taxes. If it could go farther and make a reduction in the amount required to conduct the affairs of state, county and municipality, it would surely be called blessed.

SULPHUR NOW

The early sulphur catches the fungus. It is none too early to have sulphur in hand with best improved bellows or distributor for economical use in the vineyard. Lacking such appliance use the sack, but be sure and sulphur for it has been shown where mildew has full sway black rot and other troubles also come. Save the crop and save the vine.

THE NEW GRAIN STORAGE SILO

Forty-three miles north of Los Angeles, in the edge of Ventura County, on a ranch facing the concreted coast highway or Old Conejo road, there is being built a battery of four large cement silos of surpassing interest to dairymen and beef cattle men. The problem which Mr. H. H. Braly, the manager of the ranch, is solving is a double one.

The Conejo Ranch produces a large amount of grain which is all fed to their hogs and cattle. The sacks necessary to contain the grain would cost the ranch nearly $3000 this year alone, and there is no need of having the grain in sacks as it can be handled to better advantage loose. The Janss Investment Company, of which Mr. Braly is vice-president, has let the contract for the erection of four Monolithic Concrete Silos, 20 feet in diameter and 40 feet high, to be reenforced sufficiently to hold loose grain as a grain elevator. The silos are being built so that it will be possible at a later time, when they are being used as silos, to continue them to a height of 60 feet if desired. This year three, and possibly all of the four, will be used as grain elevators, but it is anticipated that within a year or so they will all be used for the original purpose of conserving corn in silage form. Mr. Braly realizes that even with his wide pastures and abundant grain harvest he cannot afford to overlook the economy of corn ensilage. He is therefore saving the high cost of grain sacks this year and providing for the future economy of corn ensilage feed.

As far as can be learned this is the first time that silos have been built for the additional purpose of grain elevators. W. L. Jencks of the Artesia Lumber & Cement Co., is the designer and contractor.

ROSIN SPRAY

The Cultivator has often referred to the value of the old-time rosin spray for controlling scale insects and called attention to the fact that particular care is needed in the making of this spray. Now comes the Pacific Soap Company of Los Angeles and announces "P. S. C. Rosin Spray." This is simply rosin, fish oil and a caustic cooked together in such a way that a solution in hot water or, if desired, even in cold water, is possible. It is needed for mealy bug, rose scale, aphis and many other insects. Further information may be had regarding this spray by writing the manufacturers.

Household Department

THE SCARECROW

It was a regular scarecrow man,
Made on the old and well-known plan—
A cross of sticks in a garb forlorn,
That stood on guard in that field of corn.
And, indeed, it made the old farmer smile
As he put it up and whittled the while:
It would look to the crows so very ferocious,
So truly astounding and atrocious,
That it tickled his fancy to think how they
Would catch a glimpse and flutter away.

Well, two black crows sat on a tree,
And the young crow said to the old one, "See.
Now what is that frightful thing out there?
It's enough any honest crow to scare!"
But the old crow chuckled and then looked wise,
Shook in his feathers and winked his eyes;
Something tickled him, but if 'twas a joke
His voice didn't show it a bit when he spoke.
As, looking down at the younger crow,
He said: "What is it? Ah! don't you know?

"Why, that, as we wise ones all suppose,
Is the special patron saint of the crows!
We watch for his coming every year
To tell when the Feast of the Corn is here.
See how he stands with his arms stretched out!
He is calling the crows from all about!
Such a kind invitation is most alluring—
So very cordial and reassuring!
I think we had better accept—don't you?"
And down to the field of corn they flew.

—Wallace E. Mather.

THE STAND-BY HEN

Written for California Cultivator
By Alice Palla, Linne

I'M going to take the hen for my "meat recipe". There may be some meat product cheaper, but the hen and her by-product, the egg, are always with us on the farm. It is difficult in this warm climate to have home grown fresh beef. Pork is cured and kept much easier. But pork is a good price and sometimes not enough is saved and cured for the summer's use. Then comes the poultry and eggs—always ready in an emergency. Even bacon and ham seems more satisfying accompanied by eggs. Young chickens to fry in season, hens to boil, bake, to make pot pies—and our "national" bird, the turkey. And as a neighbor said, when we have not anything else ready we just cook eggs. This means on the farm.

In buying for economy the cheaper cuts of beef, carefully cooked and with the aid of a good meat grinder can be made palatable and nourishing. Always do your own marketing. Pot roasts and boils cost us here 15 cents per pound at meat shop; pork sides, 15 cents, best bacon from 28 to 35 cents. Getting a nice piece of side, salting slightly, it will keep well and is quite a saving. Lard in pails at stores sells 20 cents per pound. Rendered beef suet at shop 10 cents per pound. Five pounds of suet, one quart salad oil (cost about 30 cents and weight about two pounds) mixed, makes a very good cooking preparation at a saving. Here are two chicken recipes we like very much—one a "left over".

Chicken with Dumplings

Take a good fat fowl, one year old, joint and boil tender. Season to taste. Have sufficient broth to more than cover meat as the dumplings will absorb broth.

Dumplings—One well-beaten egg, pinch salt, one small cup sweet milk, one tablespoon butter (level measure), two rounded teaspoons baking powder, sifted through pint flour, stir with spoon. Add enough flour to make stiff dough; drop small tablespoons in kettle of boiling meat. Cook about 20 minutes, closely covered.

Chicken Croquettes

One quart cold boiled chicken chopped, two level teaspoons salt; two tablespoons chopped parsley, one tablespoon minced onion, a dash of red pepper to suit taste, mix thoroughly. Put on fire a pint of milk, add two tablespoons butter, two tablespoons flour rubbed to smooth paste. Cook and stir until smooth and thick, add chicken, mix well, turn out to cool. When cold form into croquettes; dip in egg, roll in bread crumbs or cracker crumbs and fry in hot deep fat crisp brown.

IRISH STEW WITH VARIATIONS

Written for California Cultivator
By Nita Ferris, Woodlake

BUY a pound and a half of mutton or lamb from the neck and have it cut in neat pieces of a convenient size for serving. A little of the fat from the meat, or two tablespoons of butter are melted in a frying pan and two large onions sliced and fried a bright brown. They are then removed to a deep kettle and the meat well floured and dropped into the fat to brown nicely on all sides. When it is well seared it is placed in the deep kettle with the onions, then two large carrots, pared in quarters, lengthwise and browned in the fat and two large white turnips or three of smaller size, and two parsnips, are treated in the same way. All the vegetables are added to the meat and three pints of hot water are poured into the kettle which is placed on the hot part of the range and brought quickly to the boiling point. Then the heat is lowered until the stew merely simmers. "The pot should smile, not laugh" is a good rule to remember. After the simmering has continued for an hour a teaspoon of salt is added, a salt spoon of pepper and a pinch of celery seed or celery salt. Four large potatoes are pared, cut in quarters and placed in very cold water for half an hour and dropped into the stew when it has been cooking very slowly for an hour and a half. If by any chance the gravy has cooked away I add a little more water when the potatoes are put in to cook, for plenty of gravy is one of the chief delights of the stew. The cooking may be a little more rapid after the potatoes have been added, for they must not be allowed to soak or become waxy. When they are tender the stew is finished. It should be just thick enough and of a delightful, nutty brown color. Take up the meat on a hot platter and group the vegetables around it. The onions, except for the delicious flavor, will have disappeared. Taste the gravy and add more seasoning if necessary.

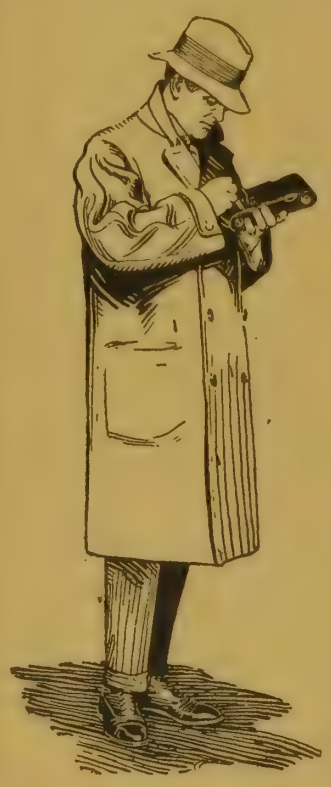
Hungarian Goulash

One pound of lean veal, half a pound of lean beef, and one-fourth pound of salt pork is used. The veal and beef are cut in neat blocks and the pork in small pieces and the latter fried brown. Then a large onion is sliced fine and fried in the fat until a deep brown, when it is removed and discarded. Next the meat is well dredged with flour and seared in the fat till nicely browned and placed in a casserole, sprinkled generously with paprika and covered with three cups of boiling water, the cover placed on the casserole and put in the oven.

Meanwhile six small white onions are peeled, three turnips pared and cut in balls with vegetable cutter, four potatoes and three carrots, also shaped with cutter, and when the meat has simmered an hour these vegetables are added to it. For flavoring add half a bay leaf (no more), one clove, a small chopped green pepper and a teaspoon of Worcestershire sauce, teaspoon salt and a sprinkle of white pepper. The goulash is then allowed to simmer in a moderate oven for an hour and a half longer, served in the casserole with the gravy thickened slightly if necessary.

French Ragout

Two pounds of veal from the shoulder. The meat should be nicely trim-



Those things that need your attention on the farm:

You, Mr. Farm Owner, who are about to make your first trip of the season to the farm, will find a score of things that need attention. Whether it is rented or "worked on shares," or whether you employ a superintendent, you, *the owner*, have certain things that you want done, will order done. And you want a record of how things look now:

Certain old fences. *The foundation to the corn crib.*
The south porch. *The broken hoops on the silo.*
The land that needs tiling. *The condition of the orchard.*
The condition of the horses and cattle and hogs.

And one obvious thing to do is to make an auto-photo-graphic record. Make pictures of the things that don't please you, as well as pictures of the things that do please you. And alongside of each picture make a brief memo,—at least a date and title, an authentic, indisputable record written on the film at the time. It's a simple and almost instantaneous process with an

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med and cut in two-inch cubes. Dip them lightly in flour and brown delicately in butter, turning them until all sides are of a golden tint. Then sprinkle them lightly with two tablespoons of flour, a salt spoon of salt, and half a saltspoon of pepper. Cook gently until the flour is brown, then add two cups of water and cover closely. Peel four carrots and cut them in dice (I use a vegetable cutter for this purpose), and peel and slice three onions, cut one or two sprigs of parsley into bits, also the same quantity of chervil and add these to the ragout, cover and simmer closely for an hour and a half. Add two cups of peas, drop in four potatoes, pared and cut in dice or balls. A little more water may also be added if necessary. Stir now and then, but keep the ragout closely covered between stirrings. Serve on a hot platter garnished with watercress and toast points. I am sure when you eat this French cousin of the Irish stew you will say, as many have said before you, "Antoinette did not live in vain."

Spanish Stew

One pound and a half of round beef, cut in large cubes and when you are ready to make the stew place the pieces on the board and with a mallet pound them until they are quite ragged. While pounding the meat sprinkle it with flour from time to time, taking care that as much as possible is absorbed. Then brown the meat in a little butter or fat, turning it so that all sides may become nicely seared. Pour two cups of strained tomato juice over it and add two sweet green peppers and one large onion chopped fine, cover and cook very slowly for an hour. Add half a pimiento (the canned pimiento will answer very well) cut in bits, season with salt and a little pepper and simmer for ten minutes longer. Serve on a hot platter garnished with parsley.

SOME SUGGESTIONS FOR COOKING THE CHEAPER CUTS OF MEATS

Written for California Cultivator
By M. E. K.

OWING to the advance in price of meats, most housekeepers are eager to find the meat that goes farthest" lest the members of their families become vegetarians with the eyes of desire still on the flesh pots.

All meat is so high that it seems almost unreasonable to talk of cheaper cuts, but there is a greater difference in price that the uninitiated would think. For instance rump roast, quoting from my local market, comes at 17½ cents per pound, cross and prime rib 20 cents, while flank and short rib can be had at 12½ cents per pound.

Of course the roasts are cheaper than frying meats and go farther, and of the roast varieties I think most cooks will agree that the pot roast is best if you wish a nourishing, appetizing meat at the least cost.

The cheaper cuts used for pot roast, such as chuck and flank, can be made just as savory and attractive as the more expensive cuts if care is taken in the preparation. The point is that they must be cooked very slowly in order to soften the connecting tissue. They give opportunity for extending the meat flavor, of which most of us are so fond, to cheaper kinds of protein food. This is done by combining with macaroni or what my family likes best, a good dressing.

The following recipe for preparing flank roast is a favorite of mine. I use it during hot weather or when for any reason, it is desirable to prepare the roast the day before it is to be served:

Four pounds flank roast, half loaf stale bread, one egg, butter size of walnut, half onion, salt, pepper, sage to taste.

Place kettle over hot fire and put in one tablespoon shortening. Brown the roast in the grease on both sides, then pour over hot water to partially cover. Cook over slow fire until tender, adding more hot water when necessary. Salt when meat has cooked one hour. When roast is tender take from fire and place on meat board, removing the bones.

Crumble the bread and make a dressing, moistening with the broth from the meat, add beaten egg, butter, finely chopped onion, salt, pepper and sage to taste. Put in baking dish, pour about it the remainder of the broth, cover and bake half an hour. Spread the cooked dressing on the flank and roll up, tie with cord or strips of muslin, put under weight and let stand over night. When ready to serve cut in thin slices, garnishing platter with lettuce leaves. It is delicious served with mustard or a tart sauce.

This is also excellent as a hot roast. In that case as soon as dressing is prepared roll as above and bake for half hour, basting with the broth.

THE FIRELESS COOKER FOR CHEAP MEAT

Written for California Cultivator
By Mrs. E. V. Henderschot, Van Nuys

ONE'S meat bill as well as one's fuel bill may be greatly reduced by the use of a fireless cooker. The coarser, tougher parts of the beef may be cooked in this and rendered tender, juicy and delicious.

Purchase four or five pounds of neck meat, the cheapest part of the beef. Rub with salt, pepper and a little butter. Put into the fireless cooker with very little water. In the morning look at it to see if it is tender. If it is not, reheat the cooker and put the meat in again, leaving till just before dinner. It may then be served hot from the cooker or browned in the oven. Thicken the juice left in the cooker vessel. It will be much more delicious gravy than that from meat cooked on top of the stove.

Take part of the meat left, run through the chopper, boil with corn meal or cream of wheat porridge, let stand over night and fry a nice brown for breakfast.

The rest of the left over meat together with any other scraps of bacon or ham may be made into a palatable meat pie or loaf. For the pie, chop the meat into rather small pieces, put into kettle with any cold gravy that is left. Add water, a small onion chopped fine and a piece of bay leaf. Simmer gently till the onion is soft. If the gravy is very thin, thicken with flour rubbed smooth in water. Turn into baking dish and cover with rich biscuit dough. Bake in the oven until the crust is golden brown.

For the loaf run the meat through the chopper. Add half cup bread crumbs for each cup of meat. Bind together with an egg or some milk. Add salt and pepper. (Some also add sage and a chopped onion, but we prefer the loaf plain, serving with a spicy tomato sauce). Form the meat into a loaf, sprinkle with nutmeg and bake with one-half cup water and two teaspoons butter in pan.

For the tomato sauce, chop one onion and one carrot or green pepper fine. Fry in one tablespoon of butter. Stir in all the flour the grease will take. Add half cup tomatoes and the juice from the loaf. Drop in a piece of bay leaf, two whole cloves, salt and pepper. Let cook about half an hour. Remove bay leaf and cloves. May be strained or served with the pulp in it.

ECONOMICAL MEATS

Boiling Beef

The meat from which we derive the most benefit is a cheap boil. Put it on in enough cold water to cover, skim well when scum has raised, then boil slowly until very tender, salting when partly done, to suit taste. If you have kept plenty of water on meat while boiling you have a nice lot of broth or stock, which I use in different ways. Sometimes I take a part of it and just a little of the meat cut fine, and mix with stale bread, sage, and other seasoning and bake in moderate oven, making a delicious dressing. Thicken the remainder of stock for gravy.

Again I make a dumpling of a cup of sour milk, a scant quarter teaspoon baking powder, salt and enough flour to make it thick enough to drop from a spoon. Boil in a part of broth ten minutes; not too long or they will be soggy.

Sometimes I boil potatoes with the meat, save part of broth, and for another meal skim off most of fat and boil one carrot, one onion, one-half

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Prof. S. F. Mora, head of Marconi School of Wireless Telegraphy conducted by the Polytechnic College at 13th and Madison Sts., Oakland, has been requested to train 40 young men for service at the earliest possible moment. Railroad and Commercial Telegraph Companies are short of men and need hundreds of new recruits. Many land positions require a knowledge of both Morse and Wireless—and the College has decided to give a full course of both Morse and Wireless together for $75.00. (Six months required for complete course.)

Positions Positively Guaranteed

To those who enroll during the next 30 days or until the number shall reach forty students we are going to absolutely guarantee positions immediately upon graduation or refund the cost of tuition. Write for full information. Address

OFFICIAL MARCONI SCHOOL

Polytechnic College, 1310 Madison St., Oakland, Cal.

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Rhubarb

If planted then you can expect BIG PROFITS by fall or early winter.
OTHERS MAKING $1,000 PER ACRE ANNUALLY — SO CAN YOU. Don't put it off any longer. April, May, June positively best months to plant. Write

J. B. WAGNER
"Rhubarb Specialist"
PASADENA - CALIFORNIA

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HALLMARK SHIRTS
Every garment is guaranteed
Standard **in Fabric, Fast Colors and Workmanship—Ask your dealer.**
HALL, HARTWELL & CO., Makers, TROY, N. Y.

CHUBBUCK'S IDEAL GOPHER TRAP

Larger than runway jaws pull rodent in catches large or small gopher and holds it. Farmers say it's worth dozen other makes. Big sales. **Price 50c.** If not at your dealer's will send it to you postpaid; 2 for 95c; 6 for $2.70; 12 for $5.10 Money back if you are not satisfied. Free circulars
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Bush Car Delivered Free

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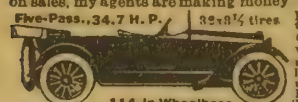

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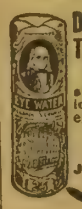
Delco Ignition—Elect. Stg. & Ltg.
BUSH MOTOR COMPANY, Bush Temple, Chicago, Illinois

The Salof Self-setting Gopher Trap

Only trap having free passage—will catch all sizes of gophers. If you want a trap that will give results try this one. If your dealer cannot supply you, will be sent postpaid for 50c; 3 traps $1.00. Special price for lots of one dozen or more. A. Salof & Co., 3914d 39th Ave., Oakland, Cal



Dr. Isaac Thompson's EYE WATER

strengthens weak, inflamed eyes, and is an ideal eye wash. Good since 1795. Keep your eyes well and they will help keep you.
25c At All Druggists or Sent by Mail Upon Receipt of Price
Write for our Booklet. It is FREE
JOHN L. THOMPSON SONS & CO.
189 River St., Troy N. Y.

small head of cabbage, about one and a half cups tomatoes, a good sized potato and any other vegetable one cares to add, seasoning to suit taste, making vegetable stew.

If any meat is left over I make a hash, cut it fine and with a cupful of cold boiled potato sliced or diced boil a few minutes, adding a little of the stock if you have it. Season with salt and pepper and add two cups stale bread or enough to soften well, not making it too dry.

Do not boil after adding bread but just simmer on back of stove or the bread will be slick and watery.—Alice R. Bumgardner, Orange.

A Substantial Meat Recipe

Purchase amount according to the size of family of a cheap cut, about two pounds make a good amount when cooked according to the following. Cover with boiling water and let simmer gently until tender (covered closely). Season the broth to taste with salt and pepper. Let the meat stand in the broth several hours or over night. After standing in the broth remove the meat and add to the broth half cup minced onion, two medium sized carrots sliced thin, one and one-half cups of tomatoes and bit of bay leaf. Then press through a colander, add more salt and pepper if required. Run the meat through a food chopper and add to the broth. In the meantime have cooked a cupful of corn meal (yellow), line the bottom and sides of a baking dish with the mush, pour in the meat mixture, cover the top with mush and steam or bake one hour. Onions may be omited and a clove of garlic added, and if liked, potatoes or macaroni added to the meat mixture. — Mrs. A. Joseph, Quincy.

Meat Pie

I am sending what for us (a family of seven) is the cheapest meat according to the food value. I buy 35 cents worth of stew meat, three large or six small potatoes, three carrots, one onion.

Stew the meat until tender, add carrots and onion, then the potatoes. When they are all tender thicken the broth with corn starch to the thickness of beef gravy. Put the whole in a large pan and cover with a single crust made as follows: Two cups flour, two tablespoons lard, one teaspoon baking powder, a little salt, water or milk to make like pie dough.

This makes us, two adults and five growing children, two good substantial meals and is all that is necessary with some small dessert.

Hoping this will help someone who does not like plain stew, if it does not win a prize.—Mrs. Carrie Morse, Modesto.

Meat Loaf

I am sending in a meat loaf recipe which we use very frequently and consider superior to anything else we have tried, both in point of economy and palatableness. I buy one and one-fourth pounds beef (if possible a piece of neck meat which comes boned, and is one of the cheaper cuts), and three-fourths pound fresh pork. I run these through the meat chopper after which I run from 12 to 15 crackers through the chopper, add two eggs, a cup of milk, season with salt and pepper, mixing all together thoroughly. Steam or bake from two and a half to three hours. If baked I place it in the oven on an asbestos mat and cover the meat with hot water, basting with hot water frequently to prevent burning. This recipe will serve eight persons generously. This is delicious served either hot or cold, and sliced thin makes a splendid sandwich filling.—Mrs. A. A. Werner, Etiwanda.

Round Steak

Round steak is my family's standby and it goes farthest and has more food value than any other meat. Get a 25-cent round steak cut thick. Take meat axe and pound first one side then the other. Sift flour on both sides. Have frying pan hot with a little fat, to keep from burning. Put in steak, cook, then turn over and salt. Set a little back and cook till done, not less than half an hour. Take up and put on red hot platter. Add hot water to frying pan for gravy, thicken with flour and then turn over steak. This will serve four to six people well.—Mrs. Jas. H. Leggett, Oroville.

Dried Beef

You ask for economical preparations of meat for family use. Sliced dried beef, torn into shreds and browned in crisco. Add two tablespoons of flour and when thoroughly mixed add one pint of milk. The sliced dried beef can be bought in six-pound cans. It will keep several months in the kitchen cooler.—Mrs. Angeline G. Courtney, Heber.

Bean-pot Roast

Place three pounds of chuck steak in bean pot, cover with boiling water, cover and cook in moderate oven two hours. Add one cup carrots, one cup potatoes, cut fine, one-fourth cup sliced onion and two teaspoons salt. Cook until done, remove to platter and pour a gravy over the meat made from one cup of the liquid thickened with two tablespoons flour.—Mrs. C. R. Valentine, Triumfo.

APRIL PRIZE CONTEST

The suggestions for economical serving of meats in last week's and this issue have been exceptionally helpful, even compared with the always excellent contributions of Cultivator housekeepers.

Meanwhile food prices continue to mount with terrifying regularity. Where next shall we turn in our housekeeping business to hold expenses down to a living basis? To our home gardens, perhaps.

What vegetables did you can last year or what are you planning to can this year? What was your method and what were the results? Does it pay?

Cash Prizes

For best answer $2.00 in cash will be given; for second best, $1.00. All others published will entitle sender to three months' extension of subscription to the Cultivator unless such extension has already been granted in 1917.

All letters should be in this office by or before Thursday morning, April 19. They will appear in the issue of April 28. Send them in as early as you can.

With your letter send name of one to whom you wish extension of subscription credited.

And don't forget to save the articles on economical meats.

"The Real Safeguard of the Nation is the HOME"

Barker Bros. Great

"Confidence" Sale

of Home Furnishings

is a preparedness measure, as well as a demonstration of our CONFIDENCE in the Nation—its safety, prosperity and progress—and that real safeguard, THE AMERICAN HOME.

This great sale is a preparedness measure because it gives Southern California residents an opportunity to equip their homes—to make them citadels of strength and courage, places of refuge, centers of culture, refinement and peace, happy places to live in and go out from, prepared for national defense, active, everyday work.

While things are as they are and commodities are becoming scarcer and higher, Barker Bros. CONFIDENCE in our quantity buying enables us to offer QUALITY HOME FURNISHINGS at this time at an unprecedented reduction.

Saving Up to One-Fifth, One-Quarter, One-Third and Even One-Half.

Remember you can do your buying by MAIL through our Mail Order Dept. as advantageously as though you visited our store, yourself. Write us for what you need, if unable to call in person.

We pay the freight 100 miles and part of the freight for greater distances.

Barker Bros ESTABLISHED 1880

Complete Home Furnishers

724-738 So. Broadway, Los Angeles

Los Angeles Market

LOS ANGELES, April 4, 1917.

BUTTER

Wholesale prices:

Rcts. wk. ending Apr. 3, 340,006 lbs.

California extra creamery 37
Prime first 35

Extr. Cr'y Exch. past week.

Mch.	28	29	30	31	Apr. 2	3
'17	35	35	37	37	37	37

CHEESE

Brokers' prices:

California flats, lb. 24
Oregon Longhorn 29
Tillamook Triplets 26

EGGS

Exchange quotations:

Rcts. wk. ending April 3, 3235 cases.

Fresh extras 29
Case count 28
Pullet 27

Fresh Ranch Exch. past wk.

Mch.	28	29	20	31	Apr. 2	3
'17	28½	29½	29½	29½	29	29

POULTRY

We quote from growers:

Broilers 34
Fryers 34
Hens .....21@22
Roasters 25
Geese, Young 22
Ducklings, lb. 22
Roosters, old 13
Turkeys .....24@30

LIVE STOCK

CATTLE—We quote cwt. f.o.b. L. A.

Beef steers, av. 1000 to 1100 lbs.....10.00
Heifers, good 8.00
Cows, good .....7.00@7.50
Fair .....6.50@7.00

HOGS—

Av. 125 lbs. 11.75
Av. 150 lbs. 12.50
Av. 175-225 lbs. 13.00

Rough, docked 20 lbs.; piggy sows, 40 lbs.; stags, 40%.

We quote per cwt. f.o.b. L. A.

Prime wethers .....9.50@10.00
Ewes .....9.00@9.50
Lambs 13.00
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:

Northern .....4.10@4.25
Local 4.00
Sweet, lb. .....7@7½
Idaho Russets 4.25
Sweet, lb. 7½
New, lb. .....8@8½
White Rose 4.25

ONIONS

Wholesale selling price:

White 12
Brown, lb. 11
Onion Sets, Brown 22
Garlic, lb. 8

VEGETABLES

Wholesale prices:

Artichokes, doz. .....60@1.00
Asparagus, lb. .....12@15
Beets, doz. bunches 50
Cabbage, lb. 6
Red, lb. 6
Carrots, doz. 40
Chicory, doz. .....40@50
Cauliflower, doz. 1.25
Celery, cr. 9.00
Cucumbers, Hothouse, doz. .....1.50@2.50
Horseradish, rt. lb. 15
Lettuce, doz. 35
Leeks, doz. 30
Mint 40
Onions, green, doz. 30
Oyster Plant, doz. 50
Peas, lb. .....6½@7
Peppers, Chile, 15; Bell.....55
Parsnips, lug 50
Radishes, doz. 25
Rhubarb—Crimson Winter.....1.00
Strawberry .....1.75@2.00
Romaine, doz. 50
Spinach, doz. 25
Turnips, doz. 45
Tomatoes, cr. .....2.15@2.25

FRUITS

Wholesale prices:

Apples—
W. W. Permain .....2.10@2.25
Newtown Pippin, Yellow.....1.85@2.25
Avocados, doz. .....10.00@12.00
Bananas, lb. .....5¼@5½
Pineapples, lb. 12
Strawberries, basket .....15@20

CITRUS

Navels .....2.50@2.75
Lemons .....1.75@2.75
Juice 1.25
Grapefruit .....3.00@3.50
Limes, basket 85
Tangerines, lug 1.25

NUTS

Prices named by Cal. Walnut Growers' Assoc.

	1914	1915	1916
No. 1	16.50	13.60	15.50
No. 2	12.00	10.60	12.50
Pkgs., 16 oz. Net	....	....	16.50
Budded	20.00	17.00	19.00
Jumbos	18.50	16.60	17.50

HONEY

Wholesale prices:

Extr. lb. White 8½@9½c; A. 8½@9c; W.W. .....10@11
Comb., lb. W. 12½c; Lt.A.....12½@14c
W.W. 14½
Beeswax, lb. 32

BEANS

Wholesale Prices:

Lady Washington .....13.00@13.50
Limas .....13.00@13.50
Pinks .....10.00@10.50
Manchurian Reds 8.50
Baby Mex. 7.90
Small White .....13.00@13.50
Blackeyes .....7.00@7.50
Tepary 8.50
Lentils 13.00

HAY

We quote ton f.o.b. L. A. to producers:

Barley .....16.00@20.00
Oat, tame .....18.00@21.00
Alfalfa, local .....19.00@.22.00
Northern .....17.00@19.50
Stock .....13.00@16.00
Straw .....10.00@12.00

GRAIN

For the third time in three weeks 20 cents per bbl. has been added to flour.

Wholesale selling price f.o.b. L. A.

Wheat—No. 1 .....3.50@3.60
Corn—No. 2 yellow, 3.10; white 3.20
Oats—California red 2.60
White 2.65
Texas Red 2.90
Cal. Seed Oats 2.60
Barley—Recleaned 2.70
Milo 3.05
Egyptian Corn 3.05
Rye 3.35

FEED STUFF

Wholesale, cwt. f.o.b. L. A.

Alfalfa Meal 1.60
Bran, heavy 2.10
Shorts and Middlings 2.65
Alfalfa Molasses 1.65
Meat Scraps 3.60
Beet Pulp 1.70
Cracked Corn 3.15
Cracked Wheat 4.00
Cotton Seed Meal 2.35
Bone Meal 2.45
Feed Meal 3.10
Green Bone 3.25
Oil Cake Meal 2.40
Fish Meal .....3.60@3.70
Rolled Barley 2.65
Rolled Oats 2.70
Hulled Barley 3.15
Hulled Oats 3.50
Scratch gritlets in 10-sk. lots.....3.35
5-sk. 3.60; 1-sk. 3.70
Scratch Feed, 3.35, 3.40 and 3.45
Oil Cake Meal 2.70
Pigeon Feed 3.70
Chick Feed 3.85
Blood Meal 4.20
Cocoa Meal .....90@95
Rice Paddy 2.70

San Francisco Markets

SAN FRANCISCO, April 3, 1917.

BUTTER

Dairy Exchange quotations, lb.:

Rcts. wk. ending April 2, 689,700 lbs.

Fresh extras 40
Prime firsts 39

Extr. Cr'y. Prod. Exch. past wk.

Mch.	27	28	29	30	31	Apr. 2
'17	36	36	37½	37½	38	40
'16	29	29	29	28½	28½	..

CHEESE

Dairy Exchange quotations:

Cal. Flats ...18½@19 Y. Am....22½@24
Ore. Triplets..23½@24 Y. Am.....24

EGGS

Rcts. wk. ending April 2, 24,259 cs.

Dairy Exchange quotations:

Fresh extras 29
Firsts 27½
Select pullets 26
Firsts 26

Fresh Extr. Prod. Exch. past wk.

Mch.	27	28	29	30	31	Apr. 2
'17	27½	27½	28	29	29	29
'16	21½	22	22	22	21½	..

POULTRY

We quote from producers, lb.

Hens .....24@25
Fryers, lb. .....32@33
Broilers .....35@40
Roosters, old..15@16; young .....29@30
Squabs, doz. .....2.00@3.00
Ducks .....21@23
Geese .....20@22
Turkeys, live .....22@24
Belgian Hares, live 13@15; dr.....17@18

LIVE STOCK

Prices gross weight:

Cattle:

Steers, lb., 8@9¾, cows and heifers, 5¾@8¼; calves, 6½@9.

Sheep:

Wethers, 11@11½; shorn, 1½@2c less; ewes, 9½@10; lamb, lb., 12½@13.

Hogs:

Hard grain fed, wt. 100 to 150 lbs., 12¼@12½; 150 to 300 lbs., 13¾@14; 300 to 400 lbs., 13¼@13½, undesirable, 8.

POTATOES

Wholesale selling prices at wharf:

Delta Burbanks .....3.25@3.50
Oregon Burbanks .....3.50@3.75
Seed .....3.00@3.50
Yakima Gems .....3.75@4.00
Sweet, Cellar 5.00

ONIONS

Wholesale selling price on wharf:

Onions, cwt. .....8.50@9.00
Garlic, lb. .....1@3

VEGETABLES

Wholesale selling price:

Asparagus, lb. .....5@7
Green .....8@10
Artichokes, doz., large 70-75; small, 35-50
Celery, cr. .....2.00@3.50
Cucumbers, bx. hothouse.....1.50@2.50
Lettuce, cr. .....1.50@2.00
Mushrooms, lb. .....15@25
Peas—Bay, lb. .....6@8
Southern .....3@5
Rhubarb, box .....1.50@1.50

FRESH FRUIT

Wholesale selling price:

Apples—Newtown Pippins .....1.00@1.65
Bananas, bunch .....1.50@2.50
Pineapples, doz. .....2.25@2.50
Strawberries, cr. .....3.00@3.50

CITRUS FRUIT

Wholesale selling price:

Lemonettes .....1.25@2.25
Lemons .....1.75@3.50
Grapefruit .....2.00@3.00
Navels .....1.50@2.90
Tangerines, half orange box.....1.75@2.00

PEACH PRICES

Advance in prices, effective Saturday, February 24, 1917, at 6 p. m. All prices are f.o.b. factories, California common points. We reserve the right to refuse confirmation, at the following prices, unless f.o.b. factories where grades and varieties desired are available. All quotations are subject to our approval of variety and assortment, subject to our confirmation and subject to advance without notice; March and April shipment.

Price list No. 6 is hereby withdrawn and ineffective at 6 p. m., Saturday, February 24, after which time prices herein quoted shall apply.

	Yellows.	Muirs.
Standard Peaches	.06⅜	.06⅜
Choice Peaches	.06¾	.06¾
Fancy Peaches	.07¼	.08¼
Extra Fancy Peaches	.08	.08⅜
Slab Peaches		.05¾
Choice Peeled Peaches		.09¾
Fancy Peeled Peaches		.11

Above prices bulk basis

For 50-lb boxes, unfaced, add..... ½c
For 50-lb. boxes, faced, add..... ⅝c
For 25-lb. boxes, unfaced, add ..... ⅝c
For 25-lb. boxes, faced, add..... ¾c
For 10-lb. boxes, unfaced, add.....1¼c
For 10-lb. boxes, faced, add 1½c

For prices on graded peaches, original, in bags, add ⅝c to the bulk basis prices above quoted.

	Per Lb.	
Ungraded, orig. bags	.07⅜	.07⅜
Choice unpld. 1-lb. cart	.08½	.08⅝
Choice unpld. 5-lb. cart.	.08¼	.08⅜
Fancy unpld. 1-lb. cart.	.09¼	.09⅜
Fancy unpld. 5-lb. cart	.09	.09¾
Choice Peeled, 2-lb. cartons		.12
Choice Peeled, 5-lb. cartons		.11¾
Fancy Peeled, 2-lb. cartons		.13¾
Fancy Peeled, 5-lb. cartons		.13¼

The above prices are guaranteed against our own decline to June 1, 1917, and apply only to sales and shipments made direct to the recognized jobbing trade. No goods will be confirmed at above prices to Coast or Eastern brokers, or to speculators, it being our object to eliminate speculation in dried peaches, we preferring to carry our stock in storage here on the Coast until actually required by the jobbing trade.

DRIED FRUITS

Wholesale quotations:

PRUNES—Bulk basis, per lb; 30s and 40s, 6½c; 50s, 7c; 60s, 7⅜c; 70s, 7¾c; 80s, 8c.

Other fruits, 50-lb. bxs:

	Standard	Choice	Extra Choice	Extra Fncy
Apples	8¾c	9 c	9½c	....
Apricots	16¼c	16⅜c	16½c	17½c
Peaches	6¾c	7 c	7½c	8½c 9½c
Pears	6½c	8½c	9½c	11¾c ....

RAISINS—The Growers' Association quotes Fresno f.o.b. prices per box as follows:

Seeded—Fancy, 25-lb. bxs, $1.75; cs, 12s, $3.15; do. 16s, $3.05; choice, 25-lb. bxs, $1.75; cs, 12s, $2.95; do, 16s, $2.90.

Loose Muscatels—50-lb. bxs, 4-crown, $3.75; 3-crown, $3.50; 2-crown, $3.25; 1-crown, $4.

Three-crown layers, $1.50; 4-crown clusters, $1.75; 6-crown clusters, $2.60; bulk layers, 50-lb. bxs, $3.25; do. 100-lb. bxs, $6.25; clusters, in cartons, 20 to cs, $1.85; 12s, $2.20; 4s, $2.35.

NUTS

Jobbers' Prices:

Almonds.—Exchange opening prices: Nonpareil, 19c; Ne Plus Ultra, 17c; IXL, 17½c; Drake, 16c.

Peanuts .....5½@6½

BEANS

Jobbers' prices, cwt. recleaned:

Limas .....12.25@12.50
Bayous .....8.25@8.50
Garbanzos .....4.25@4.50
Small White .....11.75@12.00
Mexican Red .....8.00@8.25
Large White .....11.75@12.00
Pinks .....9.25@9.40
Horse Beans .....5.50@6.00
Black Eyes .....7.25@7.50
Red Kidneys .....11.75@12.00
Cranberry California .....9.50@10.00

HONEY

Jobbers' prices:

Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. .....11@12
Ex. Fy. W. lb.....10c; Lt. A.....8
Beeswax .....30@32

HOPS

Prices to growers at shipping points:

Sacramento .....7@8½
Sonoma .....7½@8½
Mendocino .....7@9
Oregon and Wash., lb. .....6½@8½

RICE

Price to growers:

Cal. Rough, cwt. .....1.90@2.00

HAY

We quote the average wholesale price of hay in carload lots on today's market as follows, viz:

Cal. Rough, cwt. .....2.05@2.15
Wheat, Fy., lt. bales.....29.50@30.00
Wheat or Wh. and Oat, No. 1.27.50@29.00
Wheat, or Wh. and Oat, No. 2.25.50@27.00
Oats, Choice Tame.....27.00@28.50
Other Tame .....25.00@26.00
Wild .....22.50@26.00
Barley .....24.50@27.00
Alfalfa .....22.00@25.00
No. 1 Barley Straw .....1.00@1.15

GRAIN

Grain Exchange prices, ctl.

Wheat, California Club .....3.00@3.50
Wheat, No. Bluestem .....3.15@3.25
Corn, Eastern Yellow, cwt. ...2.57½@2.60
Corn, Egyptian White .....2.50@2.60
Cal. .....2.55@2.60
Oats, White Feed .....2.25@2.27½
Barley, Feed .....2.32½@2.35

FEEDSTUFFS

Wholesale prices per ton:

Bran 35.00
Middlings .....45.00@47.50
Rolled Barley .....45.00@47.00
Alfalfa Meal, carlots .....26.50@27.50
Shorts .....37.00@39.50
Millet, recleaned .....3½@4

SEEDS

Prices in round lots, lb.:

Millet, recleaned .....3¼@4
Alfalfa .....20@21
Flax .....5@6

Citrus Fruit Market

LOS ANGELES, April 4, 1917.

This has been one of the greatest selling weeks and one of the smallest shipping weeks. The strike hag prevented heavy shipments but fruits shipped earlier have been in keen demand. In New York auction almost every day's sales show between 40 and 50 cars of California citrus fruits. The price has remained satisfactory, though possibly not quite so strong as the preceding week.

Shipments

Shipments of oranges from Southern California to date since November 1, 1916, 15,783 cars, lemons 2762, total 18,546; to same date last year, oranges 13,038, lemons 2317, total 15,355. From Central California to date this year, oranges 4053, lemons 146, total 4217. To same date last year, oranges 4210, lemons 146, total 4356. From Northern California to date this season, oranges 483, last season same date, oranges, 610, lemons 1.

FROM THE AUCTION

March 28

New York: 35 Nav., 7 mixed, 6 lemons. Lower. Nav., $2.10@3.80; seedlings, $2.30@2.50; bloods, $3.05@3.35; tang., $2.75@3.05; lem., $3.70@4.65.

Pittsburg: 17 cars. Lower. Nav., $1.80@3.10; lem., $2.70@3.15.

St. Louis: 8 cars. Nav., $2.05@3.35; lem., $2.45@3.10.

Boston: 23 cars. Nav., $1.75@3.55.

March 29

New York: 34 Nav., 7 mixed, 3 lem. Nav., $2.05@4.10; bloods, $2.60@3.40; tang., $2.90; lem., $3.15@4.30.

Boston: 20 cars. Lower on oranges. Nav., $2.15@3.40; lem., $3.45@3.90; grapefruit, $2.60@2.80.

March 30

New York: 30 Nav., 1 blood, 2 lem. Nav., $2.10@4.30; lem., $3.20@4.25.

Philadelphia: 11 cars. Nav., $2.40@3.10; lem., $2.90@3.50; St. Mikes, $1.05; lem., $3.50@3.70.

Boston: 17 cars. Nav., $1.80@3.20; lem., $2.90@3.05; tang., $2.90.

Cincinnati: 7 cars. Nav., $2.15@2.65.

April 2

New York: 55 cars Nav., 6 mixed, 5 lem. Nav., $1.80@3.80; bloods, $2.85@3.05; tang., $2.90@4.15; lem., $2.75@3.50.

St. Louis: 10 cars. Nav., $2.45@3.15.

Cleveland: 11 cars. Nav., $2.20@3.40.

Boston: 34 cars. Nav., $1.80@3.95; lem., $3.50@3.80.

April 3

New York: 38 Nav., 6 mixed, 3 lem. Nav., $1.80@4.55; seed., $2.20; tang, $2.85; grapefruit, $1.95@2.30; St. Mikes, halves, $1.20@1.45; lem., $3.05@3.70.

FIGHT 405

Many are opposing the passage of Bill No. 405 before the state legislature. It provides that:

"All trappers within the state of California must take out a yearly license, citizens paying therefor one dollar and aliens, two dollars. A person applying for a license must furnish the fish and game commission with a detailed description of himself, his residence and where he intends to trap. Every year each trapper must report, under oath, to the game commission every skin he has taken, together with the name and address of the person to whom it was sold."

We are inclined to side with the protestants. It is claimed and it appears that if passed as presented it will mean the destruction of some of our finest fur bearing animals.

SAFETY FIRST.

It is said that the greater proportion of the losses from fire is due to carelessness. The Cultivator has always appealed to California campers to use caution when in the forests which mean so much to our state's welfare, but in addition, about farm buildings and the home, be sure that electric wiring and even the hook on which the old lantern is hung is in proper condition. Better be careful than sorry.

WEATHER CONDITIONS

For the Week Ending March 31, 1917

	Rainfall—Wk.	Season	Norm.	Temp. Max.	Min.
Eureka	1.20	26.33	38.52	58	32
Red Bluff	.50	16.17	21.49	76	38
Sacramento	.02	12.21	16.96	78	38
San Francisco	.11	15.39	19.47	72	42
San Jose	.08	12.13	14.62	74	32
Fresno	.00	6.82	8.24	80	34
San Luis Obispo	.01	22.41	18.06	82	40
Los Angeles	.00	14.59	13.96	80	48
San Diego	.00	8.74	8.83	74	48

Alfalfa Land

For Dairying

Also First Class Orchard Land
10 Acres and Up.

BRENTWOOD IRRIGATED FARMS

in Contra Costa County

(63 miles from San Francisco)

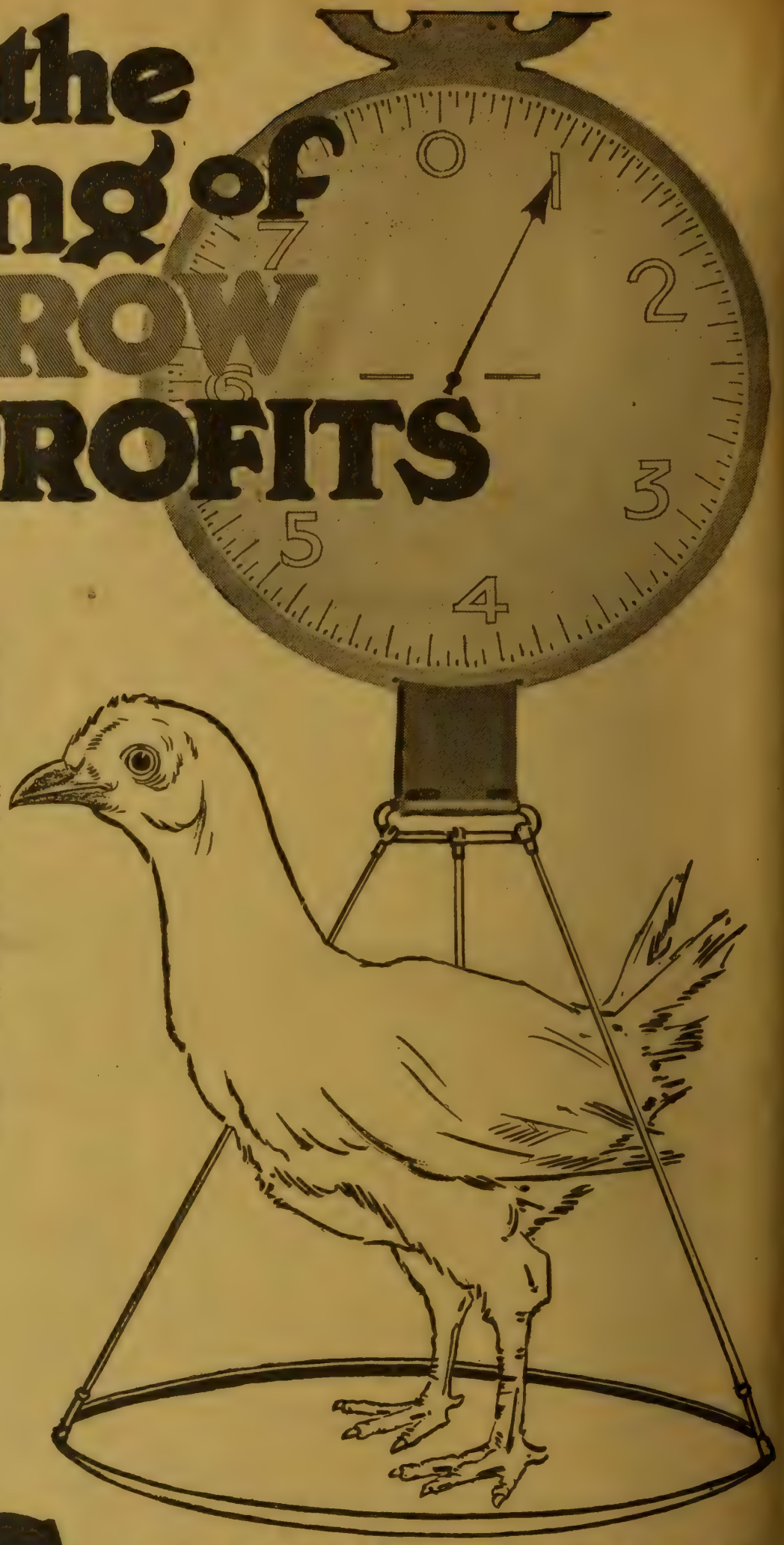
Easy terms of payment. For prices, etc. address

Balfour, Guthrie & Co.

Land Department.

350 California St. -:- San Francisco

Where the Feeding of SUREGROW Shows PROFITS



Your scale will prove that

SPERRY SUREGROW

may be fed with positive assurance that it contains those essential food units which growing chickens must have to build bone and muscle in the right proportions for profitable market for breeding stock.

When you buy **SPERRY'S SUREGROW** you invest your money where it will bring large and immediate returns in the health and vigor of your flock.

Hundreds of testimonials from successful poultry raisers tell of the wonderful results and increased profits secured by following the valuable advice of poultry experts to be found in our booklet "Makes Hens Happy." If you haven't read it and are trusting to luck, clip the coupon and send for it today. Don't put it off.

When you feed Sperry Suregrow, digestive troubles, moping, slow growth, all disappear.

Stock and Poultry Food Dept.
SPERRY FLOUR CO.,
Stockton, Cal.:

Gentlemen: Please send me, without charge, a copy of the Sperry booklet, "Makes Hens Happy."

Name .....

Address .....

Dealer's Name .....

Address .....

SPERRY SUREGROW

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APR 17 1917

CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

LOS ANGELES April 14, 1917 SAN FRANCISCO

$1150 F. o. b. Racine
Mitchell Junior—a 40-h. p. Six
120-inch Wheelbase

Mitchell SIXES

$1460 F. o. b. Racine
7-Passenger—48 Horsepower
127-inch Wheelbase

One Type—In Two Sizes

Built Like No Other Car

This model plant—covering 45 acres—was built and equipped for this single type.

It is designed to build this one type at a cost which none can match. John W. Bate, the great efficiency expert, has spent millions of dollars to do that.

The savings go into extras. So the Mitchell has a wealth of features which other cars omit.

All Mitchell cars are designed by our artists, and built by our own craftsmen. So each style is exclusive.

A Distinctive Car

Mr. Bate has worked 14 years to perfect this factory and this car. Every building, machine and method shows the last word in efficiency.

His methods save us on this year's output about $4,000,000. And all that goes into Mitchell extra values.

Our latest models are the result of more than 700 improvements made by Mr. Bate. He spent a year in Europe to get some of the ideas.

So the Mitchell offers, in many ways, what you cannot find elsewhere.

Unique Features

The latest Mitchells embody these distinct attractions:

31 Extra Features—
24 Per Cent Added Luxury—
100 Per Cent Over-Strength.

There are 31 features, most of which all other cars omit. Each is something you will want. Go see them. These are paid for by our factory savings.

On this year's models we add 24 per cent to the cost of finish, upholstery and trimming. Our new body plant saves the money to do that. This makes the Mitchell the luxury car of its class.

In the past three years we have doubled our margins of safety. Now each important part shows 100 per cent over-strength.

TWO SIZES

Mitchell—a roomy, 7-passenger Six, with 127-inch wheelbase and a highly-developed 48-horsepower motor.

Price $1460, f. o. b. Racine

Mitchell Junior—a 5-passenger Six on similar lines with 120-inch wheelbase and a 40-horsepower motor—¼-inch smaller bore.

Price $1150, f. o. b. Racine

Also six styles of enclosed and convertible bodies. Also new Club Roadster.

To Double Car Life

The object of this new standard is to double car life. Over 440 parts are built of toughened steel. Safety parts are all oversize. Parts which get a major strain are built of Chrome-Vanadium.

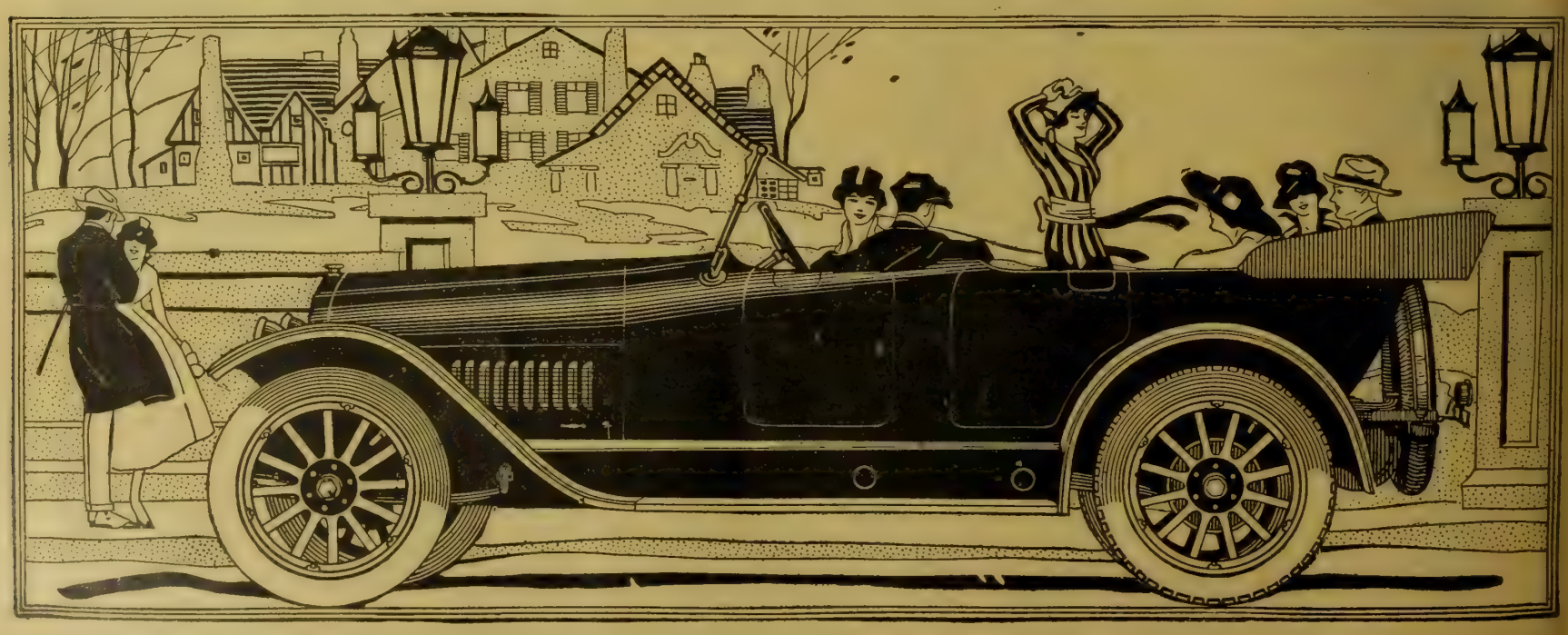
Our engine test is 10,000 miles without wear. Our gear test is 50,000 pounds per tooth. Our spring test calls for limitless service. Not one Bate cantilever spring has broken in the two years we have used them.

One Size, $1150

Mitchell Junior is about like the Mitchell, but a slightly smaller car. Still it has a 120-inch wheelbase. It is the marvel of Motordom this year in the value that it gives. See which size you like best.

You will want these extras. And, when you know, you will want a Bate-built car. It means a complete car, a smart car and a lifetime car. It is the last word in efficiency. Let your dealer show it to you before the spring over-demand.

MITCHELL MOTORS COMPANY, Inc.
Racine, Wis., U. S. A.



California Cultivator

Vol. XLVIII No. 15 LOS ANGELES: April 14, 1917 One Dollar Yearly

A Demonstration by Corn Growers

One California Institution Purchases Nearly 1000 Tons of Corn Monthly. Of This Amount California Produces an Exceedingly Small Percentage. Talks at Stockton by Practical Growers Show California Possibilities in Growing Indian Corn

AFTER a three-year campaign to educate farmers as to California's need for more corn the Sperry Flour Company recently held a corn demonstration at Stockton. Over 200 people interested in raising corn were present and six implement concerns made display of implements for planting, cultivating and harvesting corn.

Manager E. J. Luke said:

E. J. Luke

Up until three years ago the Sperry Flour Company was using 500 tons a month. Ninety-five per cent of these 500 tons was brought in from the Middle Western states at an additional cost of $11 a ton for freight. This year we used about 700 tons right here in Stockton. We want to buy all that corn right here at home if we can, and what makes us think we can, is because we know that corn can be raised in California. The fact of the matter is, if the Eastern farmer can raise corn, pay $11 a ton freight and make money, the California farmer with only about a dollar a ton freight to pay can raise corn and make it pay.

A question that has come up is whether it is possible to raise too much corn in California. I might just say that the Sperry Flour Company in its entire system, using 1000 tons a month, is only a small unit in the state of California in the use of corn. Just to give you a few figures on what other states are doing:

New Jersey with an acreage of 5,260,000 acres, last year raised 22,550,000 bushels of corn; California with an acreage of 100,000,000 raised 2,160,000 bushels.

The more corn that is raised, the more it is going to be used here is my opinion, and while a great deal of Eastern corn is shipped in bulk, it is nothing compared to the mannfactured article brought in, and if you will give us the corn it will enable us to meet the competition of the Eastern manufacturer, and the state of California as a whole is going to be benefited. Again, you not only have the state of Cailfornia for your market, but Washington and Oregon to ship corn into, because they buy all their corn from the East.

Another thing—and we might say that we are just a little selfish in this matter—we paid out $140,000 for corn, from December 1, 1916, to April 1, 1917, and this $140,000 stayed right around Stockton. Now we figure that the nearer home we keep a dollar, the quicker we get it back again.

Still another thing. We are buying the corn on a 15 per cent moisture basis. You want to remember that we credit you with anything less than 15 per cent, and debit you with everything over 15 per cent, for 15 per cent is about as high a moisture content as corn can stand for it to keep. Another thing I want to speak about and that is having your corn thoroughly clean, for corn will not keep if it is not thoroughly clean. Seeing the machinery working here today, and after watching the sheller working, I think that it should be finished up with another suction.

Albert Westgate

A practical corn grower was then intoroduced. He said:

My experience has been confined to this last year. I have 140 acres out here at Terminus and from the 140 acres of corn grown I shipped to the Sperry Flour Company 4395 sacks of corn, for which they paid me $11,922 and some cents. I made many mistakes, a man has to find such things out. When I started to plant, the planters were set seven pounds to the acre. My man planted two sacks of corn in three days, and at first you would naturally think he was lying down on the job, but when you checked up on the acreage, he was doing good work. I naturally concluded that he was not putting in seed enough, so increased the seed from seven pounds to the acre to about 12, and this corn was my poorest corn. Two or three stalks to the hill are better than three or four stalks to the hill. Then as soon as your corn is up, keep cultivating. I kept a two-row cultivator in the field until the corn ran me out of the field. I think this is why I got such good results. As for irrigating, I think that a man can overdo the irrigating proposition in corn, just as the Chinaman does in overirrigating potatoes.

What we are up against here is the prohibitory cost of gathering. A man can't get off at less than nine dollars an acre. The machinery plan is the best to use in California. We California farmers are used to machinery, and it is pretty hard for any kind of practical machinery to stump the California farmer. We will find some way that will help us out on this gathering proposition. Another thing, we gather our corn and leave the stalks in the field. We get $1.50 to $2.00 an acre for them from the sheep men. They keep their sheep in our corn patch and fill up our ditches, leaving the bare stalks standing, and you can't clear them off for less than $1.50 an acre. According to government reports corn stover has a good feeding value. Corn stalks should be shredded and would sell for good money. What should they bring now with hay selling at $25 per ton? Not only that but we would save on cleaning the stalks from the field, which as stated before would cost $1.50 an acre.

Another thing which we are up against is the proper seed. We have

Continued on Page 441

Keep Down Farm and Garden Pests

A Year of Great Demand for All Crops Calls for a Year of More Intensive Culture. Control the Pests, Which Mean Failure if Tolerated. Improved Methods with Best Insecticides Make Control Comparatively Easy

ONE of the easiest and perhaps most fascinating of things to start is a garden. After it is started, however, a bit of inattention, some drouth, bugs or fungus, may make the stopping of a garden fully as easy, if not so fascinating, as the starting. Of all California's years this is the most prosperous as to starting of gardens. Many will be carried to completion, will be cultivated and irrgated, and luscious greens and vegetables at the minimum of cost will be supplied to the table. A few will be discouraged, and to help these we offer a few suggestions.

We will assume that the physical side of garden culture, that is, the preparation of the ground, its irrigation, cultivation, etc., at proper times are all attended to, and will touch upon some of the fungous troubles and those other pests which cost farmers of the United States hundreds of millions of dollars and even discourage and bring disaster to some. The insects were here first and may be here last, so that understanding of their side of the question as well as ours is necessary.

The farmer and the gardener must get away from the position held by many, especially this year' amateurs, that a bug is a bug and that a cure-all may be applied which will reach everything that molests the garden. To these let us say:

The Wheel Hoe Saves Labor in the Garden

A Planet, Jr., or other wheel hoe, will cover far more ground than the ordinary hoe or rake.

There Are Fungous Troubles

We need not stop to define fungus, but the molds, the mildews, shot hole and other rusts, and even toadstools, are in this class. The best control method for most of the rusts and fungous troubles is the application of Bordeaux. Again pure sulphur alone may be sufficient, but first learn to differentiate between rusts and insects and bacteria.

Bacteria

For bacterial trouble there is practically no treatment other than removing, portions at least, of the plant affected. Perhaps the best example of bacterial trouble, which it is impossible to control if it has once taken possession of the plant, is tomato wilt. The same trouble affects potatoes, and once it has shown itself the plant should be taken up and burned.

There is another tomato wilt, however, which is a fungus which may come with fall rains and which may be controlled by spraying with a very weak Bordeaux mixture.

Insects

When one comes to the insects it must be borne in mind that here again is opportunity for study and need for knowledge of the different kinds of insects. First, there are the chewers, or eaters, and in this class are included various "worms", tomato worms, cabbage worms codling moth

THIS IS THE

Miller Bee Hive

A California Redwood Bungalow Home with Clean and Dainty White Pine Furnishings

Every Bee-keeper insists that his Hives shall fit. That is just the Bee in our Bonnet, the Hive that FITS. The Miller Hive now being produced in our factory will meet the requirements of the most particular bee-keeper in the state.

Every Miller Hive part must fit. Must fit like a soft, shapely new glove, before it passes the inspector. And the furniture, cut from fragrant Shasta pine, is sure to please that particular little housemaid, the Bee.

Miller Hives are made of California Redwood, without a knot or blemish in any part. There is no variation. They are uniform.

During the month of April we are offering a special discount on all hives and parts manufactured by us.

Miller Hive and Box Co., 201-203 N. Ave. 18, Los Angeles
Sunset East 118, Home 10489

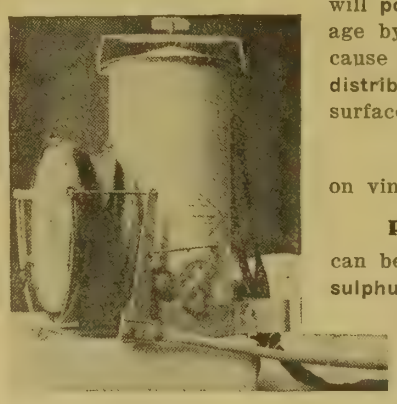
Mr. GRAPE-GROWER

It is almost time for mildew.

"A Puff in Time Saves the Vine."

DRY SULPHUR APPLIED WITH

The American Beauty Dust Sprayer



will positively save your grapes from damage by mildew or red spider. Why? Because it is so finely divided and so evenly distributed. It covers every inch of leaf surface on every vine at a single stroke.

RED SPIDER AND MITE

on vines and fruit trees, such as

prune, almond, citrus fruits

can be easily controlled by the use of dry sulphur applied with an American Beauty.

Don't waste valuable time tinkering with a poor machine. Buy an American Beauty now, and be ready for emergencies.

For sale by all progressive dealers.

If your dealer does not carry it, send us $11.00 for a vineyard size, or $13.50 for an orchard size AMERICAN BEAUTY DUST SPRAYER, and we will ship it to you at once, all charges paid. Try it a week. If it is not entirely satisfactory, return it at our expense, and we will cheerfully refund your money. Send for our circular and price list today.

WE FULLY GUARANTEE EVERY MACHINE

THE CALIFORNIA SPRAYER COMPANY

6029 Pasadena Ave. - LOS ANGELES, CAL.

Reedley, Fresno Co. **Seattle, Wash.**

Poultry for Profit

Read what Portland Oregonian has to say about this book and its author.

There is a woman down in California who knows more about poultry than all the men in the state, and this, too, for that matter. Her name is Jean A. Koethen, and she has written a book which is published by the California Cultivator of Los Angeles, and called "Poultry for Profit." It costs a dollar, postpaid, and it ought to be in the hands of every one who is keeping hens. This paper has reprinted a lot of matter written by Mrs. Koethen and, because of its quality, her book is recommended. Climatic conditions in these states are so nearly alike that what is good or bad for fowls there is the same here. The price of three dozen eggs will get the volume and its purchase is a good investment.—Portland Oregonian.

Send in $1.00 for book or $1.75 for book and California Cultivator.

Cultivator Publishing Co., 115 N. Bdwy., Los Angeles

of the apple, etc. Also "bugs" come in this class. These insects are all reached through the stomach by poisons of some kind, usually an arsenate, which is the cheapest and most practical to use. Arsenates are now put up in such forms as to make success comparatively easy. Besides these chewers, or mandibulates as the entomologists express it, there are the suckers or insects provided with a sucking tube which is inserted into the juices of the plant and the sap drawn out as sustenance for the insect. In this class are some of our most perplexing pests, such as the scales of nearly all trees, aphis, plant lice, mealy bugs, etc. Poisons in no way affect these; they must be reached by contact insecticides. Among these are the rosin washes, petroleum emulsions and mixtures, tobacco sprays and dust, and other caustics.

The Cultivator has formerly issued pest fighting numbers in which some 30 to 40 formulas for various sprays have been given with full directions for mixing. These formulas will not be repeated in this issue, for we are now speaking more to the gardener or grower of small crops. As a rule he is not fitted for the compounding of his own sprays, and nowadays every seedsman and most nurserymen carry sprays suited to almost every pest. These ready-to-use sprays are practically as economical as the home made and are almost certain to be more effective. Specific directions are given on the original package and following them the gardener will secure results.

The Machine

For applying these sprays and dusts inventive genius has given us appliances from a dollar to as high a price as the sprayer can afford. For large commercial orchards great power outfits capable of running four or even six nozzles at a time, and carrying the spray to the tops of the highest trees are to be had. For potatoes and field crops sprayers which will take four or more rows, completely covering the leaves of potatoes, both under and upper sides, also for spraying celery or any other field crops have been provided. For the gardener there are innumerable knapsack or other small appliances which may be secured at from $5.00 to $15.00, which are most effective. There are also dust machines from the little hand bellows which has been used for years to distribute buhach on flies and house plants to larger ones, also of the knapsack type. Some of these machines are power driven on a larger scale for controlling spider and other orchard pests. Properly handled these "dry" sprayers are most effective. Our advertising columns give more information regarding these appliances.

But as the Cultivator has said before; "An ounce of prevention is worth a barrel of spray. Here is where our state and county quarantines have prevented spread of many pests, but it is up to the grower to be as watchful as the inspectors should be. For example, if potatoes are to be planted, are they covered with scab or are they infested with bacterial troubles? Learn about these pests, but after being sure that there are none on the seed purchased then treat with preventives, for no potato crop is successful which is at the same time harboring scab or other pests.

Grapes

Nearly every garden has a few grapes; nearly every grape has mildew. Mildews are easily controlled by liberal use of flowers of sulphur. Apply with some dry duster, or if only a few vines about the house, the sulphur or other material may be placed in coarse mesh bags and shaken over the leaves in the morning when the dew is on. The sulphur does not act directly, but the heat of the sun vaporizes it, destroying the spores of the fungus.

There are also phylloxera, vine hoppers, erinose and other pests of the grape, but each of these calls for such expert treatment that only bulletins issued by our state experiment station would give sufficient instructions or information along this line.

Raspberries, Strawberries and Other Small Fruits

Rose scale is one of the worst pests of the small fruits. It may be controlled in part by strong pressure of water from the nozzle or a good spraying when dormant with commercial

Since 1902

Pomona

DUPLEX-PLUNGER

Pumps

Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface. Send for catalog 115.

One Pump Will Do Your Work.

Pomona "Made Right" Irrigation Gates and Valves

PRICES RIGHT—QUALITY RIGHT
SEND FOR BOOK C.

Pomona Mfg. Co.

Pomona, Cal.

Citrus Trees

Orange—Lemon—Grapefruit

You
want dependable trees

We
want your business

Real Estate Exchanges Considered

Wallace Nurseries

(Established over 40 Years)

SALES OFFICE:
504 I. W. Hellman Bldg., Los Angeles

Macabee Gopher Trap

Small, simple, sure. At all dealers. If your dealer does not handle it, send 20 cents in stamps and mention your dealer's name and get sample by mail postage paid. Write for prices in larger quantities delivered free by parcel post.

Mfg. by Z. A. MACABEE, Los Gatos, Cal.

PRODUCE BIGGER CROPS

USE AMBOY GYPSUM

California soils are severely deficient in sulphur and other valuable elements so vastly important in the production of BIG crops. AMBOY GYPSUM replaces these locked-up elements and does other wonders. Increases soil fertility wonderfully. **OUR FREE BOOK** on gypsum facts should be in every rancher's hands. Write at once for it. Tells how, when, where and what gypsum to apply to alfalfa, citrus, garden and other lands. Best booklet of its kind.

GYPSUM FACTS

Consolidated Pacific Cement - Plaster Company
611-612 SAN FERNANDO BLDG.
LOS ANGELES, CAL.

ne-sulphur; also effective with this st is the rosin wash which may now had ready prepared.

San Jose scale. Same treatment.

Strawberry plant lice. Spray with erosene emulsion or rosin wash.

Orange Rust, so-called because of its ep orange color. Affects most of the aspberry and blackberry family. here is practically no remedy for alks infested. Cut them out, burn ithout scattering the spores any ore than necessary. Spray again with ordeaux. Spray again with Bordeaux nd perhaps the best canes may be aved from infestation.

eans and Peas

Wireworms are serious pests. Fertilize heavily with kainit, sulphate of mmonia or a nitrate. Do not apply o close to plant.

Aphis. One of the worst pests. pray with tobacco or rosin mixtures.

Cut Worms and Army Worms. hese are pests of the worst kind in ome years. Poison with bran mash ixed with Paris green consisting of ran ten parts, Paris green one part, olasses or glucose two parts.

Weevil may be controlled by fumiating seed with bisulphide of carbon. Use a bin. For each 1000 cubic feet f space in the box or bin in which the umigation is to be done use one pint isulphide. Place in shallow dishes n top of seed. Leave tightly closed or 24 hours. Be careful of fire as the as is explosive.

There are anthracnose, blight, rust, ildew and other pests of peas and eans. These if taken in time may e controlled by spraying with 3-5-50 Bordeaux.

Cabbage Worms, Aphis, Cabbage Bugs. Apply hellebore or spray with obacco extract or rosin wash.

Tomatoes

Worms. Spray with arsenate or Paris green.

Diabrotica, which are chewers, eat eaves and blossoms. They may be controlled by poison sprays. They are sometimes called lady birds, which hey are not in any sense. They are a greenish bug with black spots.

Fusarium or summer wilt of tomatoes is impossible to control except ng by planting disease-free plants on soil not infected.

Fall Blight. Spray with Bordeaux.

Potatoes

Plant scab free potato seed. If there is any question dip in formalin one ounce, water two gallons, or corrosive sublimate two ounces, water 15 gallons. Leave an hour and a half in one of these solutions.

Corn Ear Worm. Easily controlled with the dry form of arsenate of lead. Apply as soon as ears are formed by dusting powder over the silk end of the ear. One of the effective remedies on the market for this purpose is Corona Dry.

* * *

Moles do but little harm but if necessary to use means of control the trap is the most effective.

Gophers are more destructive. The trap is the surest though good control measures are effected by the use of poisoned raisins, pieces of potato or fruit. Use strychnine, a very small grain placed in the middle of a large raisin or in the tissue of a potato and placed in the burrow.

Squash Bugs. Disagreeable and disgusting is the squash bug, a dark grayish brown, mottled yellow underneath and about three-fourths of an inch long. This is the common stinkbug. He gets fat on poisons. Begin very early in the spring with handpicking.

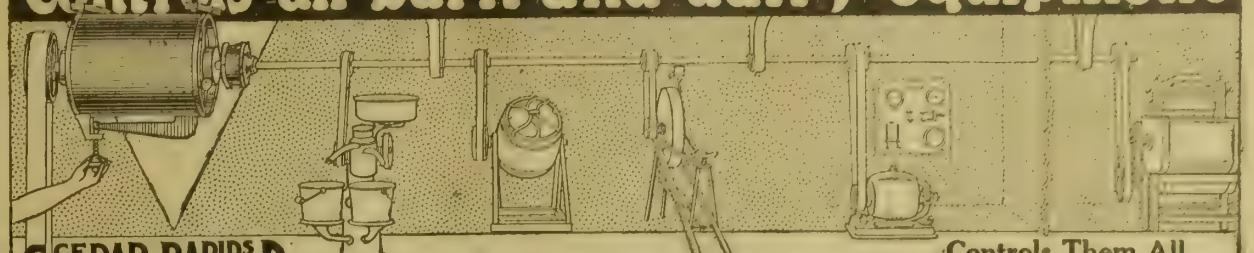
Slugs: Air slaked or hydrated lime or even fine dust is usually death to these disgusting pests. A ring of lime or tobacco dust about a small plant or scattering lightly over plant will usually prevent attack. Safest way is to be out early in the morning and gather the pests in a bucket. Poisons are not generally satisfactory with this pest. Another repellent is coal oil, which may be poured over ashes, gypsum or similar absorbent and scattered liberally about the roots.

NOTES

It is not only "how" but "when" you do the things which make a garden. For instance, in the control of the pests noted above if taken in hand when they first appear it is a case of "a spray in time saving nine million" or more. This is especially true of aphis. In other words, watch the garden day by day. A simple and com-

Continued on Page 449

Controls all barn and dairy equipment



CEDAR RAPIDS SPEED GOVERNOR
TRADE MARK

—as low as $12.00

—the speed governor of a thousand different speeds. Every turn of the hand wheel gives a different speed and each speed is absolutely steady and uniform.

Install it yourself with a screw driver. No figuring pulleys, no chance of installing it wrong for it runs in either direction, attached to the floor, the wall or the ceiling. It's *as cheap as an ordinary line-shaft* with the governor pulley thrown in.

California Distributors
BAKER & HAMILTON
San Francisco, Cal.
DIXON & GRISWOLD
Los Angeles, Cal.

THE Cedar Rapids Speed Governing Line Shaft is as cheap as the average friction-clutch pulley, yet it controls the speed of several pulleys at once without stopping your engine. The engine operates the governor—the governor controls the line-shaft.

The governor absorbs all jerky vibration. The power transmitted is steady and smooth. Runs all machinery at uniform speed. If you own an engine you need the Cedar Rapids Speed Governing Line-Shaft. One man saved enough labor fanning 50 bushels of clover-seed to more than pay for his governor outfit.

CEDAR RAPIDS FOUNDRY & MACHINE COMPANY
752 Second St. West
Cedar Rapids - Iowa

Controls Them All

Cream Separators require starting at slow speed. The Speed Governing Line Shaft *makes any separator run smoothly.*

Butter Churning necessitates slowing down the machinery to gather the butter. It regulates this.

Your Grindstone can best be run from a pulley on the Speed Governing Line Shaft.

Lighting Plants require regular power without "mis-fire" or "break". Controlled by the Speed Governing Line Shaft.

Your Washing Machine should be operated slowly when washing large pieces. The Governing Line Shaft controls it.

$50 in Cash Prizes

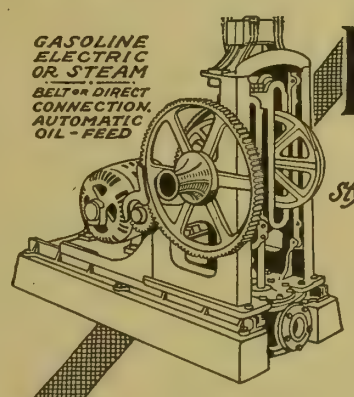
to be awarded July 1st. Present *owners* and *prospective buyers* should write for full particulars.

Teague Quality Citrus Trees

will all your citrus wants appease

R. M. Teague
Citrus Nurseries
R. M. TEAGUE, Manager
San Dimas, California

APRIL is an ideal month in which to plant orange and lemon, pomelo and lime trees. The advent of warm weather as the rainy season draws to a close, renders the soil ideal for tree growth. Ideal conditions call for ideal trees, which are the only kind we have to offer, hence are anxious to serve you. Correspondence a pleasure; a telephone message a joy; and a personal interview a delight.



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Styles and Sizes for Different Requirements

Non-Pulsating

As much as five times more power-energy is required to start an inert or stationary body than to keep it in motion. This mechanical truth applies to raising a column of water as well as putting a train in motion.

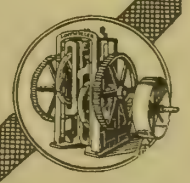
With this in mind, the famous Luitweiler Pump was perfected.

By the use of heart-shaped cams the action of the plungers is regulated to operate in such a manner as to lift the water in one steady, continuous stream with the very least expenditure of power. The perfect balance constantly maintained makes possible the very highest efficiency.

Ideally adapted for ranch service. Many sizes for every requirement.

Ask for our free Pump Booklets, which give detailed information.

LUITWIELER PUMPING ENGINE CO.
711-15 N. Main St., Los Angeles
San Francisco Agents:
Simonds Machinery Co., 117 New Montgomery Street



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Irrespective of cost, these are positively the greatest mileage-givers on the market, we honestly believe. While guaranteed for as high as 7500 miles, they invariably deliver from 10,000 to 20,000 miles of perfect service. Use them and reduce your tire cost. Ask for folder.

Factory Distributors:

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Cor. Pico and Hope Sts., Los Angeles
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John Deere Combination Bean Planter

The Latest Thing in Perfect Drop for Lima and Small Beans
Also see our new bean cultivator or write for descriptive circular

IMMEDIATE DELIVERY ON PLANTERS

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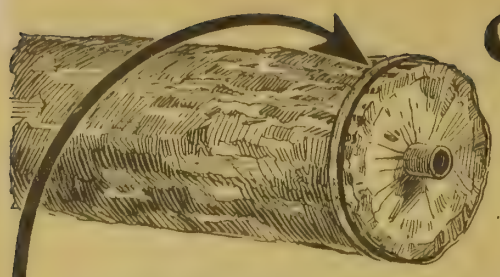
200-202 N. Los Angeles St., LOS ANGELES

Those who do not read the advertisements in the California Cultivator will miss a lot of useful information.



94 Years in the ground and unharmed by Rust ! —

IN 1823 the City of Cincinnati laid water mains made of oak logs with the centers bored out. To prevent the logs from checking, hand-made iron bands were placed tightly around their ends like the hoops on a barrel. Now after more than ninety years, these are being dug out. The bands are still in good condition because they were made out of iron that was practically *pure.*

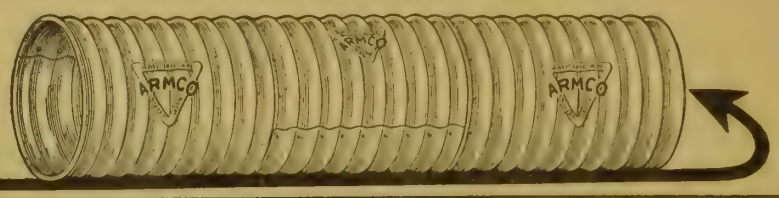
"ARMCO" IRON CORRUGATED CULVERTS

are made of iron that is even purer than those old bands. "Armco" Iron is *never less than* 98.84 per cent pure iron while analysis shows that in both cases scarcely more than a trace of either Manganese or Copper can be found; and all their impurities taken together make barely one-sixth of one per cent.

This is why "Armco" Iron Culverts resist rust and give long and economical service. They represent enduring value for the taxpayer's money. Insist on having the longest lived culverts in your highways. The "Armco" Trade-Mark on every section is your guarantee.

For full information on "Armco" Iron Culverts, Flumes, Sheets, Roofing and Formed Products, write the manufacturer in your vicinity, or

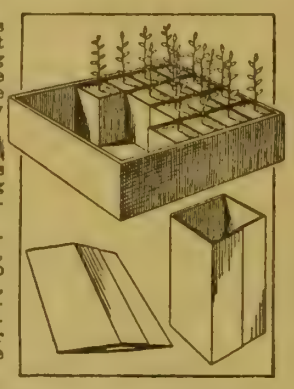
Armco Iron Culvert and Flume Mfrs. Association
CINCINNATI, OHIO



Perforated Tree Protector
that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

Collapsible Planting Pots
These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour.

For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus and Conifers. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.



THE EXPAN CO., 935 E. Central Ave., Redlands, Cal.

What are Pedigreed Trees? We want You to Reason Before You Buy Citrus Trees.

If it did not cost so much to produce our trees, we could sell them at competitive prices with other nurseries,—why, our methods of selecting our budwood alone would sell our stock. We have had over 20 years' experience in Citrus Trees, and were among the first to advocate bud selection from fruit-bearing wood. The price of the tree is the smallest item in the cost of bringing into bearing. Fertilizer, labor, investment tied up in land—these are the big factors that go to pot if, years after the trees are planted, the grove bears miscellaneous offspring.

50,000 Valencia, Navel Oranges
Eureka Lemon Trees

First National Bank Bldg. **WALKER-HUBBARD NURSERY CO.** San Fernando, Cal.

Yamamoto Citrus Nurseries

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Orange, Lemon and Grapefruit

120 000 Trees

60,000 Strong, clean one and one-hall year old stock
100,000 Florida Sour Seed Bed Stock

Car Lines—Sierra Madre, Monrovia, Glendora. Phone Alhambra 731W
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MAKE BIG PROFITS Simplicity, strength, durability, make the Lightning Press the most economical to buy; big capacity, quick work, no trouble, lasts for years, best farm money-maker.

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Send name today for complete catalog, showing all styles and prices.

30 YEARS THE LEADER

KANSAS CITY HAY PRESS CO., - KANSAS CITY, MISSOURI.

When writing advertisers, mention The Cultivator.

Growing of the Raisin Grape

IN "Notes of Methods and Costs, California Crop Production", compiled by R. L. Adams of the College of Agriculture, we have an outline of planting and cultural practices for growing the raisin grape.

Climatic Requirements

Freedom from frequent late spring frosts, conditions for early ripening and freedom from heavy fall rains during ripening and harvest. Four or six weeks of dry weather usually required following picking to permit proper drying.

Soil Requirements

Deep, fertile loam, the heavier loams for Muscats and the lighter loams for Sultanas. Freedom from alkali and standing water during growing season.

Water Requirements

Grape secures color and quality when grown with sufficient rather than excess water supply. Sixteen inches is average minimum without irrigation.

Planting and Care of Vines to Maturity

Short pruned vines should be planted six by 12 feet, long pruned, six by 12, or some prefer six by 16. If rows run east and west leave roads for hauling north and south about every 200 feet. If planted six by 12 feet 600 vines per acre are required. The planting should be completed before the end of March. These vines should reach bearing, or at least self-sustaining age, by the autumn of the third year. In the absence of serious disease 20 years should be about the length of the profitable life of the vineyard.

Varieties: The most popular raisin varieties are Muscat, Sultanina, or Thompson, and the Sultana.

Irrigation: Usually one irrigation, ordinarily given in late spring (April).

Pruning: December-March. Pruned to either spurs or canes (if canes, these tied to stakes or horizontal wires.) Suckered in May and June.

Spraying: April-June. Sulphured for mildew one, two or three times, except the first one or two years.

Cultivation: Plowed and cross-plowed (January-March), hoed once (June). Harrowed into shape. Cultivated six times, beginning in April at monthly intervals.

Supports: Sultanina and other trellised varieties. Vines tied to temporary 1¼″-1¼″ stakes—later to permanent trellis. Muscat and other varieties tied to 2″ x 2″ stakes.

Care of Vineyards After Maturity

Irrigation: Usually one irrigation, ordinarily given in late spring (April).

Spraying: April-June. Sulphured for mildew one, two or three times.

Pruning: December-March. Muscats pruned to short spurs. Sultanina to fruit canes and renewal spurs.

Fertilizing: Occasionally a little fertilizing done, principally as applications of grape pomace, green manures and stable manures.

Cultivating: January-March. Plowed, cross-plowed and harrowed into good shape. Cultivated four times at monthly intervals, beginning in April. Hoe one time around vines in June.

Harvest

Time, August 20-October 1.

Method: Clusters cut by hand.

Preparing for market: Spread on trays holding 22 pounds (2 ft. x 3 ft.) placed in the rows, cured, sorted, and delivered to raisin packing house. In the Sacramento Valley the Sultanins are dipped and dried in a drying yard.

Yields

Good: One and a half tons raisins.
Usual: One ton.

Annual Cost from Setting Out to Self Sustaining Age

Cultivation ($5-$8) $7 per acre; stakes or trellis (first year), $20.00; tying $1.50; pruning two years' total $3.00, sulphuring, two years' total $1.50, hoeing, two years' total, $2.00 burning brush (second year), 50c.

Annual Upkeep After Maturity

Sulphuring two times, $1.25 per acre, cultivating ($5-$8), $7.00, pruning and burning brush, Muscats $4.50 Sultanina $10, suckering $1.00, tying Sultanina $2.50, hoeing—Muscats—$2.00; Sultanina, $4.00.

Cost of Harvest

Gathering ($7-$16) $10 per dry ton handling trays $1.50, turning and stacking $1.25, packing in lugs $1.25 hauling (4 miles) $1.00.

Four Years' Success

"The close of the fourth year of the Associated Raisin Company, says the Fresno Republican marks an epoch in what is up to the present very much the most successful cooperative producers' association yet undertaken in California. The old raisin association with all its ups and downs had within itself seeds of its own dissolution, and the end, when it came, had already long been inevitable and foreseen. It lived its life in turmoil and it paid the price of politics for its intermittent business success. All in all, it was a good thing while it lasted, and it is remembered with respect and appreciation, but its success was not, and under the circumstances, could not have been made unconditional."

The Associated Raisin Company in a new way and under different politics has accomplished quietly by business methods not only all which the old association accomplished, but also all of that toward which in its wildest turmoil it aspired. The association has maintained the confidence of the growers and of the business world to an unprecedented extent, and its success in hard years and in easy is a

HAS MADE MILLIONS FOR RAISIN MAKERS

James Madison, vice president and manager, California Associated Raisin Company. Mr. Madison has been a power for good to every raisin producer in California. For years he has fought for their interests, and with the contracts ending within the next year the question now is asked, "Will the growers renew contracts and sign up for another period or will they be drawn away by the fact that the present exceptional year gives opportunity to outside interests to discourage continuance of the cooperative movement?" Such a result seems impossible for the growers are too clear headed to forsake the organization which has made them.

onument to the sound basis on hich it was established. It faces ext year a new crisis. Its contracts ith the growers and its leases on ome of the principal packing estab-ishments will expire. Its continua-ion will require effort and doubtless ome agitation. It will require the etermination of polfcies which may ave two sides and may provoke con-icting judgments. But the very fact hat this critical future is faced with alm and quiet confidence on the part f management and of growers makes t so certain that almost no question f doubt has been raised that it will ucceed and will establish itself as he permanent and finally the inde-tructible organization of the raisin ndustry of central California."

Crop Reports

THE Cultivator's first estimate on apricots was 50 per cent of a crop. It now appears this stands a chance of being a reasonably close guess. However, many who were at first much discouraged at the outlook are more hopeful.

On next page is given liberally of he figures just issued by the state ommissioner of horticulture under ate of April 7. The Cultivator will e glad to hear from others who have not given estimates of their sections, also from those who may wish to change their former figures. We be-lieve these reports have aided many a fruit grower in judging as to market possibilities for this year.

Head of the Peach Growers' Association

J. F. Niswander, vice president and general manager of the California Peach Growers, Inc., who is endeavoring to se-cure for peach growers fair returns for their years of labor. Peaches are a staple and they should never go begging as they did a few years ago, and they never will if the present organization is en-couraged.

D. F. Norton, Grass Valley, Nevada County.

In a general way I will say that the outlook is very promising for a nor-mal crop. The very high price that our pears brought in the Eastern market last year has stimulated our orchardists to grow only standard fruit, and more spray material has been used this spring than ever be-fore in the history of the county, and we are going to try and establish a record for shipping nothing but strictly standard fruit.

Edw. O. Amundsen, Farm Adviser, Placer County

The frosts of Thursday and Friday mornings (March 29 and 30), wrought great damage to the fruit crop of Placer County. Practically all the early plums are gone, pears probably 60 per cent loss; cherries almost all gone in lower locations; peaches prob-ably 25 per cent loss. In some sec-tions practically all the fruit is lost. Apparently all the crops will be ex-tremely light.

Apricots, practically all gone; al-monds, big loss but too early to esti-mate; cherries, probably one-fourth crop; peaches, three-fourths crop; plums, early plums probably a 25 per cent crop, Santa Rosa, Wickson, Bur-bank, Kelsey.

A. H. Christiansen, Farm Adviser, Humboldt County

The outlook in this county is for a 100 per cent crop of all the fruits, in-cluding apricots, peaches, prunes and apples, which are the maximum crop of this county.

Fred C. Brosius, Deputy Horticultural Commissioner, Sacramento County

Regarding condition of crops in this county will state that we are a small producer of apricots but expect to have 80 per cent thereof, almonds 90 per cent; cherries, 100 per cent; pears, 100 per cent; peaches, 100 per cent; prunes and plums, 90 per cent.

While there was a small loss of early almonds and early plums, the in-crease caused by new orchards com-ing into bearing will offset a slight damage done by the continuous frosts. In my opinion the crop of cherries,

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The price remains the same!

Leading merchants the nation over are this week featuring Styleplus Clothes $17. Today more than ever before this price stands out to the nation. Our Style, our Quality, our Guarantee of Satisfaction have created a new standard of value at $17 from Maine to California!

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(Price in Cuba $23)

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Of course you realize how big an advantage it is to *see* and *try on* the clothes *before* you buy them. If you buy direct from the nearest Styleplus dealer, you know exactly what you are getting. Look for the Styleplus Label in the coat collar. If there should not be a Styleplus Store in your town, ask your favorite dealer to order a Styleplus suit for you.

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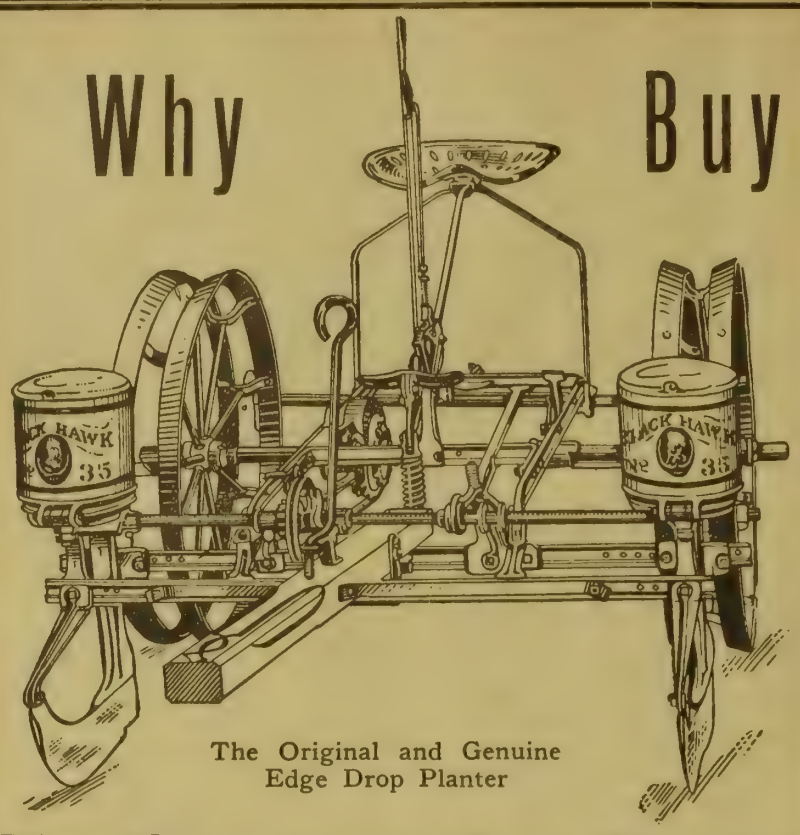

The Original and Genuine Edge Drop Planter

The Black Hawk Bean Planter

"BECAUSE IT DELIVERS THE BEANS"

It has OPEN or CLOSED WHEELS, frame adjustable FOR 26 to 44-INCH ROWS, chain drive, automatic gear shift, FLEXIBILITY, EXTRA LARGE, 12½-INCH SEED CANS, sight feed, removable wheel boxes, variable edge drop and disc marker.

It plants BEANS, PEAS, KAFFIR CORN, MILO MAIZE, EGYPTIAN CORN, INDIAN CORN, SUDAN GRASS and similar seeds.

FERTILIZER ATTACHMENTS AND DISC FURROW OPENERS can be furnished when desired.

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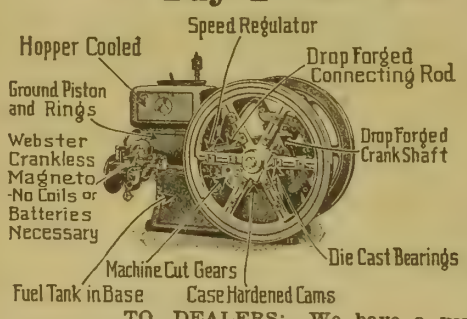

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made in sizes 1½ to 12 H. P.

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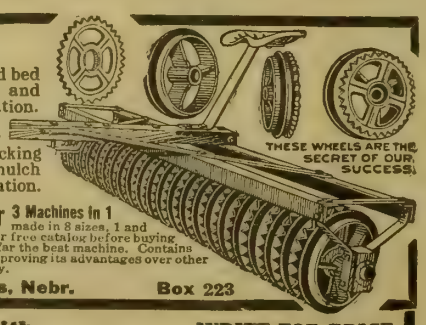
WHEAT, ALFALFA

and other grains yield more where a perfect seed bed is prepared. The **Western** pulverizes, packs and mulches—makes a perfect seed bed at one operation. Saves seed, time and horse power. Is especially adapted for breaking crust on winter wheat or other grain or in orchards after irrigation or packing rains. It forms the hardest crust into a granular mulch without hurting the grain, and prevents evaporation.



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WESTERN LAND ROLLER CO., Hastings, Nebr. Box 223

Western Pulverizers in stock with WRITE FOR PRICE

ARNOTT & COMPANY, Inc.

112-118 South Los Angeles Street LOS ANGELES

peaches and pears will be exceedingly heavy this year.

H. P. Stabler, Horticultural Commissioner, Sutter County

Apricots, 75 per cent; almonds, 85 per cent; cherries, 100 per cent; peaches, 100 per cent; prunes, 100 per cent.

N. E. Mathews, Santa Ana, Orange County

Having grubbed out my apricot trees, and upon telephoning my friends found they had done likewise, I seemed to be unable to get on the track of any definite information of value, but the following clipping from the Santa Ana Register will probably give information you want if it is not too late.

Santa Ana Register, Orange County

With record crops promised and indication that prices will go to 15 cents per pound, apricot growers of Orange County promise to fare as well this year as will the bean growers. The county crop will bring growers between $250,000 and $300,000. Buyers are now offering to contract the coming crop at 11 cents per pound, and some growers have taken such contracts. Many of the producers, however, believe that before the harvesting season is over the fruit will advance to 15 cents per pound. Last year's dried fruit has been cleaned up. In a general way, the came condition obtains with reference to other dried fruits.

'Cots have set so thick that many will be crowded off the trees as the fruit develops. The tonnage in Orange County will be right around 1100 tons of dried 'cots, which is about the usual yield. However, hundreds of acres of trees have been grubbed up within the last year, and the less acreage producing the average tonnage tells the story of the crop set on the trees.

G. H. Hecke, State Horticultural Commissioner

Reports thus far available indicate that but slight damage has resulted from the frosts and rains during the past month. While a few sections report a 50 per cent loss, others claim no harm has been done and admit in a general way that the loss sustained amounts to little more than proper thinning would entail.

Reports received at the office of the state commission are, as a rule, generally optimistic. Almonds show but a slight falling off from the normal, and this may result in a crop above the normal when the harvest is reached, as is frequently the case.

In some places peaches show a slight decrease, but the general average is above the normal condition.

Stanislaus and Santa Barbara Counties show normal conditions; Madera admits slight damage to apricots; peaches and apricots are said to have been pinched a little in lower San Joaquin; Hemet Valley reports some damage to apricots; Kings County is so close that authorities do not agree; Fresno reports but slight damage to peaches, and all down the line the average would indicate that with continued favorable conditions the crop of fruits and nuts in the state for 1917 would be one of the largest in its history.

George P. Weldon, Deputy State Horticultural Commissioner

From the commissioner's report of April 7 we quote:

Apricots. Alameda County 75 per cent, Colusa 75, Contra Costa 40, Glenn 75, Humboldt 75, Imperial 90, Kern 40, Kings 60, Lake 75, Los Angeles 30, Madera 20, Mendocino 100, Merced 50, Monterey 98, Napa 25, Orange 100, Riverside 50, Sacramento 80, San Bernardino 95, San Diego 10, San Joaquin 97, San Luis Obispo 60, Santa Barbara 100, Santa Cruz 75, Stanislaus 50, Sutter 75, Tehama 50, Tulare 5, Ventura 70, Yolo 50, Yuba 70.

Almonds. Alameda 60, Butte 100, Colusa 100, Contra Costa 50, Glenn 90, Kern 25, Lake 75, Los Angeles 75, Madera 100, Merced 75, Napa 20, Riverside 70, Sacramento 90, San Bernardino 50, San Diego 80, San Joaquin 100, San Luis Obispo 75, Shasta 25, Stanislaus 100, Sutter 85, Tehama 100, Yolo 65, Yuba 90.

Cherries. Eldorado 100, Humboldt 90, Mendocino 100, Napa 100, Riverside 50, Sacramento 100, San Bernar-

He'll Make You Poor — KILL HIM

What is the use of preparing a good seed bed and planting seed that cost good money if you let squirrels and gophers eat your profits. These pests are a constant danger to crops and a constant menace to the family's health.

Carbon Bisulphide

has for over 30 years proven to be the most effective—the only sure killer of squirrels, gophers, rats, prairie dogs, ants, moles, yellow jackets, moths, weevils, lice, etc. It is easy and safe to use.

Write today for interesting folder and learn how this profit saver works.

Wheeler, Reynolds & Stauffer

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World Needs More Food You can produce more by making better seed beds.

Get a disk harrow with these improved practical features: cutlery steel disks, forged sharp; hardwood bearings, oil-soaked and dust-proof; split-lock bolts that cannot rattle loose. Select a

Cutaway CLARK Disk Harrow

The Double Action has rigid main frame, extra strong, that doubles efficiency. 100 styles to choose from—Single, Double and Special Purpose Types. Ask your dealer for the genuine CUTAWAY. Our book, "The Soil and Its Tillage," tells how to increase yield—a card brings it to you—FREE.

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In the Ear or Shelled—Prices on Application

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WE SELL SEEDS THAT GROW

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"Corona Dry" and "Corona Dusting Sulphur" comprise the best combination to kill garden, flower and tree pests known today. Application is made by blowing over the foliage of trees and plants in the dry dust form.

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POTATOES

9 4-5 Bushels from One Pound of Seed

Three potatoes, planted in 56 hills in Huron Co., Ohio, yielded this amount. The seed, the planting, and the crop harvested are matters of county record. You can do as well or even better by following my instructions. It is not a matter of variety of seed, or soil, or fertilizer used, important as each of these matters is, but it is the selection and cutting of seed and treatment. It was these elements that enabled me to produce the yield of 552 lbs. of potatoes from one pound of seed. Full information as to how it was done, the seed used, the soil, the fertilizer employed, the tillage and the methods of producing this large crop will be sent for One Dollar. Send your order now and grow more potatoes from less seed. Any one who feels too poor to spend a dollar to learn how to increase the yield in raising potatoes send me your name and address. Planting time is near. Send your order today and raise more potatoes from less seed.

A. R. Gibson, Brookfield, Ill.

Bean TrackPULL Tractor

$975--Terms

Only Agency that can make IMMEDIATE DELIVERY

A. F. GEORGE CO., Los Angeles
Home F1215, Bdw. 4215, 200 N. Los Angeles St.

dino 100, San Diego 100, Santa Barbara 100, Santa Cruz 100, Shasta 75, Siskiyou 100, Stanislaus 100, Sutter 100, Yolo 100, Yuba 100.

Peaches. Contra Costa 60, Eldorado 100, Glenn 50, Humboldt 100, Kern 60, Kings 95, Lake 100, Los Angeles 100, Madera 100, Mendocino 100, Merced 100, Napa 100, Orange 100, Riverside 80, Sacramento 100, San Bernardino 100, San Diego 100, San Luis Obispo 90, Santa Barbara 100, Santa Cruz 100, Shasta 90, Siskiyou 100, Stanislaus 100, Sutter 100, Tehama 100, Tulare 83, Yolo 100, Yuba 100.

Prunes. Colusa 100, Contra Costa 100, Eldorado 100, Humboldt 90, Kern 80, Lake 100, Mendocino 100, Napa 100, Orange 100, Riverside 100, San Bernardino 100, San Diego 100, San Luis Obispo 95, Santa Barbara 100, Santa Cruz 100, Shasta 100, Siskiyou 100, Stanislaus 100, Sutter 100, Tulare 90, Yolo 100, Yuba 100.

D. D. Sharp, Horticultural Commissioner, Riverside County

Reports from inspectors in the various districts changes my expectations on the frost damage to apricots. I expected the most frost damage to be in the Banning section, instead of which Hemet has been injured to a greater extent than either Banning or Elsinore. The latter district appears to have sustained no material damage. These districts having the largest acreage in apricots our estimate is based accordingly. The apricot crop was injured more than any other crop by the frost during March.

The following is my estimate for the deciduous crop outlook as it appears at the present time: Almonds 70 per cent, apples 100 per cent, apricots 50 per cent, cherries 50 per cent, table grapes 80 per cent, wine grapes 100 per cent, peaches 80 per cent, prunes 100 per cent. Olives and citrus at the present time appear to be normal, citrus being very late in blooming we cannot as yet form any estimate other than to report conditions at the present time as being normal.

THE SPARROW PEST

Written for California Cultivator
By E. A. White

I have noticed several articles in recent issues relating to sparrows destroying young vegetables. All seem to think it is the English sparrow; but such is not the case; it is the Crown sparrow, an American song bird. Males have white stripes across back; females have no stripes and much resemble the English sparrow. I have investigated many places where complaints have been made, and in every case it has been this Crown sparrow.

They come to Southern California in October and stay until the first week in April when they go north to nest from Oregon to Alaska. During their stay here they do hundreds of thousands of dollars damage, eating nearly every variety of garden truck, even destroying fields of potatoes. The only vegetables I have not known them to eat are onions and carrots; also they eat all kinds of grain and are a nuisance both to the gardener and poultryman as they will go through one inch mesh wire. Poisoning seems to do little good, as like the flies they come in droves. They never sing here, only on their breeding grounds. Some one should make a thorough investigation and see if there cannot be some law passed to get rid of them. They are a protected song bird.

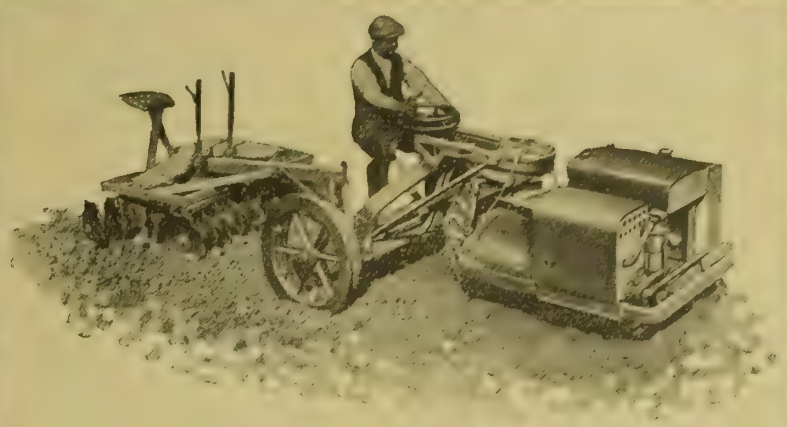
AN INSTANCE OF PROFIT

imperiled a $100,000 investment can imperiled a$100,000 investment can be credited to County Horticultural Commissioner Swett of Contra Costa County and his inspector, V. G. Stevens. A consignment of 14,000 pear trees was recently received. Investigation developed the fact that no real examination had been made. The Oregon authorities depended upon the statement that the trees were grown upon a Japan root and were therefore resistant to aphis.

California investigations made under direction of Commissioner Hecke show that aphis will colonize on the Japan root, and while they may not cause as much damage as they do in working on the French root, it is plain that their board and lodging must cost something to the tree.

The nursery shipping the trees has agreed to give this matter careful attention in the future.

Save Money Cultivating with a Bean TrackPULL SIX HORSE Tractor



For pulling a cultivating tool, the Bean TrackPULL SIX HORSE Tractor hasn't an equal. This little machine also excels at plowing, discing, harrowing, spreading and other farm, orchard or vineyard work.

THIS IS WHY

The Bean TrackPULL Six-Horse Tractor is superior because its weight is only 2875 lbs.; does not sink in or pack the softest soil. Efficiency: It is the Tracklaying type, traveling on its own track, giving long traction, and responds quickly when a turn is to be made. Power: It does the work all day long that six hard working horses can do working continually, and it never wants to loaf when the hot days come. Superior Construction: It is equipped with Le Roi 4-cylinder vertical type—4-cycle motor, Donaldson air clarifier, Bosch ignition, Famous Hyatt Roller Bearings and New Departure ball bearings throughout, Perfex radiator, water cooled with centrifugal pump and fan, combination splash and pump lubrication, and is so simple a boy can operate it.

Completely circling a lemon tree with a 6-ft. Double Disc.

Pulling 12-ft. Forkner Cultivator making difficult turn. Distance between tree and fence 12½ ft.

Write us for the name of nearest TrackPULL agent and other information.

Prompt Deliveries in April

Although we have just finished a big addition to our plant to supply the ever increasing demand for Bean Tractors, every indication points to a demand very much in excess of the possible production, and we urge you to get in your order early.

Bean Spray Pump Co.
212 W. Julian St.
SAN JOSE, CAL.

Los Angeles Branch
131-33 N. Los Angeles St.

Mail the Coupon today.

Mail this coupon today and get our big folder describing the Bean TrackPULL Six-Horse Tractor.

Bean Spray Pump Co.
121 W. Julian St., San Jose, Cal.
131-33 N. Los Angeles St., Los Angeles.

Please send me prices and the big folder with the complete story of the Bean TrackPULL. If I decide to purchase I will need my tractor about

Date ..... 191..

I work ..... acres

I grow .....
(Name fruits or vegetables you produce)

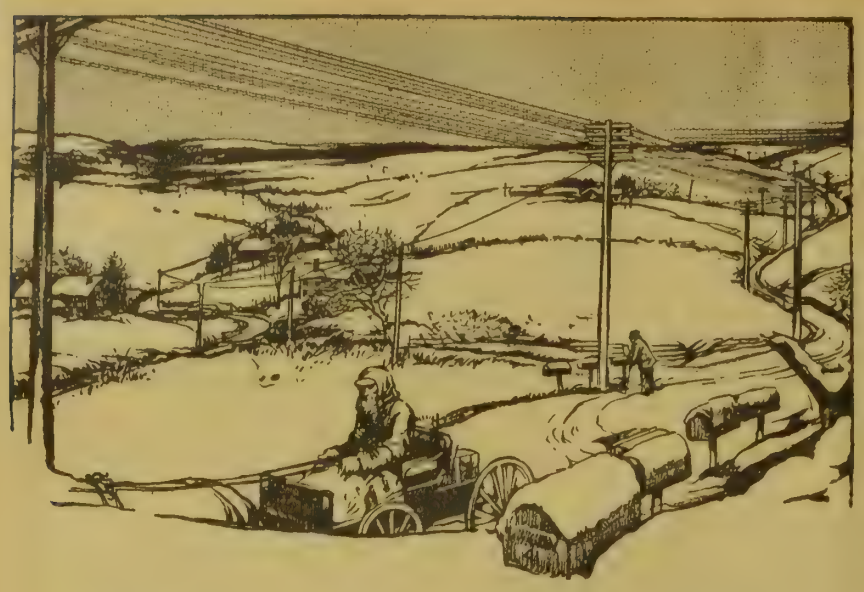
Name .....

St. or R.F.D. .....

City .....

County .....

State .....



Standards of Service

In rural communities clusters of mail delivery boxes at the crossroads evidence Uncle Sam's postal service. Here the neighbors trudge from their homes—perhaps a few yards, perhaps a quarter mile or so—for their mail.

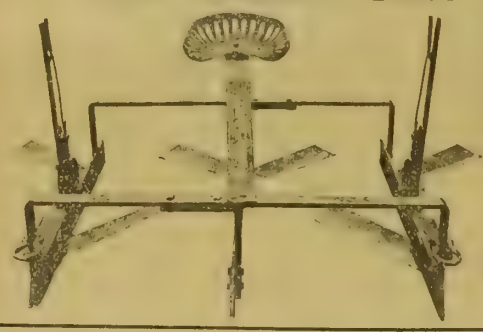
Comprehensive as is the government postal system, still the service rendered by its mail carriers is necessarily restricted, as the country dweller knows.

Long before rural delivery was established the Bell System began to link up the farmhouse with the neighboring towns and villages. One-fourth of the 10,000,000 telephones in the Bell System are rural. They reach more places than there are post offices. Along the highways and private lanes the telephone poles lead straight up to the farmer's door.

He need not stir from the cheerful hearth ablaze in winter, nor grope along dark roads at night for friendly news or aid in time of trouble. Right in the heart of his home is his telephone. It is the American farmer's key to the outside world, and in no other country is it found.

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
AND ASSOCIATED COMPANIES
One Policy *One System* *Universal Service*

The Golden Gate Weed Cutter



cuts seven feet or less, weighs 230 pounds and is all made of steel. The Golden Gate Weed Cutter is the greatest of its kind on the market. For workmanship, simplicity and durability it cannot be excelled as it does its work to perfection. Those who are using it say that no money could buy it if they could not get another. It not only cuts all kinds of weeds, but cultivates the ground as well. One user said that it has saved him $200.00, as he did not have to plow after using.

Manufactured by C. G. SIGURD
Capital Ave. and McKee Road
San Jose, Cal.

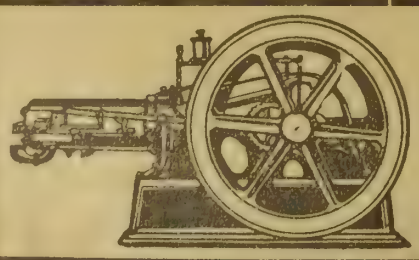
PIPE

For Every Purpose NEW Threads and Couplings Hot Asphaltum Dipped

2nd Hand and NEW

Screw Casing Fittings and Valves Guaranteed for Pressure

Pacific Pipe Co. Main and Howard Sts. San Francisco



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ARE GUARANTEED

Write for new illustrated catalog.

Commercial Engine Co.
2416-32 Porter St., Los Angeles, Cal.
Branch: 1228 "H" St., Fresno, Cal.

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Breeding Age of Heifer

Please advise age to breed heifer calf intended for family cow.—Subscriber, Anaheim.

This question was referred to Guy H. Miller, who answers: As this heifer is to be kept as a family cow there is no particular object in having her come in at a certain time of year as would be the case were she intended for a dairy cow. I would advise breeding her when she is about 15 months old, thus having her freshen at about 24 months of age, which I consider a very good age. I would then hold her over for four or five months before breeding her for her second calf, thus giving her a chance to make good growth between first and second calves.

If she is a heifer that is very small for her age I would not breed her the first time until she is 18 months old, but give her good feed and let her attain fair size before breeding, so that she will not be set back in her development during her first milking period.

Guinea Fowls

Where can I purchase guinea fowl or guinea eggs? Can eggs be hatched in incubator? If so how long does it take?

We find no guinea fowl breeder among advertisers in the Cultivator. Take notice, please, readers who have such stock and send in your advertisement. Guinea eggs require 30 days for incubation. I see no reason why they should not hatch in an incubator, but they are usually incubated by chicken hens. One good sized hen can cover 20 guinea eggs, and unless one has several pairs of guineas he is not likely to need to incubate more than this at one time.—J. A. K.

Wire Worms Eating Beans

Mr. A. E. de Fremery of La Honda writes:

I see in the Cultivator of March 31 in the query column, that a subscriber at Nestor has been troubled with worms eating the bean seed when planted. It is possible that the worms are weevils, but I am inclined to think that they are a species of wire worms. When I was in the Sacramento Valley last year one of our fields was so badly infested with wire worms that it had to be replanted. Not only were the beans eaten, but plants over six inches high were attacked, the roots being eaten on the inside up to, but never above, the surface of the ground. The worms seem to travel from seed to seed in the row and from plant to plant, two or more often being found on a seed or root. They vary in size from one-quarter to three-quarters of an inch in length, ranging also from cream to a yellowish brown in color .

Hired Man

Is it fair for a hired man working on a ranch to take an hour and a half for dinner when employes of corporations are allowed but an hour? Where a hired man lives with his employer's family and is treated as one of the family would it not be fair to expect him to split kindling or bring an occasional bucket of water, especially while taking his after-dinner smoke? Should not a bright young man rise in the morning and do his chores and put in the legal number of hours, the same as employes in stores, offices or factories?—Subscriber.

This is a case where both sides have rights and privileges. It should be the privilege of the hired man to lighten the work in the house where he is made practically a member of the family. Common courtesy would demand of him many helpful things. As to time in the field, without question the full day's time should be put in at the work in hand. The eight-hour-a-day man in the manufactory is supposed to have coat off and to be at the lathe ready for action the moment the workday begins. On the other hand, the man on the farm often has many chores which get him out even before daylight, and this compels more or less laxness in regard to regular hours. The valuable hired man, however, is not one who sticks for his rights in every little particular, but is willing to do his share. The valuable employer, likewise, is one who secures greatest service from his employe through good will and extending to him occasional courtesies, as well as giving absolute rights.

Estray Act

Does the estray act apply to poultry where one's property is fenced with an ordinary wire fence?—Subscriber, Lemoore.

The estray act would hardly apply to poultry. That is, under it estray stock may be empounded, and the cost of keep, which must be reasonable, is all that may be collected, but if one's place is surrounded by a substantial fence and poultry trespasses and does any injury, the owner of the stock may be sued for damages.

Strawberry Rhubarb

Would like to ask as to strawberry rhubarb, why is it so popular? I note that as soon as it appears in the market Crimson Winter finds lessened sale. Why does it come from the north? Can it not be raised in the southern end of the state?—Subscriber, Burnett.

The strawberry is one of the finest of rhubarbs. It has been grown for years in the Bay section. It is also being raised in certain sections of California, but it is now almost impossible to secure roots for new settings because of the keen demand. The stalks of the strawberry variety are longer than those of the Crimson Winter. The Crimson Winter is a magnificent plant. It has one fault, however, that while it is nearly all reproduced by seed it has the characteristics of seedlings in that some of it is of highest quality while some is exceedingly small with lead-pencil like stalks.

Queen Excluder

Should I put a queen excluder under the first super? If so how is it made? Could I put a super in the opening to keep the queen in and prevent swarming? If so, how large a space should I leave for the workers?—Subscriber, Gaviota.

This question was referred to M. H. Mendleson and he answers: "Queen excluders should be used when a colony is strong enough or overflowing with bees, or in a crowded condition both in brood and bees in the brood chamber, and plenty of new honey coming in. My method is to have six or more combs of brood with bees to crowd the brood chamber, then I put ona super of combs to get the bees started above the brood chamber, and after they have clustered a few days in the super with honey coming in, the super with honey coming in, then take og the extra super and put on a queen excluder over the brood chamber, then add the comb honey super. Queen excluders are always used under the first super to prevent the queen from laying above. To put a strip of queen excluder over the entrance would prevent the old laying queen from going out with the swarm and would cause the swarm to return to the parent hive. The hatching virgins would kill the confined laying queen, and unless the virgin that survived was allowed her freedom from the entrance to the hive she and the colony would become worthless as she could not get out to be fertilized. Fertilization takes place in the air in flight. Would advise the inquirer to procure a good bee book as soon as possible.

itting Barley Hay

Please advise proper time to cut rley for hay.—Subscriber, Coachella.

It is usually cut in the early "milk" age. Some claim that higher feed lue is secured by allowing the hay get into the "dough" stage, but ıile this increases the feeding value the grain that of the straw is mater- lly lowered.

g Cartons

If the subscriber at Lemon Grove ıo wrote requesting information as egg cartons had signed his name e could have sent him the informa- ɔn desired.

alnut Huller

A subscriber wishes to know as to ethod of making a huller to remove e hulls which stick to English wal- ıts. The matter was referred to Mr. eff, and he writes: "Sometimes a ire covered drum 24 to 30 inches in ameter and four to eight feet long is ıed to hull walnuts. The drum is tated by some light power, and ater is run on the walnuts from a rforated pipe, this being kept up ıtil the hulls are worn off. Some of e drums have barbed wire arranged side so the walnuts will fall on the ires and assist in tearing the hulls, ıt none of these are very successful. he Maiers huller is the best as far as know, but the help we are able to get gather walnuts cannot be worked ɔnomically when anything requiring ıilled labor is used." Mr. Neff adds at he can furnish general directions r such huller to Cultivator readers desired.

hite Diarrhea

Please advise cause and method of eatment for white diarrhea in baby ıicks.—Subscriber, Los Olivos.

Mrs. Koethen's "Poultry for Profit" eats this trouble quite fully, but be- re giving treatment she makes es- ecially strong the point that "well ıtched, well bred chicks, kept warm ıd reasonably well fed" are reason- ɔly sure of escaping this trouble. verheating before hatching or chill- g after hatching is liable to cause ıe ordinary diarrhea. White diar- ıea is an infectious disease which ɜually comes from infected eggs laid ɣ an infected hen. The treatment ven in Mrs. Koethen's book is: When a chick is 'pasted up' the ɛcrement should be carefully re- ıoved and the vent greased with vase- ne. If faulty brooding is the cause emedy this at once and you may save ıe chick. Boiled rice with cinnamon nd scalded milk with a little grated utmeg instead of the regular diet re recommended, and sour milk or uttermilk are the best of remedies; ut a chick with real white diarrhea ill not eat much, so the treatment ıust be mainly preventive. Rettger nd Stoneburn give the following on reventing white diarrhea:

"Since the disease cannot apparent- ; be transmitted through the food upply after the chicks have reached he age of three or four days, every ıeans should be taken to prevent the pread of the infection during this ritical period. We suggest:

"The segregation of chicks in small ɔts during this interval.

"Perfect disinfection and clean- iness of brooders and brooder coops.

"Food and water supplied in such ıanner as to prevent contagion by the roppings.

"The use in the brooder of a liberal mount of fine, absorptive litter which vill quickly cover and seal up the roppings.

"Raise and maintain the vigor and ilality of the breeding stock and hicks by every reasonable means nown to the poultryman."

Ants

Please give method of control of arge and small black ants around the ɔase of fruit trees. They eat the buds ınd have killed three prune trees.—Subscriber, Highland.

This may be the Argentine ant. Would advise that some of the ants ɔe sent to Prof. C. W. Woodworth, University of California, Berkely, with request for information and a ɔulletin on the Argentine ant publish- ɜd by the university. Ordinary ants ɔo not destroy vegetation but often ive on the products of other insects. Ant destroyers which are advertised in the Cultivator will ordinarily succeed in driving them away. The liberal use of fresh buhach is also effective.

Re-Seeding Alfalfa

Last fall I seeded some land to alfalfa and about half a stand is the result today owing to the cold of the past winter. I dislike to lose all the plants that have started by plowing under, but wonder if I could get these plants up six or eight inches, cut, then go over the field with a disk drill and put the seed in an inch or so. Would the disk ruin the small plants?—Subscriber, Rosamond.

The disk drill will not injure the alfalfa roots after the plants have made a few inches of top growth but any re-seeding should be done before the weather gets very warm, or be left until the cool weather comes again. It is possible that with good irrigation the present stand will thicken and be sufficient without any more seed since a stand of plants which shows five plants to the square foot is ample for good crops. If the surface soil is well pulverized seed can be broadcast by hand on the thinnest places and harrowed without going over all the field. Any sowing that is done in dry, warm weather must be on very moist land and the land should be rolled to keep the moisture close to the surface until the plants are established.—J. B. N.

Broilers.

Do expert broiler raisers consider Rhode Island Reds develop faster into marketable broilers than do Plymouth Rocks, etc?—Subscriber, Nordhoff.

Both strain and management play a large part in the development of broilers. It is highly probable that some strains of Reds in expert hands can be brought to marketable weight earlier than some strains of Rocks in less expert hands, and there is little difference at the best, but I believe the Rock, take it by and large, has a little better reputation as a broiler bird. Broiler plants as a rule select either Orpington, Wyandotte or some variety of Rock, while the Rhode Island Red is without a rival as a general purpose fowl.—J. A. K.

The Lindsay-Strathmore irrigation ditch is almost completed. Twenty wells ranging in depth from 90 to 204 feet are ready for use.

P. S. C.

CONDENSED

Rosin Spray

is not a liquid

P. S. C. Rosin Spray contains Rosin, Fish Oil and Caustic. Easily dissolved—no boiling required. Will kill all varieties of scale on fruit trees. Nothing better known for Mealy Bug, Woolly Aphis, Black Peach Aphis and plant lice. One pound will make 2½ gallons of spray, full strength as specified by the Horticultural Commission of Los Angeles County.

Put up in following sizes:

1-lb. tin 25c, 2-lb. tin 40c, 4-lb. tin 75c. 40-lb. tin $4.00.

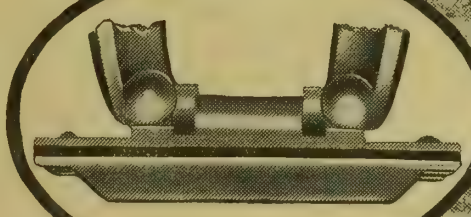
Prices in bulk on application.

Nurserymen save time and money by using P. S. C. Rosin Spray for dipping nursery stock. For sale at the best seed stores and nurseries. If your dealer cannot supply you order from the Western Wholesale Drug Co., Second and Los Angeles Street, Los Angeles, Cal.

Pacific Soap Company, Inc. LOS ANGELES

YUBA

Cross Section of Ball Tread



Traction!

The Yuba tread shoe is shaped to grip the ground — is made of cast high carbon steel to resist wear.

In loose soft soil the tread bites deep. It slips but little.

In sand it wears but slowly. The tread shoes are thickened at the point of wear.

In wet adobe the tread is self-cleaning.

On side hills it tends to run straight.

Yuba Manufacturing Company
433 California Street, San Francisco
Factories at Marysville and Benicia, California

The Yuba Ball Tread Tractor will pull plows anywhere plows should go.

Yuba Manufacturing Company Dept. B-10
433 California St., San Francisco, California

Gentlemen: Kindly send me catalog and prices on the Yuba Ball Tread Tractor.

I am interested in Model 12-20____ Model 20-35____

Name_____

Town_____ State_____

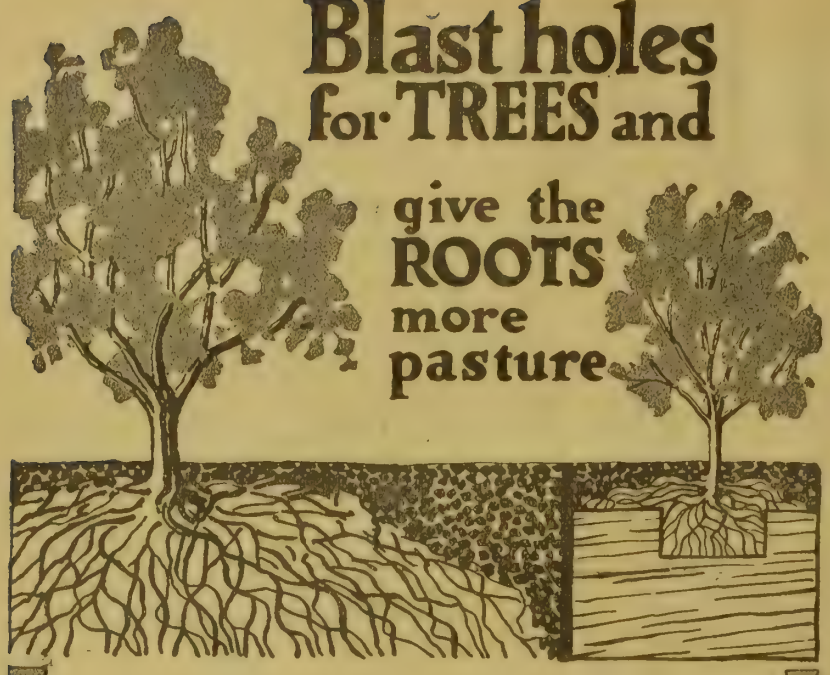
P. O. Box_____ Size of farm_____

[Check main crop raised]

___Fruit ___Rice ___Grain
___Grapes ___Hops ___Alfalfa

and there have just been issued new Pump and Plow Catalogs which we will be glad to send prospective buyers.

Blast holes for TREES and give the ROOTS more pasture



A tree in a blasted bed (at left) roots deeper, grows faster and bears earlier than a tree set in an ordinary dug hole (at right).

"The soil is the pasture in which the roots of the tree feed," says the Wyoming Experiment Station. "Blasting enlarges the root pasture, breaks up the hardpan and subsoil and permits the roots to go down and get plenty of food."

Plant your fruit trees in beds blasted with

GIANT FARM POWDERS
STUMPING — AGRICULTURAL

—Eureka Stumping or Giant Stumping—which are made especially to meet Pacific Coast farm and orchard conditions. They pulverize the subsoil better than ordinary dynamites which often act too quickly and pack the earth.

Because the superiority of Giant Farm Powders is so generally acknowledged, other explosives are frequently offered as "giant powder." Insist upon having the genuine—always bearing the Giant brand.

Book "Better Orchard Tillage" Free

It tells and shows how to give your trees more pasture; how to blast for planting and how to increase the crops of bearing trees. Other books—on Stump Blasting, Boulder Blasting, Ditch Blasting and Subsoil Blasting for farm crops—are also sent free. Mark in the coupon the books that you prefer.

THE GIANT POWDER CO., Con.
Home Office: San Francisco
"Everything for Blasting"
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The Giant Powder Co., Con.
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Send me your illustrated books on the subjects which I have marked X.
- ☐ Stump Blasting
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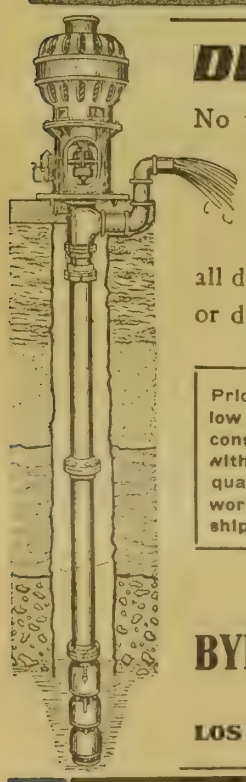
- ☐ Subsoil Blasting
- ☐ Tree Planting
- ☐ Ditch Blasting

Name .....
Address .....
Write below your dealer's name.



DEEP WELL TURBINES

No valves to pack or plunger rods to get out of order. For use in any well ten inches in diameter or over.

A complete line of irrigating pumps of all descriptions, horizontal and vertical for belt drive or direct connection to electric motor.

Prices as low as are consistent with good quality and workmanship.

"Write for Catalog No. 48."

BYRON JACKSON IRON WORKS, Inc.
SAN FRANCISCO
LOS ANGELES VISALIA

The Cunningham Land Roller and Pulverizer

Makes a Perfect Seed Bed—Stops Evaporation—Preserves Moisture—The Best Clod Crusher ever made for Farmer, Orchardist, Vineyardist, Nurseryman and Seedsman—

Made In All Sizes
Write for Circular

Manufactured and Sold Exclusively by

SPALDING-ROBBINS DISC PLOW CO. 625 Market Street SAN FRANCISCO

The American Sugar Beet Industry

SUGAR beet seed of good quality and in large quantities must be produced in the United States if the highest development of the beet sugar industry in this country is to be reached. The domestic beet sugar industry, in which more than $100,000,000 is now invested, was almost wholly dependent until the outbreak of the European war on a seed supply from Europe. The production from approximately 4,000 acres of beets was harvested in 1916, but this was hardly more than sufficient to plant the acreage of beets required by the natural expansion of the industry. In practically all instances the American-grown seed has been found superior to the imported seed. The chief reason for the dependence of America on the importation of seed in the past was the low price at which the supply could be obtained from abroad.

The studies of plant specialists of the department of agriculture lead them to believe that the quantity beet seed and of the crops which suc produce can be improved greatly b selection and plant breeding and th cost can be reduced. At present the are in this country no distinct types sugar beets. In many sugar beet fiel throughout the country, whatever th name of the so-called variety grow from six to 20 or more distinct typ of beets can be found.

The production of beet seed r quires two seasons of growth. Th mature beets resulting after or season from the seed must b harvested, the leaves removed an the roots carefully siloed with a di covering to preserve them in a do mant condition through the winte

These roots are planted at the ear est possible time the following sprin and rapidly produce seed stalks fro three to six feet in height. These a harvested with a sickle at the prop time and the seed carefully threshe cleaned and cured.

Tulare Will Grow Beans This Year

It having been proved that beans grow well in this part of the state, and because of the good prices they are bringing, many of the ranchers of the district to the west and south of Porterville are going into the business on an extensive scale this year. It is expected that the number of acres devoted to bean culture in this district will be increased from the 300 of last year to fully 1000, and that in course of time this district will rival the famous bean district of Ventura.

A great stimulus to the bean industry in this district has been the proposition of the Hoag-Kellog Company of Ventura to furnish the ranchers free seed to be returned at harvest time. The company will also send a thresher to handle the crop, the ranchers to pay for the threshing and to receive at th rate of five and a half cents a pou for the recleaned beans. A. O. Thom son of this district who has been e perimenting with beans for the pa three years, is acting as represent tive for the Ventura firm.

In his experiments Mr. Thomps planted beans every month in th year. He found the Tepary be suited to this district in that it is prolific bearer and does not bligh From the middle of April to the mi dle of June has proved the best plan ing time. Tepary beans in this di trict have been producing from 15 to 1800 pounds to the acre. Last ye Taggard Brothers took a $50 to th acre barley crop from a 50-acre fie after which they grew a $2200 be crop on the same land.—M. L. B.

Corn Growing

Corn will not grow during cold weather as will wheat and oats. Corn planting time is, therefore, a little later than the best time for sowing spring wheat or spring oats. However, according to Farmers' Bulletin 773, when seed of perfect vitality is used, it is remarkable how early in the spring corn can be planted and result in good stands and good yields. Seed of perfect vitality will often remain in cold or dry soils for several weeks and afterwards germinate and yield well. Irregular stands are sometimes attributed to poor seed, when dry, poorly prepared spots are the cause. Fields are sometimes seen in which the seed germinated promptly in moist spots but did not germinate in dry spots until rains came.

Where the seasons are long and moisture plentiful, it is customary to wait until the soil is warm before planting. In semiarid regions, however, corn should be planted early. With the soil in proper condition it is generally advisable in semiarid regions, south as well as north, to plant corn before danger from frost is entirely past. Corn planted very early usually makes a slow tough growth and a month after planting may be smaller and look less promising than that planted later. The early planted corn ripens first, however, and usually produces the larger or the better crop. Because of its slow, tough growth corn planted very early is not so susceptible to frost and drouth as corn planted later and grows more rapidly. In a series of years the gain in mature corn secured from early planting will more than make up for any injury from spring frosts. Excellent corn crops have been produced from plantings frozen off or frozen back when plants were from a few inches to a foot or more tall. Corn is not often entirely killed by spring frosts, and if some should be injured the loss is much less serious than that from summer drouth or from fall frost.

Early planted corn derives more benefit from the spring moisture supply, becomes well rooted before summer drouth begins, and may even mature before these drouths become s vere.

Where the growing season is ve long and warm, plantings made about 30-day intervals increase th chances of hitting the season right a raising some good corn.

ROAD TROUBLES IN DRY REGION

Road building in very dry climat is beset with troubles the reverse those in most parts of the countr The average road builder is contin ally striving to improve the draina of his roads, and to keep water awa from them. They are best maintain by dragging, but in a country whe there is very little rain a well-dragg road is a luxury. In the Imperial Va ley, for instance, water obtained pr marily for irrigation is used to w highways before dragging ther Water has also been diverted from ir gation to road building in Arizona a New Mexico. In Utah, after attemp ing without success to keep grav roads in good condition by sprinklin them with watering carts, an exper ment is now being made with mo drastic methods, the roads bein drenched instead of sprinkled. I most cases, however, oil is used rath than water, but unless it is of an u usually good quality for the purpos the results are not good. The du from a road sprinkled with an unsui able oil, in the very dry regions, sometimes almost suffocating, ar more objectionable than that from a unoiled road.

MEASURING HAY

A question which often comes to th Cultivator has to do with estimatin weight of hay in stack or mow whe dimensions are known. This is question involving several angl which should be understood befo one can make very accurate estimat The entire question is discussed Circular No. 67 of the United Stat department of agriculture, "Measurin Hay in Ricks or Stacks." It will be interest to those who wish to estima weights of hay or straw.

DEMONSTRATION BY CORN GROWERS

Continued from Page 431

what we call the King Phillip variety. It is a variety of Flint corn and that is all we knew about it. We haven't had experience in seed selection. If a man in spite of all this, and in spite of the general ignorance of the people in raising corn, can deliver the goods in quality equal to the best raised in the Middle West, and according to the Sperry Flour Company, our quality is a whole lot better, what can we do with experience and study of our conditions? It seems to me if we are going to get into the game and make it what it ought to be, that it would be a good idea to form a corn growers' association, and get a first class man from the Middle West, say from Iowa, and pay him to come out here and teach us how to raise corn according to the most scientific methods, and tell us how to overcome the problems we California farmers are up against. We will work it out eventually, but we will work it out quicker by having a man who has already worked out the problems.

Another good thing would be the laying of plans to get hold of 100 to 150 acres of land for raising seed. Iowa seed corn is quoted at $3.75 a bushel, f.o.b. cars. We don't care so much about the price of the corn; it would cost only about 35 cents an acre.

As I said before the corn industry is far reaching in its results. In the Midde West corn is raised for fattening cattle and hogs, and very much of this corn is sold as beef and pork, and this can be made possible right here in California. We certainly need something like that in this state. Such an industry stands for state advancement.

In another Cultivator we will quote from addresses by J. M. Bigger, a practical grower, also by Mr. McLeod, a grain expert of the Sperry Company.

PASS IT

The Farmers' Protective League is urging the passage of an act defining the crime of criminal syndicalism and prescribing punishment. Section 1 defines:

"Criminal syndicalism is the doctrine which advocates crime, sabotage, violence, or other unlawful methods of terrorism as a means of accomplishing industrial or political reform. The advocacy of such doctrine, whether by word of mouth or writing, is a felony punishable as in this act otherwise provided."

Other sections provide punishment for one who advocates or teaches propriety or necessity of crime, sabotage, violence or other unlawful methods of terrorism. It appeals to us that such a bill could have no great opposition except from those who wish to commit or encourage the crimes referred to.

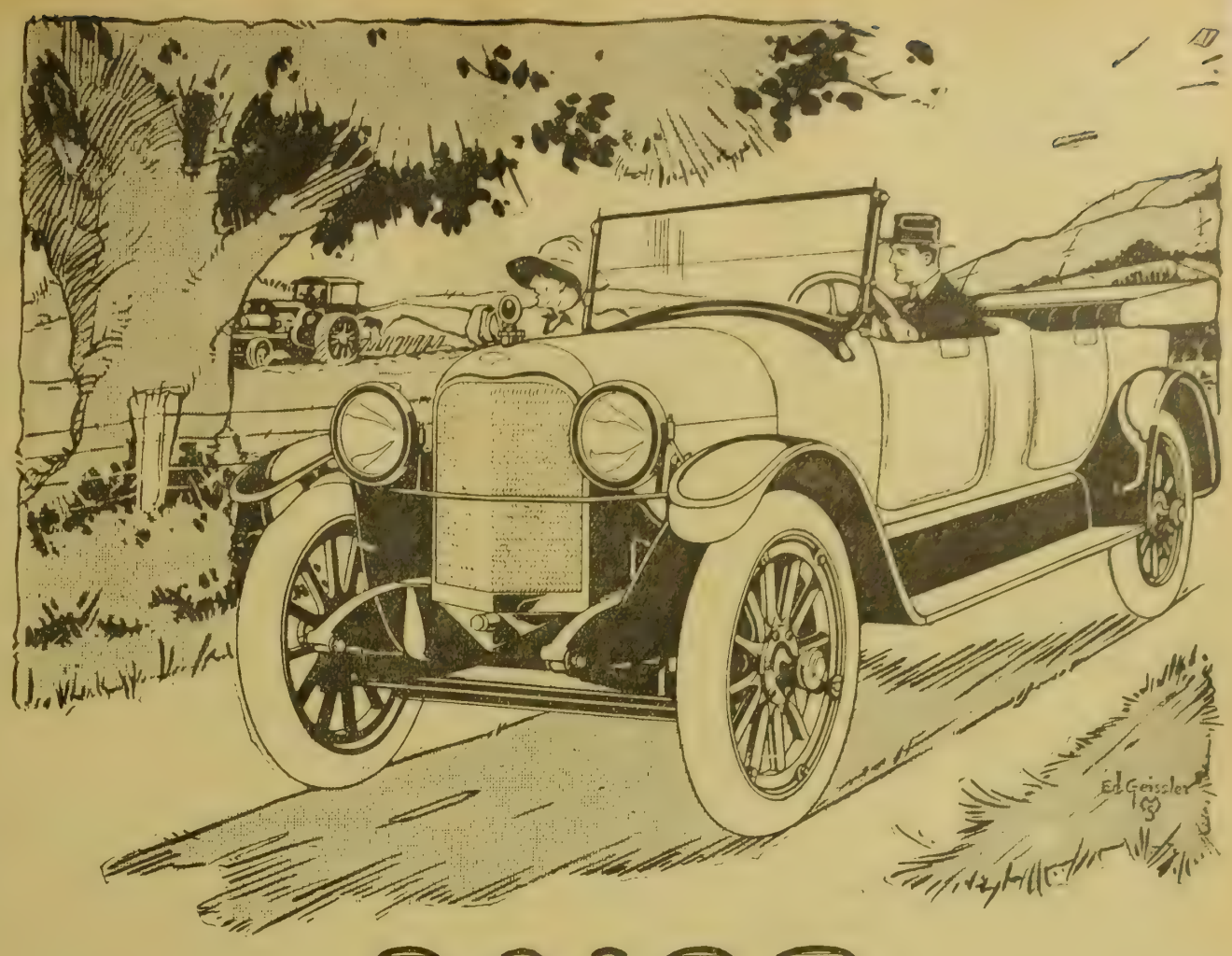
MAKERS OF NORTHERN CALIFORNIA

One of the classiest publications which has come to our table in a long time is "Makers of Northern California," a compilation of biographical matter with portraits of many men and women who are responsible for the great advancement which has been made in the North, especially in the Sacramento Valley and in the cities of San Francisco and Sacramento. It was issued by the Sacramento Union and adds to the permanent historical matter of California.

GIVES BUILDING TO SAN DIEGO

The International Harvester Company of America has donated to the city of San Diego its building and the ornamentals on the grounds around it in the International Exposition grounds. This building is one of the more beautiful on the grounds, and the action of the company is giving it to San Diego has brought forth most appreciative expression.

Mr. Clayton F. Palmer of the Los Angeles city schools has made extended report as to agricultural practice in demonstration schools in that city. There are fields covering several acres which are used for demonstration grounds and about 40 teachers are employed in giving agricultural instruction or, more particularly, instruction in gardening. The idea in the city schools is not to make farmers but to give city bred pupils something of a knowledge of how things grow.



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The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

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OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Grow a garden. Teach the kiddies to work it. It's a pleasure and an education which they should not be deprived of. Doesn't the photo of a real California garden with real California boys inspire with a desire to have a garden of your own?

WHAT SHALL WE PRODUCE?

Grow everything this year. It will mean individual prosperity and national safety.

We say "grow everything", yet it is a time for using judgment. Staples are the safest and the most needed. The one most often referred to is the potato. In every city vacant town lots have been planted; farmers have planted extensively and yet it appears that satisfactory prices must obtain. California's potatoes will be the earliest in the market, and while the spring grown crop is a poorer keeper the immediate demand will probably care for it at once. However, the planting season for California's spring crop is practically past.

As to wheat, spring planting over much of the East will be heavy. But a wire from Washington under date of April 7 shows condition of winter wheat the United States over as 63.4 per cent, while the ten years' average on same date is 86.2. California shows better with this year's condition 83 per cent of normal.

Next in favor are beans. They are a staple; they will be in great demand and present prices are the highest which have ever prevailed. Prices to the grower of Limas are now around $9.00 and $10.00. Blackeyes, Whites, Pinks and others all show most satisfactory conditions. Next week's Cultivator will have information regarding methods of planting and growing.

California will plant largely to rice. The Sacramento and San Joaquin Valleys will produce large and the Imperial Valley will plant some rice, and thousands of acres which have never produced anything but mesquite will this year grow alfalfa and grain for stock. The present week's rain has done a world of good in many sections of the state.

The fruit crop may not be a bumper one, but every preparation is made for its conservation. Let every orchardist thin his fruit, if the trees are overloaded. Let the best of care and cultivation be given, for every can and sack of holdover fruit has been practically cleaned from the market. Prune buyers are freely offering six cents or more. The cooperative associations will probably net still better. The way to produce the largest, meatiest and most profitable prune is to irrigate heavily and cultivate continuously.

Plans are in the making for an immense sugar crop. California will produce more this year than any preceding year. We believe every factory will exceed its former output.

Many an orchardist with trees not yet in bearing is planning for beans, corn and grain sorghums or something between. The discouraged poultryman is looking about for opportunity to grow his own grains. At present feed prices egg production is almost prohibited.

In addition, safeguard the moisture in the soil; every attention should be given to fullest use of irrigation waters. We have heard it said that if Germany had fully appreciated the value of irrigation by using the waters of her rivers she could have fed her people. Western America has learned the lesson of irrigation and upon us rests a great responsibility.

LABOR IS SCARCE

Possibly the most serious problem will be that of labor. It will be a year of "overtime". Every farmer's hours may be 16 rather than ten. To the end that this difficulty may be minimized labor saving implements must be provided and efficiency secured in every motion.

ONE WASTE TO BE SAVED

At a conference of agricultural experts at St. Louis, Secretary of Agriculture Huston and others suggested that "It is necessary to divert the grain and other products used in distilleries and breweries to other sources. So from an economic and not a moral standpoint prohibition during the war is necessary." And recommendation has been made to congress that with this serious situation now facing the world it is worse than folly to destroy the economic worth of thousands of tons of grain.

NO OVERPRODUCTION

In any case, don't fear overproduction. If the war should stop today Europe will still starve unless America feeds her. And prices for all foodstuffs are bound to be high. Both patriotism and chance for profits should move the farmer to produce to the limit. Never in the world's history was there such a shortage of food. It has even been seriously suggested that unless farmers strain every effort to increase production the government must turn farmer, either with its trained soldiers or otherwise. The war we have entered is not of our choosing, but the conditions it has created put a big problem and a big opportunity up to the farmer.

GROW A GARDEN

One feature which will this year prove profitable and satisfactory is the home garden. The orchardist may say his ground is worth too much to give up to the growing of green stuff which he can buy from the "Chinee" vegetable man for a nickel or two bits. This may be true, but we believe that where a plot of ground is available and plenty of fertilizer is used, a crisp head of lettuce or a few beans or ears of corn will by their better quality convince the home gardener that greater satisfaction is had in the home grown stuff, and if properly handled the greatest profit of the ranch may be had in the little garden patch.

EDUCATIONAL AIDS

The federal department of agriculture is aiding in the campaign for more and better production, especially with regard to gardening and truck farming. The California state experiment station has called conferences of its staff and is consulting with our leading agriculturists and endeavoring in every way to be helpful in the campaign. College presidents of the southern part of the state have gathered together and advised as to means of encouraging production.

The experienced farmer may ask why all this effort after our years of experience, but these must understand that there are thousands this year endeavoring to produce who have no experience and they will make many mistakes. In the vacant lot campaign in Los Angeles a street car ride of a dozen or more blocks shows the failures which are being made in this farming attempt. Weeds are receiving more of the soil's nourishment than the crops.

HOLD FAIRS

Above all we need more and better agricultural fairs. Our state fair should be built up and the present effort to hold a 30-day agricultural fair and exposition in the southern end of the state should be encouraged, as should be every district or county fair. It has been suggested that "Energy and money should not be wasted on this type of entertainment." We protest, for if ever there was a period when the inspiration and education which comes from a truly agricultural fair was needed it is the present. The French realize this, and at this moment when every possible effort is being made to drive an enemy from her soil she is also making every effort to feed her own people. Two of her principal agricultural communities are now holding agricultural fairs. If France, with her intensive cultural methods, feels the need of still more intensive methods and is encouraging them, America surely should be as wise.

HOME ECONOMICS

While it is a year for producing to the limit, it is also a year for conserving to the limit, so pardon a preachment to the homemaker. Notwithstanding prices are high most of us are in a situation where we are not willing to deny ourselves most of the food articles we are used to. There are those, however, who of necessity must economize. Assume for a moment that some of these are of the type which recently stormed the city hall in New York and demanded bread. There are all stages from that up. These people were suffering because of the high prices, but perhaps more because of their lack of ability to meet the conditions. Their menu is limited. Possibly it consists of meat, potatoes and bread. Their ability in cookery is limited. Before high prices came they had been used to purchase the very cheapest cuts of meat; when the cheap meats became high they had no option but to go without because they had no ability to adapt themselves to other foods. The homemaker who can plan other dishes and conserve on the more common ones which the poorer cook feels she must have should aid to this extent. Because a family has accustomed itself to a few kinds of food is no reason why it should not accustom itself to others equally nourishing when the prices of the favored foods have soared beyond reason.

The department of agriculture is issuing some very practical circulars, "Food Thrift Series 1917" which contain help of immediate value to the searcher for economical and nourishing foods. These may be secured free by anyone who writes for them to Office of Information, Department of Agriculture, Washington, D. C. The same office also publishes other bulletins on foods which will be sent on request. Another series of particular benefit at this time is "Food Series 1917". Our state university at Berkeley has also recently published "Home and Farm Canning" which gives specific directions for saving surplus vegetables and fruits by canning. If advantage is taken of these and other aids freely at hand it will go a long way toward solving the food problem before us.

Agricultural Notes

Spain reports ample supply o wheat, the 1916 production being wel over that for 1915.

Potash as a by-product of cemen manufacture is now being produced i a cement plant of Ontario, Canada.

For guarding railroad bridges an crossings Europe is using at least 500, 000 men, or an average of five me for every mile of track.

Southern vegetable growers ar marking containers with quantity o contents. The department of agricul ture has ruled that crates and no quart or pint boxes must be marked.

A press dispatch from Seward Alaska, says that 136 miles of th government railroad are now in opera tion, with trains running each wa daily.

Ecuador's rice crop for 1916 was a total failure due to drouth and it wa necessary to import the country's sup ply from the United States. This yea however has given plenty of rain an the estimated production is 15,00 tons.

War has revolutionized the tillag of soil in the Scandinavian countrie by introducing the work of tractors The tractors are as a rule purchase on the community plan, several farm ers banding together in making th purchase.

Philippine lumber is supplantin Oregon pine in the Hong Kong mar ket. Formerly exports of Oregon pin to this port aggregated 10,000,00 board feet annually. High freight rate in the trans-Pacific trade have force its displacement.

Uruguay finished a live stock cen sus in January. It shows a total o 7,942,212 head of cattle in that country The taking of this cattle census i only one of various measures whic the government is adopting for the de velopment of its live stock industry the chief source of the country' wealth.

Holland, although in normal time a great exporter of dairy products, i now suffering from the decrease in milk. This is attributed to a lack of the stimulating and nourishing fodder now almost unobtainable, which was imported in large quantities before the war and was added to the usual native cattle feed.

The confectionery industry of the United States represents the investment of $110,000,000 capital, turning out confectionery annually to the value of $183,000,000. On the basis of a population of 102,000,000, this means a net expenditure of $1.80 a year for every man, woman, and child in continental United States.

The capacity of the national forest range is gradually being increased by protection against overgrazing and improved methods of handling the stock. New areas are also being brought into use by the development of watering places, while the eradication of poisonous plants is reducing the losses suffered by the stockmen.

An indication of present tendencies toward state bond issues for good roads is shown in the following list of issues recently voted or now being agitated: Pennslyvania, $50,000,000; Illinois, $60,000,000; Colorado, $50,000,000; New Jersey, $7,000,000; Louisiana, $20,000,000; California, $15,000,000. To these may be added $75,000,000 appropriated by the federal government which will be duplicated by the various states, making an additional $150,000,000, or a total of $352,000,000.

Agricultural News Notes of the Pacific Coast

Northern California

May 1 will mark the opening of the trout season.

The state fair opens in Sacramento September 8.

Farmers' short courses at Davis will be held May 29-June 1.

A farm center has been organized at Elk Creek, Glenn County.

Middletown, Lake County, has formed a local of the Patrons of Husbandry.

The Glenn County farm bureau has worked out a very complete marketing system.

Shasta and Trinity Counties will soon began a war of extermination on coyotes.

An experimental planting of long staple cotton will be made near Esparto in Yolo County.

The California Prune and Apricot Growers' Association is making a final campaign for membership.

Thousands of acres of lands in Butte, Glenn, Yuba, Colusa and Yolo Counties have been leased by Hindoos for rice planting.

Arbuckle, Colusa County, reports prospects for a heavy almond crop this year, the frost having done practically no damage.

The Glenn County farm bureau announces the following schedule: Orland April 16-17, Jacinto 19-20, Elk Creek 23-24, Plaza 25-27.

The Nevada County Cannery Association has disposed of its final lot of 12,590 pounds of dried pears. This closes out their 1916 pack.

The farm adviser of Solano County has made a survey of that county with the view of taking up marketing of live stock by auction sale.

Members of the Glenn County farm bureau are planning their agricultural exhibits to be made during the county fair, to be held September 26-29.

The Mendocino Stockmen's Association is today holding a meeting at Ukiah. Protection of stock interests of the county will be discussed.

Several rice growers of the district about Gridley, Butte County, are planting their last year's rice fields to melilotus, which they expect to choke out the water grass.

Experimental work in the destruction of wild mustard by spraying with sulphate of iron is being conducted by Horticultural Commissioner Gould of Yolo County at the state farm.

April 10 was squirrel execution day in Yolo County. The board of supervisors and the directors of the farm bureau made every effort to bring out all the farmers in the county with their shotguns.

"Both for economic and patriotic reasons", Secretary of Agriculture Houston is appealing to American farmers to strive for highest efficiency in production and conservation of agricultural food products.

Because of unusually late and heavy snow storms in Northern California and Southern Oregon many cattle have been deprived of grazing. Some farmers in those sections have conceived the idea of bringing in hay and grain by parcels post to tide the cattle over.

The California assembly committee of agriculture has decided that all oranges offered for sale and shipment in California must meet the eight-to-one test unless they have been "left long enough on the trees to be substantially colored."

Central California

Today is cleanup day at Patterson.

Madera wants a fruit packing plant.

The Dinuba grange holds its meeting today.

Turlock is assured of the building of a milk condensary.

Work on the new sugar factory at Manteca is being rushed.

Modesto is planning the formation of a street tree improvement district.

The Prune and Apricot Growers have begun another campaign for securing membership.

The olive cannery at Lindsay is signing up acreage in canning tomatoes to be handled this summer.

Fig growers of Stanislaus County are meeting today in Ceres to consider marketing prices of figs for 1917.

Hay shortage is serious throughout the state. Prices are higher, it is reported, than at any time since 1864.

Dairymen of Merced County have formed a cooperative cow testing association with an initial membership owning 700 cows.

Prune and apricot growers of Tulare County met in Visalia last week to discuss the business of the Prune and Apricot Growers' Association.

Swine raisers of Tulare County are considering a plan to establish a monthly market day similar to that now observed in Kern County.

W. A. Sprott, manager of the Tulare County Citrus Exchange, has been in Sacramento conferring with legislators on the citrus standard of maturity bill.

News has been received of the death at Hanford of Elias Gallup. Mr. Gallup was one of the pioneer pure bred poultry and Poland-China growers of Kings County.

A recent report issued by the Turlock Irrigation District shows that there are in that district 116,399 acres planted to crops. Thirty-seven per cent of this is in alfalfa.

A new plan for ridding Stanislaus County of rabbits is being urged on the supervisors. This is the payment of a bounty of five cents per head, later to be raised to ten cents.

Horticultural Commissioner Roullard urged deciduous fruit growers this spring to avail themselves of the heat from smudge pots in their orchards to protect the blossoms and young fruit.

Mark Basset of Hanford recently received 13 cents per pound for a carload of hogs shipped to the San Francisco market. The hogs were all grain-fed Poland-Chinas and averaged 200 pounds.

Tulare County's citrus industry, according to report of the Tulare County board of trade, brings in the largest returns of any single industry in the county. This year's figures are $5,767,819.

County Horticultural Commissioner Roullard of Fresno states that he is trying to secure a lady beetle which feeds on the citrus fruit mealy bug to see if it will destroy the mealy bug which is destroying grapes in Fresno County.

Alfalfa growers of the Dinuba and Kingsburg district are interesting themselves in the formation of an alfalfa growers' association. A form of agreement has been drawn up and signatures of growers are now being secured.

Southern California

Several farmers at Murrietta are dry-farming alfalfa.

Work will soon be begun on the construction of the La Mesa dam in San Diego County.

Ten sugar beet growers' associations have been organized in Southern California this spring.

Stocks of Lima beans in California March 1 are reported to total 212,949 sacks, Blackeyes 70,688.

W. B. Parker of the state university is taking charge of the farm bureau organization movement in Riverside County.

More than 200 Mexicans and Japanese orange pickers in the Arlington packing houses went out on strike last week.

Banning has organized a farm bureau center with M. F. Gillman director. A membership of 100 is already reported.

Proposal to establish a bean canning plant at Santa Paula is being considered by business men and farmers in that section.

S. S. Rogers of the state university farm at Davis was in Oxnard yesterday to talk to farmers on the growing of vegetables for canneries.

The bean crop on the Irvine ranch of Orange County will total $1,260,000 in value. Buyers are reported in the field offering from $9.00 to $9.30.

There is friction between the board of supervisors of San Diego County and the farm bureau, and further support of the farm adviser has been withdrawn.

Nearly 13,000 acres have been planted to cantaloupes in the Imperial Valley this year. Brawley, which has the largest acreage, has almost 5000 acres in melons.

An apricot grower at Fillmore, Ventura County, used smudge pots successfully in his orchard during the recent frosts and reports that his crop showed no damage.

Two hundred Mexicans were brought in from El Paso last week to work in the orange groves at Riverside and Redlands to take the place of the striking pickers.

The apricot crop of Orange County is estimated at between $250,000 and $300,000. Contracts are reported being made at 11 cents per pound. Most of the growers are holding for better.

The city of Los Angeles has filed application with the state water commission to appropriate waters of Rock Creek, Sawmill Creek and Baker Creek, all tributary to the Owens River.

That the flood control bill allowing formation of flood control districts embracing two or more counties will pass the legislature is the prediction of Francis Cuttle of Riverside, who has just returned from Sacramento.

The longer bean picking season in Ventura this year has much reduced the amount of county aid to indigents. It is stated that those who have received county aid stuck to the job as long as there were any beans to be picked.

Eight packing houses of Riverside are reported to be planning to close down until the present labor situation is settled. They have asked the railroads to bring in 1000 men to work in the groves. The present wage scale is $1.75 to $2.25 per day.

The Coast

Cove, Oregon, reports hay selling at from $18 to $20 a ton.

Apple growers of the Wenatchee district expect to ship out 8000 carloads this year.

Idaho bee raisers report a loss of 50 per cent of their colonies from the severe cold winter.

Lambs are selling at Union, Oregon, at $13.50. One sale of 248 head was reported at this price without a cut.

Farmers of Fremont County, Idaho, are organizing a farm bureau and hope to have a county agent appointed soon.

Apple growers of the Willamette Valley have organized a fruit exchange controlling some 15,000 acres of bearing trees.

The North Portland Union Stock Yards reports top sales of hogs at $14.45, with the bulk of the sales at $14.25 and $14.35.

The sale of 103 steers at Nampa, Idaho, is reported by the manager of the Nampa Live Stock Commission Company at $10,094.

The federal farm loan board has announced that interest rate on its loans will be five per cent and the rate on bonds issued by the land banks, 4½ per cent.

Central Oregon stockmen are anxiously hoping for warmer weather that will melt the snow, which still covers the range land, as the feed is getting very short.

It is estimated that four-fifths of the water available for irrigation and domestic use in the state of Oregon comes from the timber clad slopes of the national forests.

Pure bred cattle owners of Yamhill County gathered at the office of the county agriculturist last week to discuss methods of improving their breeds, especially by the bringing in of registered sires.

Two farmers near Chandler, Arizona, were last week arrested for flooding the roads with irrigating water. These were the first arrests made on this charge.

April 6 was Arbor Day through Northern Arizona. Southern Arizona held its Arbor Day two months ago. The season is much later in the northern part of the state.

Three counties in Washington contemplate road bond issues aggregating $2,000,000. Petitions which are being circulated in this connection call for a system of concrete roads.

Stockmen of the Northwest who are now delivering cattle on contract prices ranging from eight to nine dollars are feeling most unhappy because if it were not for the contracts they would be getting $9.50 or better.

The New Mexico Wool Growers' Association estimates that coyotes are costing sheepmen of New Mexico every year more than a million and a quarter dollars. The association is planning a campaign of extermination.

A comparative table of top prices for live stock at the Portland stock yards for the past three years shows the top price for steers on March 29 to have been $9.75 against $7.75 in 1915 and $8.50 in 1916. The top price for cows on same date was $8.00, $6.65 in 1915, $7.50 in 1916. Top hog prices this year $14.50, $7.75 in 1915, $9.25 in $1916.

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Now is the time to place your order for an IDEAL GREEN FEED SILO. Put that first crop of alfalfa into it. It won't make good hay, but the alfalfa, foxtail and weeds will make excellent silage. Have silage to feed this summer when green feed is gone. You can thus increase your milk profits 25 per cent and reduce feeding costs 15 to 20 per cent during the coming dry season. The silo will be empty in time to fill with corn this fall for winter feeding.

Refrigerator Type Doors; Air and Water Tight Foundation Joint; Proper Design; Selected Materials and Painstaking Workmanship make the Ideal Green Feed Silo a Safe, Profitable Investment for the Dairyman or Stock Raiser. Send for Catalog.

Acme Feed Cutter and Silo Filler

Mounted on Truck **Low Feed Table** **Rigid Construction**
All Steel Frame **Automatic Feeding Device** **Light Running**
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An excellent quality of alfalfa meal can be produced on this machine at a cost not exceeding half of that for baling.

SAVE $3.00 PER TON ON DRY FEED

Run it through an Acme Feed Cutter so that the coarse hay as well as the fine will be entirely consumed by your cattle.

Built in Seven Sizes

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Everything for the Dairy

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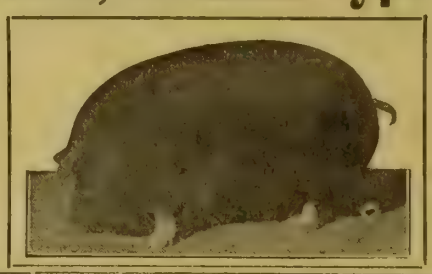
Poland Chinas, Medium Type

Choice breeding stock, both sexes, from Panama-Pacific International Exposition prize winning strain. 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to



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Hanford, Kings County, Cal.

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First and Reserve Grand Champion
California State Fair 1916

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Hardy, prolific sows of best blood lines and breeding. Strong, upstanding, prepotent boars. In short the best possible specimens of the Berkshire breed. We plan to do this by breeding large numbers and from them making a rigid selection.

James Mills Orchard Corporation

Hamilton City, California

D. O. Lively Stock Farm's

FIRST ANNUAL SALE OF

REGISTERED HEREFORD CATTLE

Will be held under the auspices of the American Hereford Cattle Breeders' Association at

Mayfield, California, Thursday, May 3, 1917

The offering will be made up of sixty-five head—twenty bulls and forty-five females. A splendid opportunity to start a pure bred herd. Write for catalog.

D. O. LIVELY STOCK FARM, 215 Hobart Bldg., San Francisco

Use Tuberculin Tested Sires in Your Herd

WE HAVE A NICE LOT OF SHORTHORN BULLS and HEIFERS THAT WILL SELL FAST WHEN THE SPRING FEED COMES. SELECT YOURS NOW FROM THE BRIGHTON FARM HERD.

H. L. & E. H. Murphy, Perkins, Cal.

Northern California Live Stock Notes

Written for California Cultivator By W. S. Guilford

GOPHERS AND LIVE STOCK

There are many thousand acres of "dry" alfalfa in California. This is alfalfa planted on good loam soil on ridges or along streams, that will yield one to three or four crops without irrigation.

I wonder if anyone has figured out how much the live stock carrying capacity of ranches having such fields could be cut down by allowing gophers to work in them unmolested?

There are stands of alfalfa that have been absolutely ruined by gophers and many others where the crop is very materially reduced.

A good trapper with simple traps can keep a field comparatively free from gophers at small expense as compared to the results obtained. Some ranchers pay a trapper five cents apiece for gophers. At first a trapper can make good money at that, but when the gophers begin to get scarce he may quit the job. It might be possible for a half dozen ranchers to keep a trapper busy.

This is one of the little items—often overlooked on a ranch—that will pay big returns.

MILKING MACHINES

The perfection of farm tools and machinery has gone forward at a very rapid rate during the past few years. Now thousands of milking machines are in successful use all over America.

A recent report to the Highland Society of Scotland pretty well sums up the situation. It concludes "that there are several reliable milking machines now on the market, and their success or failure in everyday use depends entirely on the care bestowed on them and the interest taken in their working."

PURE BRED STOCK PRICES

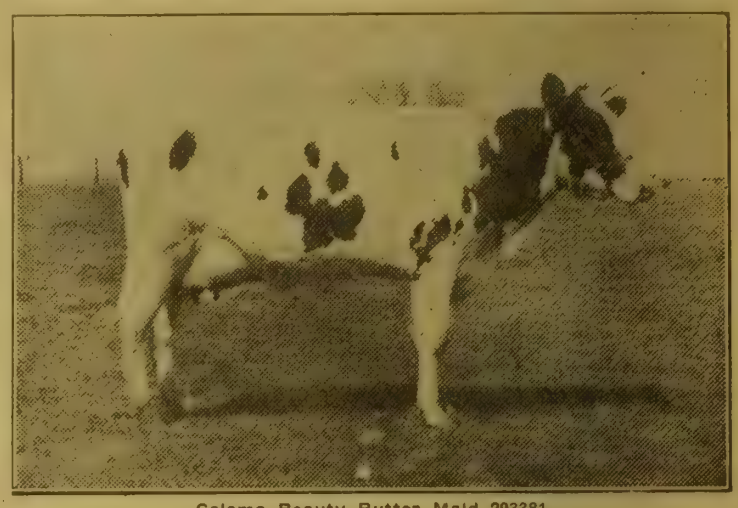
Reports of sales of registered live stock in Europe indicate higher prices for good animals, and the sales in the Middle West are holding up to a high standard.

One hundred and forty-four Herefords sold in Missouri for $184,450, an average of $1281, with one bull selling, to go to Canada, at $11,900.

With prospects for continued high prices of meats and other food an investment in pure bred animals, even at the present high prices, would seem to be good business. For instance, farmers who are selling 260-pound hogs for $24 at home can well afford to pay $50 to $150 for good pure bred sows with which to add new blood and strengthen their herds. And no one can afford to use a scrub bull or ram at any price.

HOLD OVER FEED

"I never like to feed the last forkful of hay on the place," said a prosperous stockman recently. "Even if grass is here and hay ready to cut soon, there is a feeling of security in having hay left over from season to season that I like to experience." Which is pretty good gospel. To have more stock than feed means either suffering or sale at a sacrifice price.



Coloma Beauty Butter Maid 293381

A Holstein belonging to Alex Whaley. She has produced 426 pounds of milk and 19.44 pounds butter on 80 per cent basis in seven days.

Value of Finely Cut Alfalfa

TOUCHING upon the value of cut alfalfa, the Minden Butter Manufacturing Company, of Douglas County, Nevada, writes to the De Laval Dairy Supply Company:

"To give you an idea as to results we obtained by feeding hogs with alfalfa meal and buttermilk, against straight alfalfa fed in racks and buttermilk in troughs, can give you comparative figures as follows:

"About a year ago we took in 100 head of stock hogs, average 105 pounds each, fed them for two months on straight buttermilk and loose alfalfa, fed in racks. During this time we fed out one and one-half tons of third crop alfalfa. At the end of two months these hogs were put in our fattening pen at an average weight of 158 pounds each, and then topped off on a heavy mixed mash of ground corn and barley, mixed with buttermilk, fed for two months and put on the market at an average weight of 206 pounds. The next lot of 100 hogs taken in weighed 98 pounds each and were fed for two months on one and one-half tons of ground alfalfa meal, mixed thoroughly with the buttermilk, and were then put in our fattening pens at an average weight of 163 pounds. This lot of hogs were topped off on the same mixture of feed as the first lot, only that we fed them small portions of the ground alfalfa in the dry meal condition in a special trough. These we put on the market at an average weight of 218 pounds.

"From this schedule you will note that the second lot of hogs fed on the ground alfalfa meal gained 12 pounds in the first pen and seven pounds in the fattening pen, over the lot of hogs fed on the same feeds with the whole alfalfa. Our whole alfalfa in this case we figured at eight dollars per ton, with a cost of $2.15 per ton for grinding, and our actual profit by reason of feeding the alfalfa meal was 1900 pounds, at seven cents per pound, or $133, less the cost of grinding, which amounted to $3.25 or thereabout.

"May also state that we have experimented with other feeds, such as bran, wheat, barley and oats, and after trying them all we have come to the conclusion that our method of feeding alfalfa meal, ground barley and corn, along with our buttermilk, is the most profitable by a long way.

"The above are the exact figures that our demonstrations have shown and we are quite sure will prove of great interest to anyone who is interested in the hog business. Alfalfa meal, however, we would not recommend as a fattener, but we can recommend it as a mighty good feed to put the frame on the critter."

Dairying is more thoroughly studied today than ever before. It is being made a practical science by thousands of progressive farmers the country over.

Field Notes from the Live Stock Men

A. W. Morris & Sons have a group of good ones just going on official test in their registered Holstein herd, and within the next couple of weeks there will be some good records to report.

The American Berkshire Association has provided for special premiums amounting to $1200 at the National Swine Show to be held at Omaha, Nebraska, which together with $800 offered by the National Swine Growers' Association, will make a classification of $2000 for Berkshires at that show.

W. H. Waugh writes: "I have just learned that $88,000 worth of hogs have left Riverside, San Bernardino and Imperial Counties for Nebraska, where they will be fed. Many people here have made the mistake of disposing of their stock on account of high feed cost and they will wish they had them back before snow flies.

Fred W. Kiesel, president of the California Holstein-Friesian Association, has called a meeting of the association to be held at Hotel Hughson, Modesto, on the evening of Wednesday, April 18 at 8 o'clock. A good program has been arranged and the occasion will be one of the get together kind for Holstein breeders and dairymen.

At the H. I. Shaw dispersal sale, the first sale of the kind ever held in San Diego County, the registered Holsteins averaged $244. The top price of the sale was $425 for a five-year-old granddaughter of Juliana King of Riverside. In the same sale the California Sales and Pedigree Company also sold 27 head of grade Holsteins for Mr. Shaw at an average of $100.

Fifteen granddaughters of Prince Gelsche Walker and Aralia De Kol, and 20 good cows and heifers bred to a 34-pound sire ought to be attraction enough for one sale of registered Holsteins, but they are only a part of the good ones that will be sold at auction on May 22 for Stalder Brothers by California Breeders' Sales and Pedigree Company. In the same sale Stalder Brothers will sell 20 grade Holsteins and Jersey heifers and 16 head of registered Percheron stallions, mares and colts.

Jersey Breeders will be offered a rare chance to buy some of the greatest registered animals in the West on May 17 when C. G. McFarland's Willowwood Herd will be dispersed at public auction by California Breeders' Sales and Pedigree Co. The herd consists of 60 head of cows, heifers and young bulls. Thirteen of the cows have average records of 516 pounds butter in one year, all in Register of Merit, and most of the heifers in the herd are out of these cows and by richly bred sires.

E. A. Clausen, well known San Francisco attorney, is breaking into the middle of the limelight with his herd of registered Holstein-Friesians. At this writing one of his cows on official test is practically sure of making above 33 pounds butter in seven days, and with a very fair chance of a record well above that figure. She is bred to high production as she is a daughter of Changeling Butter Boy and is a three-quarter sister to Changeling Tidy Abbekerk Wayne, the great cow that recently made 44.42 pounds butter in seven days in Dr. Work's herd in Colorado.

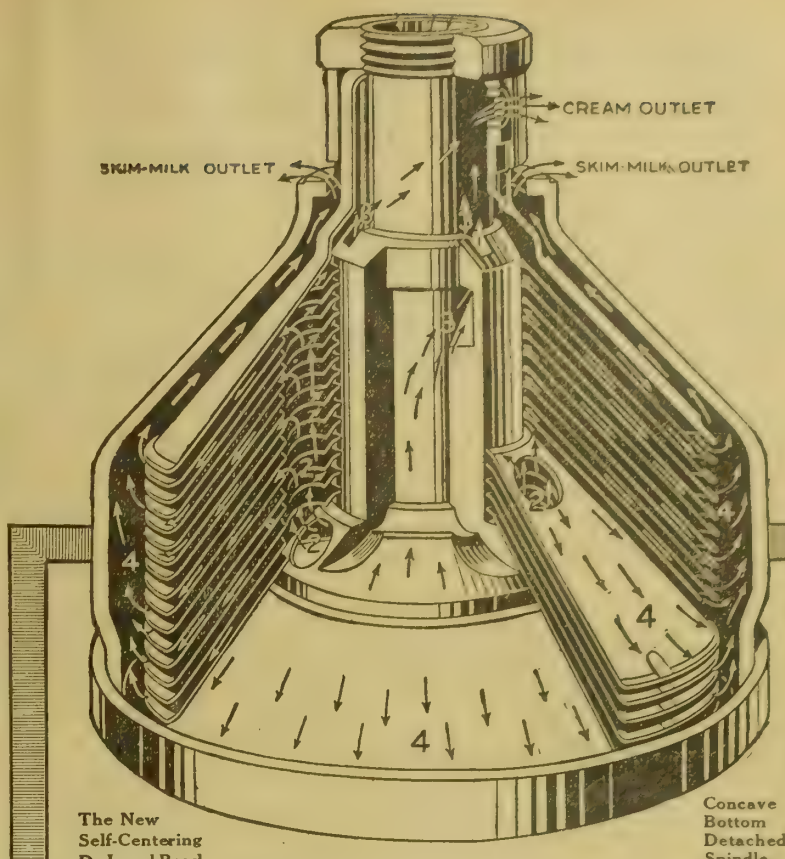
Kenneth W. Abbott, Milpitas, continues to take long steps forward in his constructive development of a high class herd of registered Holstein-Friesians. The latest achievement in his herd is the seven-day official records of the junior four-year-old Mabel Haskins Colantha Girl, who made 578.6 pounds milk and 33.70 pounds butter. She is a daughter of Mabel Haskins of San Jose, 32.77 pounds butter in seven days as a junior four-year-old, this record also having been made under Mr. Abbott's ownership. This latest record is the state record in class, and also makes a combination of the highest record dam and daughter yet developed in California.

R. C. Sturgeon, on his ranch west of Tulare is building up a stock farm, starting in with Holstein-Friesian cattle and Duroc-Jersey hogs. Among his sows is a pure bred specimen purchased from C. A. Hoover of Oregon, another young sow bought from Wilde & Sons of Genoa, Nebraska, the heaviest winner at the National Swine Show at Omaha. One of Mr. Sturgeon's gilts took second prize in her class at the last state fair, and first prize at Fresno and Hanford. Mr. Sturgeon writes: "I have just received a boar pig from H. S. Fain at Emmetsburg, Iowa. He is sired by Cherry Chief's Model and his dam is one of the greatest brood sows in Iowa or the West and is one of the very few sows left sired by Golden Model the 2nd, the foundations of the Golden Models."

Bridgford Co., Knightsen, is doing wonderful work in official testing of registered Holstein-Friesians when it is taken into consideration that many of the cows and heifers are not yet acclimated. Among recent records made we find the following seven-day official records: Ormsby Mechthilde Pietertje, 581 pounds milk and 31.70 pounds butter; Miss Pontiac Nudine of Springvale, 622.1 pounds milk and 30.03 pounds butter; Mercedes Inka Hengerveld, 640.5 pounds milk and 28.20 pounds butter; Pauline Soldene De Kol 3d, a senior three-year-old, 449.6 pounds milk and 27.78 pounds butter; Adirondac Wietske Dairy Maid, a four-year-old with second calf, 601 pounds milk and 27.73 pounds butter; Oakvale Jennie Korndyke, 627.5 pounds milk and 27.04 pounds butter; Panje Hengerveld De Kol, 509.6 pounds milk and 26.76 pounds butter; Upland Zeffie Wayne, a four-year-old with second calf, 586.3 pounds milk and 25.78 pounds butter and 2888 pounds milk and 105.52 pounds milk in 30 days with best day's milk 109 pounds; Rilla Canary, 586.4 pounds milk and 24.56 pounds butter; Miss Korndyke Mercedes, 522.5 pounds milk and 24.56 pounds butter; Countess Katie Hengerveld, a senior three-year-old, 464.30 pounds milk and 22.59 pounds butter; Pauline De Kol Pledge 2nd, a senior two-year-old, 443 pounds milk and 19 pounds butter, and Bos Antonia Cornucopia, a junior two-year-old, 445.8 pounds milk and 17.10 pounds butter. In summarizing these records an outstanding feature is the unusually high milk records in connection with the high butter records, a combination that is being constantly sought after in the best constructive breeding operations.

The Henderson Company, Jay Dutter, manager, announces "The sale of a fine young herd sire and three heifers, Holstein-Friesians, to Geo. Carr. Mr. Carr has shown splendid judgment in the selection of his foundation animals, the bull sired by King of the Black and Whites, who promises to be one of the greatest bulls of the breed, being a son of King Colantha Clothilde, the great son of Colanthat Johanna Lad. This young bull, Manteca King of the Blacks and Whites, is a very fine individual whose dam at two years made 17.84 pounds butter in seven days and 331 pounds milk. She is a daughter of Belle Segis, the great daughter of King Segis (one of the greatest, if not the greatest bull of his day), she with a record of 31.87 pounds butter in seven days. Manteca's mother, while she was a wonder at two years, promises to be much greater. She was sired by the same sire as King of the Black and Whites. This line of breeding has produced wonderful results, the 13 nearest dams of this young bull averaging 30 pounds of butter in seven days, including some of the greatest cows in the world. The females selected to breed to the young sire were: America Pontiac Jewel, sire King Pontiac Jewel, and Trientje Pontiac Plum, and Pearl Pietertje Segis 2nd, sire King of the Pontiacs Plum, all granddaughters of King of the Pontiacs."

Henderson Company also announce "A. Beffa, A. A. Quackenbush and A. R. Strother have purchased each a young herd sire, whose sire is Supreme Glista Pietje, whose dam, Glista Eglantine, a 32-pound cow, was sired by Prince Ybma Spofford 6th, the bull who has the greatest percentage of 30-pound daughters of any bull living or dead. He was owned by Cornell University. He sired only 11 daughters before his death, eight of which are living. Six of the eight have exceeded 30 pounds of butter in seven days. Supreme Glista Pietje was bred to a few cows in New York before we purchased him, and at recent sales these animals, all yearlings or under, have brought from $700 to $1500."



The New Self-Centering De Laval Bowl

Concave Bottom Detached Spindle

The Supremacy of the NEW DE LAVAL

THERE may be some question as to who makes the best wagon or the best plow or the best watch, but when it comes to cream separators the supremacy of the De Laval is acknowledged at once by every fair minded and impartial man who is familiar with the cream separator situation.

Thousands and thousands of tests, the world over, have proven that the De Laval skims the cleanest.

The construction of the New De Laval keeps it in a class by itself.

It outlasts and outwears all other makes by far, and can be run with much less cost for repairs.

The world-wide De Laval organization, with agents and representatives in almost every locality where cows are milked, ready to serve you, insures that the buyer of a De Laval will get quick and valuable service when he needs it.

More De Lavals are sold every year than all other makes combined.

The New De Laval has greater capacity than the 1916 style, is simpler in construction, has fewer and interchangeable discs, is easier to wash, and the skimming efficiency is even greater.

Each New De Laval is equipped with a Bell Speed Indicator.

Order your De Laval now and let it begin saving cream for you right away. Remember that a De Laval may be bought for cash or on such liberal terms as to save its own cost. See the local De Laval agent, or if you don't know him, write to the nearest De Laval office as below.

New Catalog will be mailed upon request

DE LAVAL DAIRY SUPPLY COMPANY

LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST.
We specialize in Alpha Gasoline and Distillate Engines, Ideal Green Feed Silos, Irrigation Equipment, Centrifugal and Deep Well Pumps and Alpha Spraying Outfits. Send for special catalog.
101 DRUMM STREET, SAN FRANCISCO
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

Santa Anita Rancho
Anoakia Breeding Farm

ARABIAN-THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three-year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars, Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent — Santa Anita, Cal.

SLACKED LIME--GYPSUM Price Right for Large Orders
H. B. MATTHEWS, 350 Woodbury Rd., Pasadena, Cal., R. D. 1, Box 460

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The very best lumber that can be had. Nature's durable product perfected by the skill and ingenuity of man.

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Every REMCO article is designed by engineers trained for that especial work.

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SERVICE -- DURABILITY -- SATISFACTION

Write us for estimates on your work.
Descriptive catalogue sent FREE.

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Announcement

Knob Hill Stock Farm

Registered Poland Chinas

To My Friends and Patrons:

I have sold my aged herd of Poland-Chinas to H. I. Marsh of Modesto, Cal., which he will combine with his Sandyacre Herd. Mr. Marsh is a well known Poland-China breeder and requires no introduction.

This combination will give Mr. Marsh one of the largest and best herds of Poland-Chinas in the state. I bespeak for him a continuance of your liberal patronage and friendship, for which I thank you.

A. W. Henry

Farmington California

WE MAKE LOANS

on beef breeds of cattle in amounts from $5000 up, and invite you to correspond with us.

Southwest Cattle Loan Company
JNO. L. KNORPP, Pres. and Gen. Mgr.
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Save Money, Power, Expense of Upkeep and Labor. It lasts always and has a positive guarantee. Ask for Catalogue.

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16 California St. - - San Francisco, Cal.

Hampshires For Sale

Pure bred boars and sows for sale. Some with splendid belts, for $15 to $40 each, depending on age. All good healthy hogs, free from cholera.

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BEN. F. THORPE, Manager
Bonsall, - - California

California Cultivator
Costs $1 per Year

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Barley Beards—Tuberculosis

I have a cow that has three hard lumps on the neck just back of the jaw and in a line directly below the ear. It all started about three months ago with a large swelling along the jaw and under the tongue which interfered with her eating. I fed her soft feed and applied a mustard ointment until the swelling went down, leaving the three lumps about the size of half an apple. She eats and drinks well now and is not going down in flesh or milk. I also have another cow that has a hard lump under the jaw well back toward the neck. Please tell me what it is and what to do for it.—Subscriber, Madera.

I have a cow that on exertion seems to have difficulty in breathing, sticks out her tongue and coughs violently, has a foul breath and occasionally a small swelling appears on the side of the neck just back of the jaw which festers and breaks. Please give treatment.—Subscriber, Lemoore.

Kindly tell if there is any remedy for my milch cow that has gotten a fox tail or barley beard into her throat. Must I simply grease the throat where the foreign substance seems to be working and wait its coming out or can I by outward or inward applications cure it or give relief to the cow that coughs quite badly with the malady?—Subscriber, El Centro.

Probably it is tuberculosis in each case. The one having two cows with the swellings makes me think that at least in that case it is tuberculosis. Do not be too much alarmed about it because the swellings being where they are there is less danger of there being others where it would affect the milk or meat. If in either case the trouble is due to barley beards working through the tissues there is but one remedy: That is to open the cavity and wash it out thoroughly every day with some good antiseptic solution until healed. It would be better to call in the nearest veterinarian and have him test the whole herd for tuberculosis and take his advice about it, or if you have a large herd it might be well to report it to the state veterinarian at Sacramento and he may think it best to send some one to look after it at the expense of the state.

SPECIAL PRIZES

The Holstein-Friesian Association of America announces its special prizes for the season of 1917. At the national dairy show it will award $1500 in cash prizes. Practically every state fair will also receive attention from the association. At the California state fair at Sacramento the association award will be 15 per cent cash on general classification; in the five-day butterfat contest a trophy or silver cup to the first prize winner for a registered Holstein; a trophy or silver cup will also be awarded at the Butte County Spring Exposition at Chico for the best herd of registered Holstein-Friesian cattle; at the Arizona state fair 20 per cent cash will be paid on general classification.

THE SHORTHORN IN AMERICA

The April 1 number of "The Shorthorn in America," the quarterly publication issued by the American Shorthorn Breeders' Association, judging from the character of the matter and the illustrations, must be regarded as the most useful one yet issued, though they have all been of a high order—a distinct compliment to the Shorthorn interests.

KENDALL'S SPAVIN TREATMENT

Known for 40 Years as Kendall's Spavin Cure

A New Name But the Same Old Reliable Remedy

FARMERS and horsemen everywhere will be glad to know that this change is in the *name only*—that there is no change whatever in the famous old-time formula that has rendered such remarkable service in horse ailments—Bone Spavin, Ringbone, Splint, Curb, Sprains and Lameness—by the counter-irritant method.

Whether you get Kendall's under the old label or the new, the quality and efficiency is the *same* old reliable—with a 40-year-old reputation.

Get it of your druggist—$1.00 per bottle—six for $5.00—and ask for book "Treatise on the Horse"—or write

DR. B. J. KENDALL CO.
Enosburg Falls, Vt.

Thursday April 19

is the day we will sell that splendid herd of

40 Registered Holsteins
6 Grade Jerseys

for H. E. Cornwell, on his farm two miles north of Modesto California, on Prescott Road.

REMEMBER THE DATE

Sale under management of

CALIFORNIA BREEDERS' SALES AND PEDIGREE CO.

Sales Manager C. L. Hughes, Sacramento, Cal.
Auctioneer Col. Ben A. Rhoades, Los Angeles

HOLSTEIN FOLKS—Come to the meeting of California Holstein-Friesian Association, Hotel Hughson, Modesto, 8 p. m., Wednesday, April 18.

SELDOM SEE

a big knee like this, but your horse may have a bunch or bruise on his ankle, hock, stifle, knee or throat.

ABSORBINE
TRADE MARK REG. U.S. PAT. OFF.

will clean it off without laying up the horse. No blister, no hair gone. Concentrated—only a few drops required at an application. $2 per bottle delivered. Describe your case for special instructions and Book 8M free.

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WILLOWWOOD HERD OF
Registered Jerseys

contains 13 Register of Merit cows and heifers with yearly records averaging 516 pounds of 85 per cent butter.

Practically every heifer in the herd is a daughter of a Register of Merit cow.

You men and women who own Jerseys know what it means to have such cows and heifers.

You may buy them at your own price when we sell at public auction, to the highest bidder, absolutely without reserve or limit, the entire Willowwood Herd of

60 REGISTERED JERSEYS
owned by C. G. McFarland

Tulare, California
on Thursday, May 17, 1917

This sale will be a rare opportunity for established Jersey breeders to strengthen their herds.

Individual tuberculin test certificate with every animal over six months of age.

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The Imperial Valley Pig Club Contest

THERE is a lesson for grown farmers in the fact that 47 young farmers toiled unsparingly for 105 days feeding pigs until they were fat hogs, then hauled them 20 miles on a hot day to the city of Brawley, where they were placed in the whitewashed pens along the main street and were there weighed, judged, and later auctioned off. This fact also proves without a doubt that "Pig Clubs" have come to stay in California and demonstrates that there is considerable profit in fattening hogs, for not one of the youngsters raised hogs at a loss, at present prices.

The pig clubs in this valley were organized by different high schools in five cities of the valley, under the auspices of the Imperial County farm bureau, and the United States department of agriculture. Young folks from 13 to 18 years of age were eligible to enter as contestants. Each started with three pigs of known age and weight at the beginning of the contest, December 9, 1916, and finished with two at the close, March 24, 1917. Each contestant alone fed his pigs and kept accurate records of all feeds given, at prices prevailing during the winter, and were standard over the valley. Even the time in caring for the pigs was included in the cost, at the rate of 15 cents per hour. The pigs at the start were valued at eight and one-half cents per pound. They were weighed at the start and at such times as designated by the judges.

Imperial Valley Pig Club Contest
On the streets of Brawley the show was made. Photo and article by C. P. Short.

At the end of the contest there were 47 out of the 53 who started, that finished. All of the principal breeds of hogs were represented, as well as numerous crosses. The results obtained differed in many ways, and a variety of feeds and rations were fed.

At the end of the contest, on the invitation of the Brawley chamber of commerce, the hogs were hauled to that city for final judging, awarding of prizes, exhibition, and sale, by auction of the individual pens of hogs. It was interesting that the boys and girls hauled their hogs an average of 20 miles, and that in several cases, instead of a shrinkage, an actual gain was made. The great amount of interest that was shown by the community was evidenced by the large list of prizes offered, and the fact that 1200 people turned out to see the hogs on "Pig Day".

The hogs were judged on the following basis: Value of stock judged as fat hogs, 40 per cent; profit made, 50 per cent; essay on method of feeding, 5 per cent; records of feeding, 5 per cent. The 47 who finished were distributed as follows: Brawley 15, Calexico 7, El Centro 10, Imperial 6, Holtville 12.

Howard Farnsworth was the winner in El Centro, with two Durocs; Eldridge Moores was a winner in Imperial with two Chester-White boars; Joseph Guiotti of Holtville fed two Durocs at a cost of $27.24, which at the auction sold for $70.85 at a weight of 465 pounds. The two hogs made a gain of 349 pounds, and made an actual net profit of $37.02. These hogs brought a pound rate of 15.25 cents.

In the Brawley district many notable gains were made. Don Weaver, winner of a $50 cash prize, fed two pigs weighing 190 pounds at the start, 450 gallons of skim milk, 266 pounds rolled milo, 492 pounds head milo, and seven pounds Indian corn, at a cost of $20.84. At the close of the contest these hogs weighed 593 pounds, and sold at $13.35 cents, making a gain of 403 pounds, and a profit of $42.18 net.

Peter Schartz, winner of a trip to the state farm school at Davis, fed 260 gallons skim milk, 314 pounds rolled milo, 285 pounds head milo, six pounds tankage, and 25 pounds Indian corn, to his two pigs, which weighed at the start 82 pounds. These two Chester Whites at a feed cost of $16.82 made a weight of 431 pounds, or average gain of 3.3 pounds per day. They sold at 15.08 cents, and made a net profit of $40.14. The average price paid by the packers at the auction was only 13.30 cents, and the highest was 18.25 cents.

Results such as these are remarkable and were not attained by any wonderful or remarkable method of feeding, but instead, by feeding the best common feeds carefully. The pigs were not fed sparingly, but forced along. The fact also should be remembered that the best gains and the best profits were made from good stock; not all pure breds, but good grade hogs.

And these boys and girls did have an incentive not only for the profit that their individual hogs were making, but also for the distinction of winning. The town merchants backed the contest royally by offering prizes. In Brawley alone there was $150 in cash prizes, three pure bred gilts, and numerous other prizes, such as clothes, lumber, etc.

One boy started to feed his pigs at the same time his father started to feed a pen of pigs the same size. The man sold his hogs a few days before the close of the pig contest, averaging in weight only 100 pounds. The son's hogs averaged 206 pounds. Maybe this is an extreme case, and though you do better than this man, can you beat his boy who fattened 40-pound pigs to 206-pound hogs in 105 days? There is no reason why you cannot.

SWINE DAY

May 29 to June 1 inclusive will be Farmers' Week at the university farm. Wednesday, May 30, will be Swine Day. Hundreds of farmers will be at the university farm during this week to attend the program, meetings, etc Practically every live stock organization in the state will hold a meeting at the farm during this week, and there will be a two days' Holstein sale.

The board of directors of the California Swine Breeders' Association considers this an excellent time to hold an auction sale for hogs. This association finds that much of the most vital work that it might do remains undone from lack of funds, and has decided to hold an auction sale for the purpose of increasing its working capital. The plan is as follows:

Members are asked to send a gilt or sow, age eight months to three years, to this sale, paying the shipping expenses to Davis and all sale expenses.

Continued on Page 454

Kill Lice This Way

With one hand stroke the hair the wrong way, with the other sift in Dr. Hess Instant Louse Killer. Rub well into the skin. Try it and see how easily you can rid your horses, cattle and calves of lice. You'll find

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Registered young bulls from best families. Some of serviceable age.

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For Sale — Washington and Thomson Navels, Valencias, Seedless Grapefruit, Eureka, Lisbon, Villa Franca and Seedless Lemon, Harman Avocados. Buds were selected from the best bearing trees and will yield bumper crops. Also 40,000 Mission and Manzanillo Olives. The above stock is growing in Rialto, Whittier, Glendora and Fallbrook. Budding cloth 30c yard, post paid. No frost damage. We solicit your patronage. Prompt replies to inquiries. Cyrus W. Wilhite, P. O. Box 154, Glendora, Cal. Phone 303.

For Sale, Seed Bed Stock—About 100,000 extra fine and absolutely clean sour stock. Will run from 6 to 16 inches. Also two-year-old Marsh Seedless Grapefruit. Eureka Lemons, Valencia and Washington Navel Oranges. Prices on application. W. B. Richards, 935 N. Park Ave., Pomona. Phone 6302.

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20,000 Valencia and Washington Navel orange trees, some lemons, 3 years old, at a bargain. Inquire No. 2116 Cedar St., West Alhambra, Cal. Telephone Alhambra 332-R.

Eureka Lemon Trees—10,000 all sizes. Fancy stock. Strong root growth. Get our prices. Smith Citrus Nurseries, 315 Marsh Strong Bldg., Los Angeles. F2729.

For Sale—All kinds citrus nursery stock. 1 year buds, fine roots. Y. Yamaguchi, Box 574. Phone Sunset 470R. Upland, 10th St. and Cucamonga Ave., Upland.

For Sale—6000 fine thrifty two-year-old Lisbon lemon trees. Bud selection the best. Address Chas. Story, Rivera, Cal. Phone Whittier 4721.

Novelty in Eureka Lemons—Write your bid for open roots f.o.b. Glendora. Any quantity. If right, trees are yours. E. J. Vander Sluis, Glendora, Cal.

Olive Trees—Mission, Manzanillo, Ascolano. Propogated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer. Hemet. Cal

For Sale—Two-year-old Navel-Valencia lemon and grapefruit trees. Choice stock of best quality. Geo. M. Pearson, Riverside, Cal.

Valencias, one and three years old. Eureka lemons, three years old. Selected stock. May A. Miller, Glendora, Cal.

2000 Eureka Lemon Trees, 2 years old. Fine stock for sale or trade for automobile. J. D. Sherer, Glendora.

Budded Avocados—All leading varieties. Address Mather's Avorado Nursery, 137 N. Fair Oaks Ave., Pasadena, Cal.

Citrus Trees—All kinds, any quantity. Butler's Morning Side Nursery, Lamanda Park, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale: inspection invited.

Olives—Large stock of Mission, Manzanillo and Ascolano olives. No scale, no defoliation. C. E. Moyer, Hemet, Cal.

Quality Trees—Prune trees 10c each. Cash Nurseries, Sebastopol, Cal.

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Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

Make Big Money with our famous Whitten Ranch Big Type Poland-China. Prolific breeders and profitable feeders. Grow rapidly, fatten quickly. Top the market at 225 lbs. in six months. Make greatest profit for feed consumed. Prices reasonable; satisfaction guaranteed. Send for free illustrated book, "Hogs for Profit". Finest ever issued. Packed with valuable information; tells how to become successful. Ranch in Tulare County, but address owner, R. H. Whitten, 610B Security Building, Los Angeles.

The Billiken Herd of Chester Whites. The type that is ready for the market in 7 months or less. Sold out of bred gilts and service boars. Three open gilts, show prospects to offer. Some young stock of last October farrow, as follows: 18 sow pigs and 8 boar pigs. These are from 6 different litters and 3 different sires. Write for description and prices. C. B. Cunningham, Mills, Cal.

Large Number of excellent young boars ready for immediate service. Weanlings of either sex. Sired by Joker, first prize boar at Wisconsin State Fair 1915. Sows and gilts, sired by Iowa Wonder and bred to Joker and Sunnydale's Chief. For prices and further information write to Geo. A. Smith, Corcoran, Cal.

Poland-Chinas—Twenty good gilts and three 2-year-old sows for sale. Either sired by or bred to I. B. A. Wonder, reserve champion at P.P.I.E. A few good young boars ready for service, sired by I. B. A. Wonder. A fine lot of fall pigs. I please you or refund your money. W. A. Young, Lodi, Cal.

Cholera Immune Berkshires — A few choice gilts large enough to breed for fall litters, also fall boars at attractive prices. Several have strong line of best imported blood. Young pigs $15 and $20 each. All registered. Quality stock at utility prices. W. H. WAUGH, Riverside, Cal.

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Superba World's Grand Champion Poland-China boar and one of the greatest sires of the breed. Spring boars ready for service, also few sows bred to this noted sire, reasonably cheap. Rough's Greenfields, Arlington Sta., Riverside, Cal.

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Registered Poland-Chinas, prolific, fabulous, profitable, porkers. Choice young boars now ready for service, $25 each, weanlings $15 each. Dr. J. A. Crawshaw, Hanford, Cal.

Thirty Medium Big Type Poland-China boars for sale. Shipped on approval. We will send a good one for $30 and a crackajack one for $50. Bernstein Ranch, L. C. Trewhitt, manager, Hanford, Cal.

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Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, Cal.

Cholera Immune Duroc-Jerseys of the large type. Bred for show and utility. Derryfield Farm, I.O.O.F. Temple, Sacramento.

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Carruthers' Farm Berkshire Hogs. Our herd won Premier Exhibitor prize at the P. P. I. E. Exposition. Mayfield, Cal.

Duroc-Jersey—Sow and boar pigs from registered stock. Low prices. Delta Farm and Livestock Co., Colton, Cal.

Berkshires—Two hundred pounds at six months. Ray C. Hannan, Corning, Cal.

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Little Black Essex—New crop nearly ripe. Supply very limited. L. W. Millsap, Yolo, Cal.

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Butte City Shorthorns, Shropshires, Berkshires and Ponies. Stock of all ages for sale. Can supply one or a carload. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., Cal.

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Registered Shires — Blackhawk Stock Ranch. Importers and Breeders. Easton & Ward, Burlingame, Cal.

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For Sale—From 1 to 70 extra fine, straight, well marked, light colored, registered Holstein heifers, from 8 to 20 months old. Those old enough are being bred to a first prize son of Prince Gelsche Walker, whose dam has a high yearly record. Some of these heifers are sired by bulls whose dams have from 35 to 37-pound records. They carry the very best blood of the breed and are good enough for any herd, anywhere. Prices to fit any pocketbook. Geo. A. Smith, Corcoran, Cal.

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Budding Successfully Done. Can change your old citrus grove to any variety. Will guarantee all work. Have had 25 years' experience changing old trees successfully in one year. I introduced the idea of budding into old wood, thereby putting on a good top of buds the first year. Can furnish best references from any section of Southern California. O. D. Wilhite, El Cajon, Cal. Home phone El Cajon 451-2 bells.

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Wanted—Man in each California county to represent established California company. Should have rig or auto to get around. Good pay and several weeks' work to right parties. Address J. H Yetter, Sales Department, 810 Santa Marina Building, 112 Market St., San Francisco, Cal.

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Wanted—By steady man, pruning, citrus or deciduous trees of all kinds; also budding or grafting. Satisfaction guaranteed. Address Mike Detore, 127 North Main St., Los Angeles.

Wanted—Small silo filler. W. H. Bence, Box 89, R. 2, San Bernardino.

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Baby Chicks from White Leghorns, that are the result of severely Hoganizing for the last six years. Our Barred Rocks are thoroughly Hoganized, none can be better. April, May and June hatchings. Atterbury Poultry Farm, Route No. 1, Box 183, Turlock, Cal.

East Side Poultry Yards, Established 1904. Our object, egg type and size for ideal utility stock. Thoroughly Hoganized, correctly hatched baby chicks, dozen or 1000. White Leghorn 8c, R. I. Reds 12c after April 1. Satisfaction guaranteed. 255 S. 18th St., San Jose.

Now is the Time to place your order for S. C. White Leghorn one-day-old chicks. Heavy laying strain from selected Hoganized stock, $10 per 100. We guarantee strong birds only shipped. Fountain City Hatchery, Prop. A. R. Gurr & Son, Merced, Cal.

50 Baby Chicks Free for May only with every 100 ordered of us at $10.50 per 100. 150 choice baby chicks for $10.50, all from our best stock. Just to introduce our chicks to new customers. Order quick. A. P. Ward & Son, Box A1, Calistoga, Cal.

200-290 Egg Winter Laying Leghorns, Rocks, Reds, Wyandottes, Anconas, $3-$10 profit per hen. Breeders, eggs, chicks. Hundreds every week. Many repeat orders. Questions welcomed. C. Beeson, Pasadena, Cal.

Baby White Leghorns—Hatched from high producing utility and ribbon winning matings. Booking orders for baby chicks, pullets, cockerels and hatching eggs. A. D. Roberts Poultry Yards, Box 566, Ceres, Cal.

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Free—How to Mate and Breed Rhode Island Reds. Just what you want to know, but could not get correct information. Send stamp. Trap-nested stock, both combs, big dark velvety red strain for sale. Ava Poultry Yards, Ava, Mo.

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Model Poultry Farm, White Leghorn specialists. Baby chix and hatching eggs from heavy laying stock, bred by us for thirteen years. Our prices are right. W. C. Smith, Pron., Corning, Cal.

Order Now—My famous S. C. White Leghorn baby chicks; delivery at any time. Also R. I. Red chicks. Best satisfaction given. Carl Stange, 1408 Silver Ave., San Francisco.

Baby Chicks from S. C. White Leghorns from trapnested hens with records of 192 to 297 eggs. Also S. C. Black Minorca chicks and eggs. J. W. Benoit, Route C, Modesto, Cal.

Baby Chicks from my thoroughbred flock of S. C. White Leghorns, after April 1 to July 1 for $8 per 100, $75 per 1000. Write for leaflet. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

"Blue Orpingtons", "Blue Andalusian" and "Anconas". Sheppard's strain. Stock and eggs for sale. Write for circulars. J. R. Huddleston, 342 Edgeware Road, Los Angeles, Cal.

White Leghorn Baby Chix; strong and healthy, for particular people, from Hoganized heavy laying, mature fowls. T. C. Hawley, 504 E. Elm Street, Lodi, Cal.

Barred Rocks, "Ringlets" stock direct from E. B. Thompsons. Eggs $1, $2 and $3 per 15. Cockerels $5 and $10. C. W. Angier, 523 Columbus Ave., Tropico.

Barred Rocks, eleven grand pens. Quality and satisfaction assured. Mating list on request. Cameron Bros., R. D. 4, Box 76, Sacramento.

"Eastman's Bred-to-Lay" Barred Plymouth Rocks. Chicks, eggs, cockerels. We Hoganize and trapnest. Fairmead Poultry Farm, Fairmead, Cal.

Baby Chicks—White Leghorns, Brown Leghorns, Reds, Barred Rocks, Black Minorcas, Anconas. Prices on application. Orland Hatchery, Orland, Glenn Co., Cal.

For Sale—Rhode Island Red Baby Chicks from our carefully selected matings. $14.00 per hundred. Williams Poultry Place, 236 No. Gage, Los Angeles.

Rainescourt Reds—Eggs from prolific laying strain and exhibition winners from $1.50 up. Day old chicks $15 per 100. Rainescourt Poultry Ranch, Zel ah, Cal.

Day Old Chix—Barred Rock, R. I. Reds, White Leghorns, Black Minorcas, Light Brahmas, Buff and White Orpingtons. Enoch Crews, Seabright, Cal.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery. Rural 1, Sonoma, Cal.

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Roofden Ranch Chicks are well hatched from first class utility breeding stock; money making egg producers our aim, and the prices are right. 7 to 14c, depending on breed, month, quantity (dozen to thousands). White, Buff, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks. For Dollars and Sense. Send card for circular. Roofden Poultry Ranch and Hatchery, Campbell, Cal.

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Alfalfa Seed—The very best, guaranteed 16c. Wm. Stuthman, 1239 West Pico St., Los Angeles, Cal.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

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FARMS WANTED

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

Wanted to hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

GARDEN NOTES

Continued from Page 433

paratively costless spray or dusting on the start may be much more effective than more stringent measures a few days later.

And in irrigation of the garden, keep in mind that a light sprinkling with the nozzle is often mistaken for irrigation. Wetting of the surface may not reach to the little rootlets but only crust the surface so as to do more harm than no irrigation at all.

The application of water in a furrow alongside the little plants is much more economical than sprinkling. If sprinkling is done do not apply at midday when the sun may scald.

Many claim they cannot raise a garden because they do not have water under pressure. We have seen in the Imperial Valley magnificent gardens where the irrigation was all done with the use of water from the ditch where light wooden gates were so arranged that every time the water was let into the settling pool for domestic or barn use a portion of the stream was diverted and practically without attendance the plants were perfectly irrigated.

Do not let the water touch the tops of young plants if possible to irrigate without. It may cause scald or induce fungus growth, damping off, or other troubles. The great melon and lettuce fields of the Imperial have the plants set on the edge of ridges just above the furrow where the water is run.

After irrigation rake or cultivate lightly. The wheel hoe is perhaps one of the most economical appliances in the garden or for small field crops. Where this is used finish with small hand hoe and fingers, pulling the weeds from around the young plants.

If choice is permitted choose the sandy strip of the ranch for the garden. It is far easier to cultivate than the sticky, gumbo-type of soil. It is almost impossible to use too much well-rotted manure in the garden. In its absence use commercial fertilizer. Coarse manure applied over the surface aids in retaining moisture. If the soil is heavy use freely of lime to offset any acid. If using burnt lime, crushed, use 1000 pounds per acre, if air-slaked twice that or perhaps 1500 pounds per acre. Complete fertilizer may be applied at the rate of one-half ton per acre.

It takes sun to make young plants grow. If the garden is an intercrop in the orchard and the trees are large enough so as to shade to any extent be sure the rows run north and south so as to get full effect of the sun for part of the day.

PONY WINNERS RECEIVE THEIR PONIES

The three Shetland ponies given away by California Cultivator March 24 were awarded to the following:

Earl McAllister, Kern County.

Torance G. Spike Jr., Fresno County.

Verna Cole, Ventura County.

Earl McAllister and Verna Cole, who have received their ponies, are delighted with them, and ask the Cultivator to publish the following:

Bakersfield, April 1, 1917.

Dear Pony Man.

I want to thank my many friends who helped me in the California Cultivator contest as I won first prize, "Sparkle" and her pretty outfit. I have received them and I am well pleased.

EARL McALLISTER.

Sespe, Cal., March 31, 1917.

Pony Man, California Cultivator.

Dear Sir: I received "Lightfoot" and his outfit and he is sure a dandy. I didn't expect to get such a fine outfit. And many, many thanks for him and his outfit. I am going to have my picture taken as soon as possible and will send you one. Thanking you again very kindly, I am yours truly,

VERNA COLE.

The pony awarded to Torance G. Spike Jr. is en route.

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FUNGICIDES we sell: Bordeaux mixture, Bluestone, Sulphur resublimed, lime and sulphur solution, milled sulphur, potassium sulphide.
INSECTICIDES: Paris green, lead arsenate, hellebore, EUCO, ORTHO, Resin wash, kerosene emulsion, cresylol, milled sulphur, nicotine sulphate, etc.
On request we will send any orchardist customer our new book describing the insects that work on citrus and other trees and how to destroy them.
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Means One Less Man

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439 S. Main St. (Just N. of Hotel Rosslyn)
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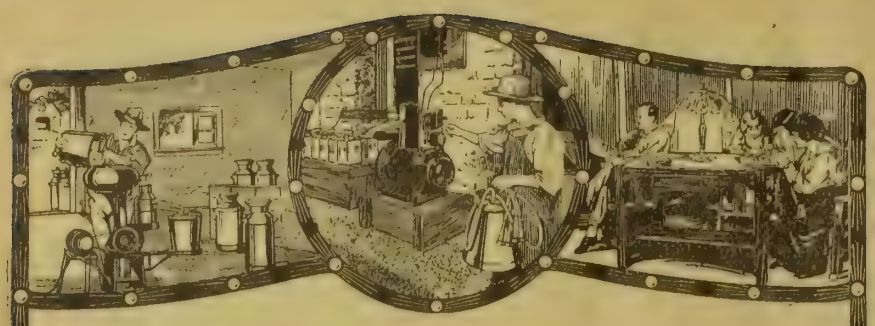

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Household Department

THE GATHERING PLACE

Life changes all our thoughts of heaven;
At first we think of streets of gold,
Of gates of pearl and dazzling light,
Of shining wings and robes of white
And things all strange to mortal sight.
But in the afterward of years
It is a more familiar place:
A home unhurt by sighs or tears,
Where waiteth many a well-known face.
With passing months it comes more near,
It grows more real day by day;
Not strange nor cold, but very dear—
The glad homeland not far away,
Where none are sick, or poor, or lone,
The place where we shall find our own.
And as we think of all we knew
Who there have met to part no more,
Our longing hearts desire home, too,
With all the strife and trouble o'er.
—Robert Browning.

HOW THEY SAVED THE HOME

"I DON'T see," said Mrs. Grant, "how we're ever going to keep the place, to say nothing of getting a living, now your father's gone."

"I don't see," answered her 16-year-old daughter Leta, who sat by the window sewing, "how we're going to get along without father in any way."

The family had come to California a few years before and had bought a small place, setting out the greater part to apples. Two acres in front contained a "mixed" orchard, various kinds of fruit planted for the family use and pleasure. Several rows of berries of different kinds, and currants, asparagus, and rhubarb, proved that the family liked variety, and that Mr. Grant believed in growing all he could to save buying. A good garden of various vegetables was well started, so they would not starve for the present. But clothes and incidentals would need cash, to say nothing of the interest that would come due next spring. The eggs from their hundred hens bought their simple groceries, besides the necessary feed, and they had a good cow, that kept them in milk and butter most of the year.

The immediate problem was therefore simple, but the necessity of looking ahead kept Mrs. Grant awake nights. She did not want to lose the home—they would be in worse case than ever then.

"Leta," she said one morning, "we must use less cream, and make more butter to sell. And I'm going to buy a hundred incubator chicks, besides setting every hen that gets broody, so we'll have more eggs to sell next year."

"We might raise some ducks or turkeys," suggested Leta.

"I don't like ducks," answered her mother. "They eat too much. But we might try some turkeys. They could have the pasture lot to run in, and they bring a good price in the fall."

The next month was a busy one, but the weather was favorable, and they had good luck with their young poultry. Then one morning Leta came in with a few ripe berries in her hand.

"There are going to be loads of berries, mother," she said. "They are ripening fast, too."

"Well, that's good," said her mother. "There ought to be a good many to sell. But we have no way to deliver them."

"Perhaps we could get Mr. Lummis to carry them with his."

"We can't bother him all the time No, we've got to think up some other way.

"Let's put out a sign, mother, said Leta; 'Fresh berries for sale.' Lots of people don't have berries, and such numbers of automobiles pass here with folks from town. They might like some, too."

"I suppose we might try it," said Mrs. Grant doubtfully, "but I don't count much on signs."

"Let's make it different, mother, from the dirty old signs we see generally. Let's make a nice one, and put the word 'today' on, and change it often."

So Mrs. Grant made a neat signboard, and nailed it to the gate post. Leta, who had some skill in lettering, made a pasteboard sign which was tacked to the board. This read "Fresh berries today." No attention was paid to the sign the first day, and even Leta felt somewhat discouraged, but the day after a wagon stopped, and the driver bought two baskets of loganberries. There was scarcely a day after this while the berries lasted that they did not have one or more calls. Some people bought regularly, while one or two customers wanted a whole case for canning. Any day there were berries left over Mrs. Grant would can or preserve them the next day, so as never to sell any but fresh fruit, and never waste any.

Soon the garden began to ripen more vegetables than they could use, and they added "vegetables" to their "for sale" sign. It appeared that vegetables fresh from the garden made as true an appeal as the berries, not only to city folks, but also to those ranchers who preferred to confine their attention to their main crop, and not "bother" with vegetables.

Several peach and cherry trees began to bear a fair crop this year, and for the early peaches and some extra fine cherries they found a ready sale. Everything they did not need to eat or did not sell, they put up in small jars, neatly labelled, and the close of the summer found them with about 300 jars of various kinds of fruit and vegetables, besides an order they had filled for one of their automobile customers, a business woman in the city. In addition to the fruit, they had canned tomatoes and beans, and had put by vegetables enough to last them until the next summer. Winter cabbage and some other vegetables were set out, the young pullets began to lay promptly, and the spring calf had paid for what little butcher's meat they used.

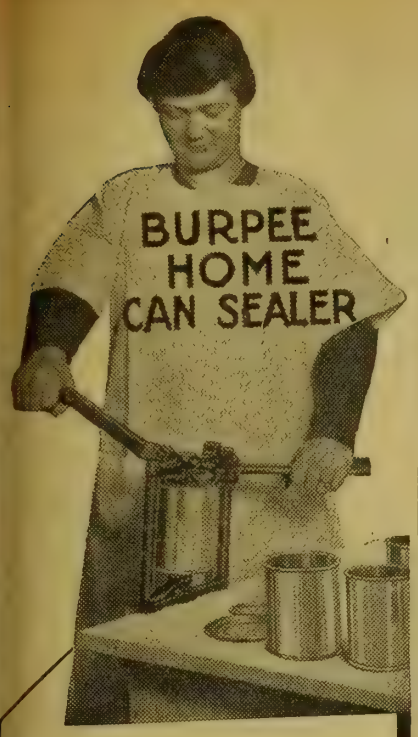
The first of December Mrs. Grant opened the sealed box into which they had been dropping change all summer, and she and Leta counted out their cash savings—$31.40.

"Pretty good, I call it," Mrs. Grant said, as she contemplated the neat piles, "especially when we had to hire the cultivating done. Well, I'll put $20 in the bank toward the interest, and we must make the rest do for what clothes we need this winter. Lucky father laid in a good supply of wood last spring. I don't think we shall need any more until next spring. But we need a good deal more money than that. And what are we going to do this winter? I could do plain sewing, but there's not much in it for so much hard work. I might bake bread. They tell me there is always a good sale for home-made bread in town, but I don't know how it would be out here. I might try."

And try she did, for Mrs. Grant was not one to let the grass grow under her feet. The sign now read "Fresh bread Tuesdays and Thursdays" and "Canned fruits." Leta had been well instructed in plain cooking, and was a great help to her mother in the kitchen as well as in the garden. Mrs. Grant could make extra good bread, and soon found that she could sell all she had time to make. As the winter passed, she added brown bread, gingerbread, cookies, and doughnuts, on certain days. Her bank account grew slowly but steadily during the winter. She retained old customers and made new ones, and as spring approached she found herself with a new problem on her hands. The customers who had become used to the good home cooking did not want it to stop, but two pairs of hands could not keep up with the steady baking required as well as do the garden work and attend to the chickens and cow. Now chickens must be hatched, garden must be planted, and berries would soon be ripe. Should she let one branch of her business go, and if so, which?

Just then luck stepped in, as luck so often seems to do, and helped her to a solution. Some cousins, a brother and sister, living in the East, wrote her that the young man had been ordered to go West and live outdoors, and he and his sister, who were alone in the world, wanted some chance to earn a living in not too strenuous a way. Could Mrs. Grant suggest anything? Mrs. Grant wrote back promptly that if they were willing to give her the help she needed, they were welcome to a home with her and her daughter as long as they cared to stay.

The offer was accepted; a tent for the young man soon appeared in the orchard, and two more willing hands made the summer's work fly. There was of course more fruit than the past year, but more customers, too, so



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F. Mayer Boot & Shoe Company
Milwaukee, Wis.

Every time you buy an article, advertised in the California Cultivator, at the local store you do your own some good.

there was left less fruit to put up. The interest had been paid promptly, and something had been put in the bank toward paying off the principal, and Mrs. Grant and her daughter looked forward to buying a horse another year if everything went well. But they were satisfied that their signboard paid, with solid work behind to back it up. With continued good health, the home would certainly be paid for in a few years, and best of all, mother and daughter were together in the home the father had begun for them.—Farm, Stock and Home.

HOUSEHOLD QUERIES

Milo Recipes

Please give recipes for preparing ground milo or milo meal for the table. —Subscriber, Holtville.

Prof. M. E. Jaffa of the University of California, Berkeley, writes: "We have not made any experiments along this line but such experiments have been made elsewhere and recipes offered for the use of ground sorghums and small corns, such as the Egyptian corn, milo and kaoliang."

Prof. Jaffa sends copy of Bulletin 158, "Proso (millet) and Kaolaing as Table Foods," published by the agricultural experiment station, Brookings, South Dakota, in which we note: "Meal made from the grain sorghums ground locally is not infrequently used in the making of batter cakes and similar articles of food. . . . There seems little reason why, when properly milled, it should not be used in much the same manner as corn meal." We would advise the inquirer to write United States Department of Agriculture, Washington, D. C., and ask for such bulletins as are available on the subject.

Hotel Hot Cakes

Two-thirds kafir flour, one-third wheat flour. Three teaspoons baking powder to one quart of dry flour; four eggs, a little salt and sugar; sufficient milk to make three to four quarts batter. Add one half cup maple syrup. If the batter stands over night it is better.

Kafir Muffins

Two cups kafir flour; one cup wheat flour; one tablespoon sugar; one level teaspoon salt; two eggs beaten separately; one piece butter size of large walnut; two heaping teaspoons baking powder; add one pint sour milk in which one-fourth level teaspoon of baking soda has been dissolved. Batter must be thin. Most cooks on first trial make it too thick.

Kafir popped the same as popcorn has a delicious flavor. It is sweeter than popcorn, softer, and does not have the hard center often found in popped popcorn. It merits general use on popcorn stands and in candy stores.

Feterita Brown Bread (four loaves)

Feterita meal, 1½ half cups, rye meal, one cup, molasses, one cup, salt, one teaspoon, graham flour, 1½ cups, sour milk, 2½ cups, soda, one heaping teaspoon, chopped raisins, one cup.

Mix well, fill one-pound baking powder cans two-thirds full with batter. Put covers on cans and steam four hours. This may be done in a large kettle. The water should not be too deep—if it reaches one-half the height of the can it will be enough.

Golden Feterita Bread

Feterita meal, three-quarters cup, sugar, one-quarter cup, salt, half teaspoon, egg, one, flour, one and a quarter cups, baking powder, five level teaspoons, milk, one cup, butter (melted) one or two teaspoons.

Mix and sift dry ingredients. Add milk, eggs well beaten and butter. Bake in shallow buttered pans in hot oven 20 minutes.

TROUBLE THAT NEVER CAME

Oh, I worry over this thing and I worry over that,
But I notice when the atmosphere has cleared
That the bad luck I had looked for didn't come and knock me flat,
And I didn't have the trouble that I feared.
Oh, I like to start the morning with an apprehensive sigh,
For I find a bit of worry to my taste.
But I cannot help a-thinking as the years go speeding by
That an awful lot of worry goes to waste.—Pittsburg Post.

this can cuts table costs

in more than a million homes in the West. Yours should be among them.

You'll find a "rounded" spoon of Ghirardelli's Ground Chocolate is equal in chocolate strength to the "heaping" spoon of others.

A cup of Ghirardelli's for breakfast will do more than please the taste—it **nourishes**—enables you to do away with more expensive foods.

Tomorrow try a sensible breakfast—a cup of

Ghirardelli's Ground Chocolate

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MICA
AXLE GREASE

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS, MARCH 21, 1916

of California Cultivator, published weekly at Los Angeles, Cal., for April 1, 1917.
State of California, County of Los Angeles, SS.

Before me, a Notary Public in and for the State and county aforesaid, personally appeared Frank H. Thomas, who, having been duly sworn according to law, deposes and says that he is the publisher and business manager of the California Cultivator and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 443, Postal Laws and Regulations, printed on the reverse of this form, to-wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are:

NAME OF—	POSTOFFICE ADDRESS.
Publisher, Cultivator Publishing Co.	Los Angeles, Cal.
Editor, C. B. Messenger	Los Angeles, Cal.
Managing Editor	
Business Manager, Frank H. Thomas	Los Angeles, Cal.

2. That the owners are (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock.)

Cultivator Publishing Co.	Los Angeles, Cal.
Frank H. Thomas	Los Angeles, Cal.
R. M. Teague	San Dimas, Cal.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.)

None.

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is————. (This information is required from daily publications only.)

FRANK H. THOMAS, Manager.

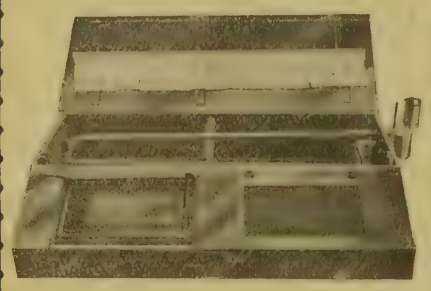
Sworn to and subscribed before me this 22nd day of March, 1917.

H. E. STORRS.

(SEAL) Notary Public in and for Los Angeles County, California.

(My commission expires March 22, 1921.)

"PIONEER" HOT WATER BROODER



Storm proof. The best made brooder in America at the price. 18 square feet floor space, easily heated to 100 degrees; copper boiler; oil saving jacket; will run 30 days on $1 worth of oil; holds 200 chicks easily. Free 50-PAGE ILLUSTRATED CATALOG gives full details.

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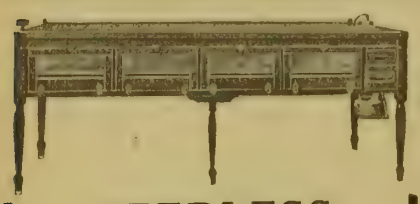

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Incubators, $10 to $48. 100% hatches three consecutive times. Coal-Burning Hover, $15. International Sanitary Hover (Oil-Burning) $10.00 Model Machines Have All Latest Improvements. *FREE BOOK* tells all about them and gives profit-making advice of experts.

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68 Henry St., Buffalo, N. Y.
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The food with the punch. Gets the eggs. Highest analysis, cheapest price—$2.45 per 90-lb. bag. Special price on quantities. Write for free feeding sample and descriptive circular. At your dealers or

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Secrets of Success with Chickens.
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Pointers to Amateurs.
How to Treat Poultry Diseases.

Globe Mills, Los Angeles, Cal.

BARGAINS - BARGAINS
Mandy Lee Incubators

We are selling out our line of Mandy Lee Incubators. While they last we will offer 140-egg Mandy Lee Incubator for $15.00 f.o.b., Los Angeles. This is less than we paid for them. Absolutely guaranteed. Other sizes for sale. Send for catalog.

GLOBE MILLS Los Angeles, Cal.

Tells why chicks die

E. J. Reefer, the poultry expert, 426 Reefer Bldg., Kansas City, Mo., is giving away free a valuable book entitled, "White Diarrhoea and How to Cure it." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

PLANT YOUR POTATO LAND WHEN CROP IS OFF TO
Rhubarb

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OTHERS MAKING $1,000 PER ACRE ANNUALLY — SO CAN YOU. Don't put it off any longer. April, May, June positively best months to plant. Write

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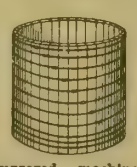


REDWOOD TANKS — SILOS.

Thirty-five years in this Business in Stockton.—A 500-gallon tank, $12.00. A tank 6 ft.x2½ ft., $10.00. Other tanks equally cheap. I deal direct with the consumer, saving 10% to 25%. All sizes in stock. Clear dry redwood direct from the mill. Write for price today. Latest improved machinery. Doors, Windows, Frames, Mouldings.
R. F. WILSON. STOCKTON, CAL.

When writing advertisers, mention the Cultivator.

From Shell to Griddle

Written for California Cultivator By Jean A. Koethen

A SUCCESSFUL poultryman never allows a chicken to die on his place." This is the motto of George W. Masterson of Duarte, poultry judge and fancier on the side, orange grower by profession. "It doesn't matter what you do with the chicken to beat him to it," says Mr. Masterson, "but beat him somehow and don't let him die."

Pretty good advice for the beginner, isn't it? Indeed, I suspect we are all too prone to consider a sick chick as good as dead and not worth fussing with. Better than fussing with sick chicks, however, is the care that never lets them get sick, if it has to sit up all night to keep them warm.

Being a fancier and aiming at quality rather than numbers, Mr. Masterson raises his chicks in small flocks. Sometimes they are brooded by a mother hen, sometimes in a "toasty" warm south front brooder house heated by brooder stoves, one for each brood, and this spring he plans to try capons as mothers, keeping the chicks the first three weeks in the brooder house, then transferring them to the care of the capon. The morning I was there all the chicks were in the brooder house, a snug building about 12 x 16, divided by low wire fences into four compartments and with the south side all glass. The chicks in the first compartment were recently from the incubator and were revelling in the warmth of their brooder stove and of the sun which streamed in at the south window. Those in the fourth compartment were perhaps six weeks old and no longer required artificial heat. Not over 25 chicks were in any one compartment, and the number in the fourth was much less than this.

All chicks are hatched by incubator. When hatching time comes the eggs are moistened with warm water, and the incubator is closed till the hatch is over. The chicks rest quietly in the nursery the first night after they are hatched, and the second evening, about 48 hours after the first chick breaks the shell, are removed to the brooder or to the coop containing the hen that is to mother them. No feed is given till the next morning when the chicks receive a feeding of commercial chick feed. Then they are put back into the brooder to warm up. A ring of inch mesh poultry wire 12 inches high keeps them close to the brooder stove the first few days. As they grow older this is removed and the chicks given leave to wander over the whole compartment.

No one method of feeding is followed exclusively, but the following is the one which has been found most satisfactory:

The first five days nothing is fed but a good grade of commercial chick feed. At the end of the fifth day a hopper of plain bran is added. This is left before the chicks. At the end of the eighth day feedmeal, beefscrap and charcoal are added to the bran according to the following formula: Bran two parts, feed meal two parts, beef scrap one part, charcoal one part. This is kept before them till they are three months old, when they are given a mash composed of 100 pounds laying mash as put up by various dealers and 100 pounds fine ground oats. This makes a splendid growing feed. The pullets are kept on it till they are seven months old, and the cockerels until matured.

When the chicks are three weeks of age the chick feed, which has so far been their only scratch feed, is dropped, and in its place is given a mixture of one part oat groats, two parts wheat and two parts cracked corn. When they are four months old this is changed again to a scratch feed of equal parts cracked corn, whole feed oats, wheat and hulled barley. They are fed liberally on this until matured.

Mr. Masterson is a firm believer in the virtues of buttermilk or clabbered milk for chicks. They receive no water until they are ten days old. When they have been two days in the brooder they are given their first drink, which is buttermilk. A shallow pan six inches in diameter is filled with the milk and a brick laid across to keep the chicks from getting their feet into the milk. After ten days a fountain of fresh water is placed in the pen and the milk given only in the morning. At the end of the fourth week it is discontinued altogether, not because it is no longer beneficial, but because the quantity is limited and it is not so greatly needed after this time. Sweet milk for chicks Mr. Masterson does not believe in, nor does he recommend draining off the whey and feeding the sour milk in the form of cottage cheese.

When the chicks are five weeks old they are ready to roost. Other breeds might take a little more time or a little less, according to rapidity of development, but Rhode Island Reds when properly fed are ready for their first roosts at this age. These roosts are made of laths about three-eighths of an inch apart. The hover is moved onto this slatted platform for a few nights until the chicks have become accustomed to their new roosts, then is removed, and lo and behold! the chicks are roosting. Three weeks later they are transferred to the colony houses where they are to remain till matured.

The following "dont's", which Mr. Masterson commends to beginners, will carry no little weight:

Don't put off doing a little job when you first notice that it needs doing. A stitch in time saves nine.

Don't neglect to feed green feed every day. This is an essential part of the program in a paying poultry plant.

Don't neglect to give fresh water frequently. This is only second in importance to feeding green feed.

Don't neglect the chickens unless you want them to neglect you. If you keep them (properly) they will keep you.

Finally, never let a chick die if you can possibly keep it alive.

COLUMBIAN WYANDOTTES

The average popularity of a variety is usually due, not alone to its merits but more to advertising and sending large entries to the popular shows, etc. The breeders that have taken up Columbian Wyandottes have bred them more for their great beauty and usefulness than from a business standpoint. And all during this time by painstaking methods they have been perfecting them both as to general appearance and profitable qualities until today we feel sure that we really have the twentieth century business fowl, a bird that breeds comparatively true to standard, a fast grower and perpetual layer, laying through storm and cold weather, hardy and gentle, beginning to lay at from four to five months old, hence a source of pleasure and profit. With such a dandy little "queen" to work for some 200 staunch admirers are all working together, hand in hand under the name of the National Columbian Wyandotte Club to see that she is not robbed of what rightfully belongs to her, popularity.—National Columbian Wyandotte Club.

BEET PULP FOR POULTRY

J. R. Henderson of Covina writes: "I saw an inquiry in Cultivator last week about the value of beet pulp for poultry, and I would add to the reply given that Mr. Harrison of Pasadena, the well known breeder of Rhode Island Reds, uses it in his dry mash and seems to think highly of it. I myself have used it in a wet mash for fowls and have tried it out as a food for geese. The fowls liked it very well, and always cleaned it all up, but the geese would have nothing whatever to say to it after the first day or two.

"If any readers can offer suggestions for protecting poultry from thieves we shall be very glad to hear from them in this part of the country."

DECEMBER LAYERS

Mr. and Mrs. John McKeig of Alta Loma report that 250 pullets hatched April 28, 1916, of Doctor Blackshaw's White Leghorn strain laid in December, 1916, 4187 eggs, an average of 16.75 per pullet.

Madera County supervisors are asked to provide fencing necessary for rabbit drives.

Los Angeles Market

LOS ANGELES, April 11, 1917.

BUTTER

Wholesale prices:

Rcts. wk. ending Apr. 10, 319,820 lbs.

California extra creamery 37
Prime first 35

Extr. Cr'y Exch. past week.

Apr.	4	5	6	7	9	10
'17	29½	30½	30½	30½	32	32

CHEESE

Brokers' prices:

California flats, lb. 24
Oregon Longhorn 29
Tillamook Triplets 26

EGGS

Exchange quotations:

Rcts. wk. ending April 10, 3366 cases.

Fresh extras 32
Case count 31
Pullet 29

Fresh Ranch Exch. past wk.

Apr.	4	5	6	7	9	10
'17	28½	30½	30½	30½	32	32

POULTRY

We quote from growers:

Broilers 34
Fryers 34
Hens .....21@22
Roasters 25
Geese, Young 22
Ducklings, lb. 22
Roosters, old 13
Turkeys .....24@25

LIVE STOCK

CATTLE—We quote cwt. f.o.b. L. A.

Beef steers, av. 1000 to 1100 lbs.....10.00
Heifers, good 8.00
Cows, good .....7.00@7.50
Fair .....6.50@7.00

HOGS—

Av. 125 lbs. 11.75
Av. 150 lbs. 12.50
Av. 175-225 lbs. 13.00

Rough, docked 20 lbs.; piggy sows, 40 lbs.; stags, 40%.

We quote per cwt. f.o.b. L. A.

Prime wethers .....9.50@10.00
Ewes .....9.00@9.50
Lambs 13.00
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:

Northern 5.00
Local 4.75
Sweet, lb. .....7@7½
Idaho Russets 5.00
Sweet, lb. 7½
New, lb. .....7½@8

ONIONS

Wholesale selling price:

Onions 9½
Onion Sets, Brown 22
Garlic, lb. 8

VEGETABLES

Wholesale prices:

Artichokes, doz. .....60@1.00
Asparagus, lb. .....11@13
Beets, doz. bunches 50
Cabbage, lb. 6
Carrots, doz. 40
Chicory, doz. .....40@50
Cauliflower, doz. 1.25
Celery, cr. 9.00
Cucumbers, Hothouse, doz. .....1.50@2.50
Horseradish, rt. lb. 15
Lettuce, doz. 35
Leeks, doz. 30
Mint 40
Onions, green, doz. 30
Oyster Plant, doz. 50
Peas, lb. .....5@6
Peppers, Chile, 15; Bell 55
Parsnips, doz. 50
Radishes, doz. 25
Rhubarb—Crimson Winter.....1.00
Strawberry .....1.40@1.50
Romaine, doz. 50
Spinach, doz. 25
Turnips, doz. 45
Tomatoes, cr. .....1.90@2.15

FRUITS

Wholesale prices:

Apples—
W. W. Permain .....2.10@2.25
Newtown Pippin, Yellow.....1.85@2.25
Avocados, doz. .....10.00@12.00
Bananas, lb. .....5¼@5½
Strawberries, basket .....15@20

CITRUS

Navels .....2.50@3.00
Lemons 1.75
Juice 1.25
Grapefruit .....3.00@3.50
Limes, basket 85
Tangerines, lug 1.25

NUTS

Prices named by Cal. Walnut Growers'

Assoc.	1914	1915	1916
No. 1	16.50	13.60	15.50
No. 2	12.00	10.60	12.50
Pkgs., 16 oz. Net	....	....	16.50
Budded	20.00	17.00	19.00
Jumbos	18.50	16.60	17.50

Peanuts, raw, lb.....10

HONEY

Wholesale prices:

Extr. lb. White 8½@9½c; A. 8½@9c; W.W. .....10@11
Comb., lb. W. 12½c; Lt.A.....12½@14c
W.W. 14½
Beeswax, lb. 32

BEANS

Wholesale Prices:

Lady Washington 15.00
Limas 15.00
Pinks 11.00
Manchurian Reds 9.00
Baby Mex. 7.90
Small White 15.00
Blackeyes 8.00
Tepary 9.00
Lentils 18.00

HAY

We quote ton f.o.b. L. A. to producers:

Barley .....17.00@21.00
Oat, tame .....19.00@22.00
Alfalfa, local .....20.00@22.00
Northern .....18.00@20.50
Stock .....14.00@17.00
Straw .....10.00@12.00

GRAIN

Wholesale selling price f.o.b. L. A.

Wheat—No. 1 .....3.80@3.85
Corn—No. 2 yellow, 3.80; white.....3.50
Oats—California red 2.75
White 2.85
Texas Red 2.90
Cal. Seed Oats 2.60
Barley—Recleaned 2.95
Milo 3.25
Egyptian Corn 3.25
Rye 3.55

FEED STUFF

Wholesale, cwt. f.o.b. L. A.

Alfalfa Meal 1.60
Bran, heavy 2.20
Shorts and Middlings 2.80
Alfalfa Molasses 1.65
Meat Scraps 3.60
Beet Pulp 1.70
Cracked Corn 3.45
Cracked Wheat 4.20
Cotton Seed Meal 2.35
Bone Meal 2.45
Feed Meal 3.50
Green Bone 2.25
Fish Meal .....3.60@3.70
Rolled Barley 2.90
Rolled Oats 2.90
Hulled Barley 3.40
Hulled Oats 4.10
Scratch Feed, 3.75, 3.80 and 3.85
Scratch Gritlets 10 sk. 4.25; 5 sk. 4.30; 1 sk. 4.35
With grit 80c less.
Oil Cake Meal 2.80
Pigeon Feed 3.70
Chick Feed 3.85
Blood Meal 4.20
Cocoa Meal 2.05
Rice Paddy 2.35

San Francisco Markets

SAN FRANCISCO, April 10, 1917.

BUTTER

Dairy Exchange quotations, lb.:

Rcts. wk. ending April 9, 64,200 lbs.

Fresh extras 38
Prime firsts 37

Extr. Cr'y. Prod. Exch. past wk.

Apr.	3	4	5	6	7	9
'17	38½	39½	40	40	40	38
'16	28	28½	29½	29	29½	..

CHEESE

Dairy Exchange quotations:

Cal. Flats ...20@21 Y. Am. ...23½@24½
Ore. Triplets..23½@24 Y. Am.....24

EGGS

Rcts. wk. ending April 9, 23,144 cs.

Dairy Exchange quotations:

Fresh extras 30
Firsts 28
Select Pullets 27½
Firsts 27½

Fresh Extr. Prod. Exch. past wk.

Apr	3	4	5	6	7	9
'17	29	29	29½	30	29½	30
'16	21½	22	22	22	22	..

POULTRY

We quote from producers, lb.

Hens, large 25@26; Leghorns .....23@24
Fryers, lb. .....34@35
Broilers .....30@40
Roosters, old..15@16; young .....30@35
Squabs, doz. .....2.00@3.00
Ducks .....19@20
Geese 20
Turkeys, live .....22@24
Belgian Hares, live 14@15; dr.....17@18

LIVE STOCK

Prices gross weight:

Cattle:

Steers, lb., 8@9¾, cows and heifers, 5¾@8½; calves, 6½@9.

Sheep:

Wethers, 11@11½; shorn, 1½@2c less; ewes, 9½@10; lamb, lb., 12½@13.

Hogs:

Hard grain fed, wt. 100 to 150 lbs., 12¼@12½; 150 to 300 lbs., 14¼@14½; 300 to 400 lbs., 13¾@14, undesirable, 8.

POTATOES

Wholesale selling prices at wharf:

Delta Burbanks .....3.75@4.00
Oregon Burbanks .....3.75@4.00
Seed .....3.00@3.50
New Potatoes .....8.00@9.00

ONIONS

Wholesale selling price on wharf:

Australian, cwt. .....7.00@8.00
New Green, box .....90@1.00
Garlic, lb. .....1@3

VEGETABLES

Wholesale selling price:

Asparagus, lb. .....5@7
Artichokes, doz., large 70-75; small..35-50
Celery, cr. .....1.25@2.00
Cucumbers, bx. hothouse.....1.50@2.50
Lettuce, cr. .....1.50@1.75
Mushrooms, lb. .....15@25
Peas—Bay, lb. .....7@8
Southern .....5@7
Rhubarb, box .....65@1.50

FRESH FRUIT

Wholesale selling price:

Apples—Newtown Pippins .....1.00@1.65
Bananas, bunch .....1.50@2.50
Pineapples, doz. .....2.25@2.50
Strawberries, cr. .....2.25@3.00

CITRUS FRUIT

Wholesale selling price:

Lemonettes .....1.50@1.85
Lemons .....1.75@3.50
Limes, Mex., cs. .....6.50@7.00
Grapefruit .....2.00@3.00
Navels .....1.50@2.90
Tangerines, half orange box.....1.75@2.00

PEACH PRICES

Advance in prices, effective Saturday, February 24, 1917, at 6 p. m. All prices are f.o.b. factories, California common points. We reserve the right to refuse confirmation, at the following prices, unless f.o.b. factories where grades and varieties desired are available. All quotations are subject to our approval of variety and assortment, subject to our confirmation and subject to advance without notice; March and April shipment.

Price list No. 6 is hereby withdrawn and ineffective at 6 p. m., Saturday, February 24, after which time prices herein quoted shall apply.

	Yellows.	Muirs.
Standard Peaches	.06⅜	.06⅜
Choice Peaches	.06⅝	.06⅝
Fancy Peaches	.07¼	.08½
Extra Fancy Peaches	.08	.08⅝
Slab Peaches	.05¾	
Choice Peeled Peaches	.09¾	
Fancy Peeled Peaches	.11	

Above prices bulk basis

For 50-lb boxes, unfaced, add..... ½c
For 50-lb. boxes, faced, add..... ⅝c
For 25-lb. boxes, unfaced, add ..... ⅝c
For 25-lb. boxes, faced, add..... ⅞c
For 10-lb. boxes, unfaced, add.....1¼c
For 10-lb. boxes, faced, add 1½c

For prices on graded peaches, original, in bags, add ⅞c to the bulk basis prices above quoted.

	Per Lb.	
Ungraded, orig. bags	.07⅛	.07⅞
Choice unpld. 1-lb. cart	.08½	.08⅝
Choice unpld. 5-lb. cart.	.08¼	.08⅜
Fancy unpld. 1-lb. cart.	.09¼	.09⅞
Fancy unpld. 5-lb. cart	.09	.09¾
Choice Peeled, 2-lb. cartons		.12
Choice Peeled, 5-lb. cartons		.11¾
Fancy Peeled, 2-lb. cartons		.13¾
Fancy Peeled, 5-lb. cartons		.13¼

The above prices are guaranteed against our own decline to June 1, 1917, and apply only to sales and shipments made direct to the recognized jobbing trade. No goods will be confirmed at above prices to Coast or Eastern brokers, or to speculators, it being our object to eliminate speculation in dried peaches, we preferring to carry our stock in storage here on the Coast until actually required by the jobbing trade.

DRIED FRUITS

Wholesale quotations:

PRUNES—Bulk basis, per lb.: 30s and 40s, 7c; 50s and 60s, 7½c; 70s, 7¾c; 80s, 8c.

Other fruits, 50-lb. bxs:

	Standard	Extra Choice	Extra Choice	Fncy Fncy
Apples	8¾c	9 c	9½c	....
Apricots	16¼c	16⅜c	16½c	17½c
Peaches	6¾c	7⅛c	7½c	8½c 9⅛c
Pears	6¾c	8½c	9½c	11¾c ....

RAISINS—The Growers' Association quotes Fresno f.o.b. prices per box as follows:

Seeded—Fancy, 25-lb. bxs, $1.75; cs, 12s, $3.15; do. 16s, $3.05; choice, 25-lb. bxs, $1.75; cs, 12s, $2.95; do, 16s, $2.90.

Loose Muscatels—50-lb. bxs, 4-crown, $3.75; 3-crown, $3.50; 2-crown, $3.25; 1-crown, $4.

Three-crown layers, $1.50; 4-crown clusters, $1.75; 6-crown clusters, $2.60; bulk layers, 50-lb. bxs, $3.25; do. 100-lb. bxs, $6.25; clusters, in cartons, 20 to cs, $1.85; 12s, $2.20; 4s, $2.35.

NUTS

Jobbers' Prices:

Almonds.—Exchange opening prices: Nonpareil, 19c; Ne Plus Ultra, 17c; IXL, 17½c; Drake. 16c.

Peanuts, Jap, 7@7½c; Eastern...7½@7¾

BEANS

Jobbers' prices, cwt. recleaned:

Limas .....13.00@13.25
Bayous .....8.75@9.00
Garbanzos .....5.00@5.25
Small White .....12.75@13.00
Mexican Red .....8.75@9.00
Large White .....12.75@13.00
Pinks 10.00
Horse Beans .....6.25@6.50
Black Eyes .....7.40@7.65
Red Kidneys 12.00
Cranberry California .....11.00@11.50

HONEY

Jobbers' prices:

Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. .....11@12
Ex. Fy. W. lb.....10c; Lt. A.....8
Beeswax .....30@32

HOPS

Prices to growers at shipping points:

Sacramento .....7@8½
Sonoma .....7½@8½
Mendocino .....7@9
Oregon and Wash., lb. .....6½@8½

RICE

Price to growers:

Cal. Rough, cwt. .....2.50@2.70

HAY

Under date of April 7 Scott, Magner & Miller say:

Receipts past week 1711 tons; last week 2063 tons. Receipts past two weeks quite heavy, much more than for several weeks past.

All holders understand the situation is acute and stocks in country lower than were ever known before at this time of the year. Stockmen from Idaho, Montana and other districts east, have been buying through these districts everything available at extreme prices. Several carloads of poor quality have arrived from Oregon during the week but owing to high prices paid this has been held at prices in line with that asked for our California crop. Our market steadily advanced during the week and we believe will go higher.

Choice wheat hay is today selling at $31 per ton, other grades in proportion. Alfalfa is practically nominal.

We quote the average wholesale price of hay in carload lots on today's market as follows, viz:

Wheat, Fy., lt. bales .....30.50@31.00
Wheat or Wh. and Oat, No. 1.28.50@30.50
Wheat, or Wh. and Oat, No. 2.26.50@28.00
Oats, Choice Tame .....28.00@29.50
Other Tame .....26.00@27.00
Wild .....23.50@27.00
Barley .....25.50@28.00
Alfalfa .....23.00@26.00
Stock Hay .....15.00@16.00
No. 1 Barley Straw .....1.00@1.25

GRAIN

Grain Exchange prices, ctl.

Wheat, California Club .....3.15@3.25
Wheat, No. Bluestem .....3.25@3.30
Corn, California .....2.65@2.75
Corn, Egyptian White .....2.70@2.80
Oats, White Feed .....2.45@2.50
Barley, Feed .....2.50@2.52½

FEEDSTUFFS

Wholesale prices per ton:

Bran .....38.00@39.00
Cornmeal .....55.00@56.00
Cracked Corn .....55.00@56.00
Middlings .....49.00@50.00
Alfalfa Meal, carlots .....26.50@27.50
Shorts .....40.00@41.00

SEEDS

Prices in round lots, lb.:

Millet, recleaned .....3¼@4
Alfalfa .....20@21
Flax .....5@6

Citrus Fruit Market

LOS ANGELES, April 11, 1917.

Off sizes have been rather hard to dispose of and prices have been shaded slightly. Good regular stock is commanding top of the market. Lemons slightly easier.

Shipments

Shipments of oranges from Southern California to date since November 1, 1916, 17,520 cars, lemons 2983, total 20,503; to same date last year, oranges 14,599, lemons 2435, total 17,034. From Central California to date this season, oranges 4055, lemons 164, total 4219; to same date last season, oranges 4243, lemons 146, total 4389. From Northern California this season, oranges 844; last season, oranges 610, lemons 1.

FROM THE AUCTION

April 4

New York: 41 Navels, 3 mixed, 5 lemons. Navels, $1.55@3.45; tang., halves., $1.25@2.00; lemons, $2.10@3.25.

Boston: 21 cars. Navels, $2.25@3.50; lemons, $3.00@3.45; grapefruit, $2.95@3.15; bloods, $1.50@2.40.

St. Louis: 12 cars. Navels, $2.55@3.35; lemons, $2.55@3.20.

WEATHER CONDITIONS

For the Week Ending April 7, 1917

	Rainfall Wk.	Rainfall Season	Rainfall Norm.	Temp. Max.	Temp. Min
Eureka	.88	27.41	39.68	58	40
Red Bluff	.00	16.18	21.90	80	40
Sacramento	.00	12.21	17.43	80	42
San Francisco	.02	15.41	20.00	76	46
San Jose	.01	12.16	15.02	80	36
Fresno	.00	6.86	8.40	84	40
San Luis Obispo	.00	22.41	18.31	86	44
Los Angeles	.00	14.59	14.27	84	46
San Diego	.00	8.76	9.00	80	44

SHAW

Bunch Rake

10 ft. Steel Head
Wheels 5 or 6 ft. high
10 or 14 Teeth

This Rake is made for bunching and for extra heavy work for which the ordinary Rake is useless.

Write for price.

The H. C. SHAW CO.
Stockton - California

HIDES and WOOL ARE WORTH MONEY

Our quotations win customers. See the prices we are paying.
Green salt hides, over 30 pounds, No. 1, 22c; Dry, over 15 pounds, No. 1, 39c.
Send your hides, wool and mohair to us and be assured of a quick return at the very highest market prices.

E. R. SKINNER & CO.
1106 24th Street Sacramento

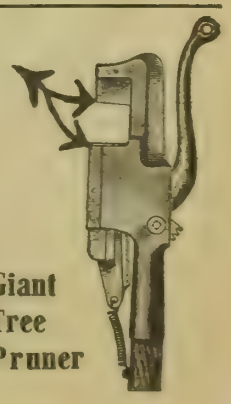
BOTH BLADES CUT

The Scientifically made Giant Tree Pruner

ABSOLUTELY THE BEST EVER PRODUCED

THIS IS WHY Most tree pruners have one cutting edge. The Giant has TWO, running parallel so you are SURE TO GET A CLEAN CUT EVERY TIME with the grain of the wood PRESSED TOGETHER with tree limb uninjured. THE GIANT TREE PRUNER (made in three sizes) will cut any tree limb that the knives will span and will cut it square off, close up or at any angle. Because of the clean job the wound will heal over much quicker than if torn or split. Each knife made of best tempered steel, castings strong and substantial. California orchardists say it is the best they ever saw. Descriptive circular sent on request.

E. L. BOYD, Pacific Coast Representative
DEXTER SUPPLY CO. 1409 S. Hope Street LOS ANGELES



Giant Tree Pruner

Public Sale **Berkshires** Public Sale

Wednesday, May 9, 1917

RIVERSIDE, CALIFORNIA

60 Bred Sows and Gilts

10 Boars - 50 Weanling Pigs

DISSOLUTION OF PARTNERSHIP

Our entire breeding herd of choice, registered Berkshires will be dispersed at public sale. Every animal of breeding age guaranteed a **breeder,** and every animal is **cholera immune.**

An opportunity to secure foundation breeding stock that in breeding, type and quality cannot be surpassed. The offering includes the sows that won for us so royally at the Panama-Pacific International Exposition, and a score of other individuals of outstanding Berkshire quality and breeding.

Remember what we are offering. Remember the date and place. Watch for our next AD. Write for catalogue.

Thatcher, Ennis & Williamson

CALIFORNIA BREEDERS' SALES AND PEDIGREE COMPANY — PUBLIC SALES OF GOOD HEALTH STOCK

20 well bred Heifers and A. R. O. Cows in calf to a 34 pound grandson of King of the Pontiacs.

15 granddaughters of Prince Gelsche Walker, sire of the new 34 pound junior 4 year old California champion.

These are only a part of the choice ones that we will sell for

Rosamond Farm

Stalder Bros.

RIVERSIDE, CALIFORNIA

TUESDAY, MAY 22, 1917

when the total offering will consist of

60 REGISTERED HOLSTEINS

16 REGISTERED PERCHERON STALLIONS, MARES, COLTS.

20 GRADE HOLSTEINS and JERSEY HEIFERS.

This sale is the place to buy top Holsteins and Percherons, and they go at your price, absolutely without reserve or limit.

The offering of registered Holstein bulls is of exceptional quality. It contains:

A son of a 34-pound cow sired by a son of Prince Gelsche Walker out of a 28-pound daughter of a 30-pound cow that held the world's record for milk production for one year.

A son of a 28.91-pound cow sired by the same son of Prince Gelsche Walker as above.

Five sons of a 34-pound sire and out of good dams.

Catalog in preparation. Write for one.

Sale under Management of

California Breeders' Sales and Pedigree Co.

Sales Manager
C. L. Hughes
Sacramento, Cal.

Auctioneer
Col. Ben A. Rhoades
Los Angeles

Cows Fail to Get with Calf

NO REASON "Bacili-Kil" the Liquid Sterilizer WILL PREVENT

B-K Bacili-Kil Trade-Mark

TO SLAUGHTER "Bacili-Kil" the Germ killer BARRENNESS

759 S. Los Angeles St. **O. J. WEBER CO.** Los Angeles, Cal.

SWINE DAY

Continued from Page 447

Twenty-five dollars of the amount the sow brings is to be donated to the California Swine Breeders' Association. The net, after subtracting the above mentioned items, goes to the owner.

JERSEY BREEDERS' ASSOCIATION ORGANIZED AT ORLAND

Written for California Cultivator
By J. M. Roberts

The energetic Jersey breeders of Glenn County have formed a Jersey Breeders' Association at Orland with approximately 50 charter members.

A meeting in charge of J. M. Roberts, field agent in California for the American Jersey Cattle Club, was called on the afternoon of March 17 at Orland. Jersey breeders from all over Northern California were present. Hon. Peter J. Shields of Sacramento gave a splendid address on the history of Jersey cattle and their adaptability to California conditions.

Prof. E. C. Voorhies of the Animal Industry Division of the University of California, also gave an interesting talk on the effect of an organization of breeders on the advertising and selling end of the live stock business. Farm Adviser W. H. Heileman of Glenn County and Deputy State Dairy Inspector Hugh D. Cameron, assured the breeders of their cooperation and congratulated the new organization upon its auspicious start.

The Butte County Spring Exposition was represented at the meeting by Messrs. Eames, Folk and Dencl. Mr. Eames heartily indorsed the movement of the Jersey men and extended an invitation to everyone to come to the big spring fair at Chico, which is to be held in May. Chico's support of the Orland Live Stock Show, to be held next fall, was also promised by the delegation.

N. H. Locke of Lockeford was present. Mr. Locke gave a very interesting talk on the California Jersey, also his reason for being in the Jersey business since 1857.

LIVE STOCK SALES

California Breeders' Sales and Pedigree Company, Dispersal sale, Modesto, April 19, 1917.

D. O. Lively Stock Farm Sale, Hereford Cattle, Mayfield, May 3.

Lake Mills Holstein Breeders' Consignment Sale Co., Lake Mills, Wisconsin, May 8 and 9, 1917.

Thatcher, Ennis & Williamson —Dissolution of partnership Berkshire Sale. Riverside, May 9, 1917.

California Breeders Sales and Pedigree Co.—Willowwood herd registered Jerseys of C. G. McFarland, Tulare, May 17.

California Breeders Sales and Pedigree Co.—Holsteins, Jerseys, Percherons. Rosamond Farms, Stalder Bros., Riverside May 22.

California Breeders Sales and Pedigree Co.—20 registered Holstein bulls, Chico, May 24, 1917.

California Breeders Sales and Pedigree Co.—180 registered Holsteins, University Farm, Davis, first week in June. Date to be announced later.

Succulence greatly increases the efficiency of the cow's ration; consequently root crops or corn ensilage should form a predominating factor in making up her winter rations. The benefit from root crops and corn ensilage comes mainly through the favorable effect on the cow's system.

The record of the cost of feed is just as important as the record of milk and butterfat produced. Frequently the cow with the big feed bill is the cow that makes the most profit.

Cows Fail to Get With Calf

No Reason to Slaughter

Hundreds of perfectly good cows go to the butcher's block every year because of failure to get with calf. There the valuable full-blood brings just as few cents per pound on the hoof as the orneriest scrub.

Most of this slaughter is unnecessary. The apparent barrenness can be prevented—the cows saved to continually produce good profits in healthy calves and milk. But the longer they are allowed to go without getting with calf, the less chance there is of successful breeding.

Barrenness or Sterility, like Abortion, Retention of After-birth and Premature Birth, is nearly always caused by infection of the reproductive organs by the germs of Contagious Abortion, etc. Unless this infection is promptly overcome by the use of a powerful but safe antiseptic, it may permanently affect the reproductive organs so that the cow will continually fail to stick.

Every time a cow drops a calf—whether alive or dead—by premature birth or aborting,, whether the after-birth is retained or not, her reproductive organs should be flushed out. At this time the disinfecting solution can be injected clear up into the uterus, infection will be prevented and success at the next breeding made reasonably certain. Heifers or cows that fail to get with calf, will usually "stick" after a short treatment of this kind.

This treatment can only be successful through the use of a safe, non-irritating disinfectant with great germicidal and antiseptic qualities. Used as a douche, the powerful germicide Bacili-Kil (commonly called B-K) dissolves the slimy albuminous matter in uterus, destroys the disease germs, brings the after-birth, kills the bad odors, heals the tissues, leaves everything in a clean, natural, healthy condition.

B-K is scientifically correct for this work. It does not irritate, but is soothing and healing to the torn membranes and does not cause straining. Other germicides such as carbolic acid, cresol, iodine, etc., tend to irritate, do not dissolve the slimy albumins, but tend to coagulate or thicken them, thereby preventing destruction of the germs and cleansing of the tissues.

The remarkable germ-killing strength of B-K is plainly marked and guaranteed on every package. B-K contains no poison, acid nor oil. It is safe and clean and easy to use. B-K may be used freely in the drinking water, helping to destroy germs which accumulate in tanks, also helping to disinfect mouths, throats, and digestive tracts.

B-K is handy. You have in one jug ready for use by just mixing with water, your treatment for cows, bulls and calves; also the cleanest, safest and best disinfectant you can possibly have for general use. No special mixing of various ingredients—saves trouble and mistakes, insures promptness, accuracy, convenience and successful results.

Leading breeders throughout the country bear ample testimony to the valuable aid they have received in using B-K in treating barrenness and similar ailments among their cows. One breeder says: "I want B-K for I know that it is doing me good. Cows that have been barren for more than a year getting with calf; two good strong full-time calves and four cows that are due next month that have every appearance of going full time. Had already lost seventeen calves by Abortion and Calf Scours."

B-K is sold by dairy and farm supply houses, druggists, general stores, etc., everywhere. If your dealer does not have it, send us his name.

Write for additional testimony from users, and the reasons why B-K is so uniformly successful in this work. Send for bulletin No. 52, "Contagious Abortion —Prevention and Control." Bulletin No. 136, "How to Save Every Calf."

CLEAR and CLEAN as WATER

Awarded Gold Medal at the Pan.-Pac.-Expo.

GENERAL LABORATORIES

3103 So. Dickinson St., Madison, Wis.

B-K · B-K · B-K · B-K · B-K · B-K · B-K

Boys and Girls Send in Your Names!

WE GIVE AWAY SHETLAND PONIES

This is the Easiest and Best way to get one. Any Reader may send in the name of any boy or girl.

The Best Pet and Playmate any Child Can Have

Wouldn't you like to have us send you a fine pony like this?

Just the Prize Every Boy and Girl Wants Most

How to Get a Shetland Pony

The California Cultivator, the big agricultural and live stock weekly of California, is going to give away some more Shetland ponies, and you might just as well have one as anybody. Send in your name and address today so we can tell you all about it. It costs no money to enter or take part. Already the Pony Man has given away 151 Shetland ponies to boys and girls for doing a little work that you or any boy or girl can easily do during spare time. Many other boys and girls say it is easy, and I believe you will say it is too.

These Shetlands we give away are fine, valuable little horses, all trained for children to ride and drive. Read the letters we are printing and see what the other boys and girls say who have won our prize ponies.

A Shetland pony is the nicest pet and playmate any child can have. They are fine to ride and drive to school for they are perfectly safe and by nature are great pets and very strong, useful animals, too. Many boys and girls who have to walk to school have sent to California Cultivator for a Shetland pony.

The Pony Man had never heard of any of these other boys or girls until they sent him their names and addresses so he could write and tell them how to go ahead.

Three more fine Shetlands and outfits will be given away Thursday, May 31, 1917, to boys and girls who do some work for us that will be easy to do. The sooner you send in your name the sooner you can get started.

Each Pony Is Gentle and Broken to Ride and Drive

These Ponies Are Fine to Ride to School

A PRIZE FOR EVERY BOY AND GIRL

And here is another important point. If you send us your name and address at once you will be entitled to take part in the Extra Prize Awards and you can sure earn a fine camera and gold watch or other valuable prize. You cannot lose, everyone taking part will receive a prize or cash for the work done.

"King," a beautiful young Shetland and pretty outfit consisting of a fine four-wheeled pony runabout and nickel mounted leather pony harness is the first prize, and that is the one you want and you might just as well have "King" as anybody. Send us your name and address right away so you can get started at once and get a pony for yourself. Besides "King" we are going to give away two other fine Shetlands, "Stepper" and "Beauty", and a pretty saddle outfit with each one. As soon as we hear from you we will send you pictures of other boys and girls and the ponies they got and tell you how to go ahead. If you already have a pony and know some other boy and girl who would like to have one, please tell them about these ponies we are going to give away.

DELIGHTED WITH THEIR PONIES

I have already given away 151 Shetland ponies and pony rigs to boys and girls and if you haven't a pony now is your time to get one. You will be just as well pleased as the others. I have not the space here to print all the nice letters the boys and girls have written me, but I will send many more when I hear from you. Some have been offered $200 for their ponies and outfits, and would not accept it, so you see these are valuable prizes we give away.

Rialto, Cal., December 27, 1916.

Pony Man, California Cultivator.

I take pleasure this morning in writing you a few lines for Percy, thanking you for the nice prizes he received. He certainly was delighted with them. If the other contestants were as pleased as Percy they certainly were a happy lot on Christmas morning. Yours truly,

MRS. W. F. FOWLER.

WAS OFFERED $200 FOR HIS PONY AND OUTFIT

Here is a letter from Earl Frederick, who won first prize pony and outfit about a year ago. He was offered $200 for his prize, but would not sell it. "King" and his pretty outfit are just as nice as Earl's pony and outfit. Here is Earl's letter:

"Dear Pony Man: I received 'Bingo' and the buggy and harness which I was fortunate enough to win, and I am well pleased, as it is a better outfit than I really expected. I have been offered $200 for it, but of course it is not for sale. I want to thank you for it and advise any boy who wants a Shetland pony to enter and work and earn one, for it is sure a pleasure to ride or drive a pony like the one I got. I will have my picture taken with the outfit and send you one. Again thanking you, I remain, your friend,

EARL FREDERICK."

Marina, Cal., January 14, 1917.

Dear Pony Man:

I am very much pleased with my watch. It keeps accurate time. I have only had to set the hands once. I feel very well rewarded with it for the little work I did for you. I feel as though I have not done enough for you. I would like to enter any other campaign that you have, so please let me know about it.

Very truly,
THOMAS SAMUELS.

Sacramento, Cal., February 12, 1917.

California Cultivator, Los Angeles.

Dear Sirs—I wish to thank you very much for the way in which you conducted the recent campaign in which I took part. Your paper is very well known throughout the country which makes soliciting much easier and encourages one to work harder. The system you have in keeping the contestants informed as to their standing could not be improved upon.

I worked as hard as I knew how and although I was not fortunate enough to carry off the first prize I am very well satisfied with the second, which at present I would hate very much to part with.

The pony is just great. I am growing more fond of her every day and she is as gentle as a kitten. So far I have been riding her but as she either drives or rides I intend to get a small cart so that I may give some of my interested friends a ride.

Again thanking you for your kind treatment during the contest and dandy pony and saddle I received, I remain Yours very truly,

JACK HENDERSON.

TAUGHT HIS PONY TRICKS

"I am sending you a picture of myself and 'Colonel' and his outfit. I was sure glad to get him, for I think him peaches and cream. He drives fine and I ride him also. He will lie down, shake hands, jump over a stick, stand on his hind legs, and try to do most anything I tell him. He seems to understand what I say. Again thanking you for 'Colonel' and outfit, also those who took the paper, I remain, "ELMER LINDSAY."

WINNERS OF OTHER PONIES RECENTLY GIVEN AWAY

Beulah DeWitt, Ventura County.
Raymond Moyer, Riverside County.
Margaret Rae, San Bernardino County.
Marguerite Rinn, Sacramento County.
Gertrude Fawcett, San Joaquin County.

WINNERS OF PONIES GIVEN AWAY MARCH 24, 1917

Earl McAllister, Kern County.
Torance G. Spike, Jr., Fresno County.
Verna Cole, Ventura County.

Sign This Blank and Mail Today:

Pony Man, California Cultivator,
115-117 North Broadway, Los Angeles.

Please tell me how I can become the owner of one of the Shetland or Hungarian ponies you are going to give away.

My Name .....

My Address .....

R. F. D. or St. Address..... State.....

My Father's or Mother's Name.....

(BE SURE AND FILL THIS BLANK OUT COMPLETELY AND CAREFULLY AND MAIL TO THE ABOVE ADDRESS.)

Address All Communications to
THE PONY MAN, CALIFORNIA CULTIVATOR
115-117 No. Broadway, Los Angeles, Calif.

Both Purebreds!

Breeders of Purebred Stock Appreciate

J.M. ROSE

FISK Non-Skid TIRES

They have the stamina, the strength and the endurance of blooded stock. Our long experience in tire making enables us to build Fisk Tires with a pedigree and get those qualities which stand for real dollar-for-dollar value to the man who buys them. ***Fisk Tires are purebred tires.***

Every user knows it and knows too that there is no greater tire value on the market.

Buy at least one—compare the value you get in Fisk with any other make of tire—thousands of Fisk buyers began to use Fisk by making that dollar-for-dollar comparison, and they are using Fisk today.

"When you pay more than Fisk prices you pay for something that does not exist"—that's something to remember when buying tires.

A special feature of Fisk Tire Value is the policy of Free Service through Fisk Branches in more than 125 principal cities throughout the country. There are Fisk Branches in your State, where your home dealer buys direct and is always sure of promptest attention to your wants. And when the Branch is convenient you can go there any time, *whether you use Fisk Tires or not,* and make use of the only uniform and complete Free Tire Service in the country. There is no charge at any time except for supplies and actual repairs. Take the first opportunity to get acquainted with *Fisk Service,* Fisk Organization, Fisk Methods and Fisk Products.

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CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES April 21, 1917 SAN FRANCISCO

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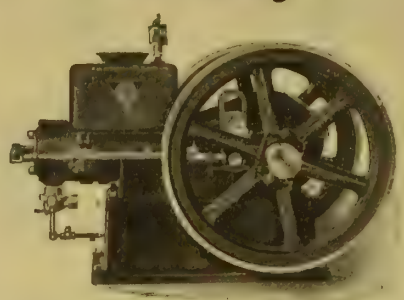
Ventura County Lima Bean Field

The Best Gas Engine to Buy

ALPHA



WHEN selecting a gas engine, the most important thing is to get a good engine. There is no economy in buying an engine that is going to require frequent repairs and that is likely to balk just at the time you need most to use it.

The wise man considers service, reliability and durability first, and price second. Selected on this basis, the ALPHA is the logical engine to choose, because it is the simplest and most durable in construction and the most reliable in operation. It runs smoothly and powerfully on a minimum consumption of either gasoline or kerosene, and operates on a simple magneto without the use of any batteries.

It is so simple that a woman or a boy can start and operate it, and the sensitive governor, which acts the instant there is the slightest variation in the load, insures steady running without any waste of fuel.

Before you put any money into a gas engine, investigate the ALPHA—and remember that the man who buys the best is never sorry.

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"The Old Lines"

EVERYBODY speaks of them as "the old lines," many perhaps without realizing how thoroughly new and up to date are all these **Champion, Deering, McCormick, Milwaukee, Osborne** and **Plano** mowers, rakes and tedders. What really good improvement was ever made in haying machines that did not show itself first on one of these machines? Where can you find mowers, rakes, or tedders that need so little adjustment, so few repairs, or that are so easy to repair when they do need it? Nowhere. These old standard machines, known to farmers for three quarters of a century, can still be depended upon to get in all the hay from any field and to make the work light for the farmer.

When you need a mower, rake, or tedder, see the local dealers who handle the **International Harvester** lines. We can remind you here that our machines have always done good work, but the dealer can show you why they still do it. You will find that the local dealer has just the size and style you need. Buy from him.

International Harvester Company of America

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Nurserymen save time and money by using P. S. C. Rosin Spray for dipping nursery stock. For sale at the best seed stores and nurseries.

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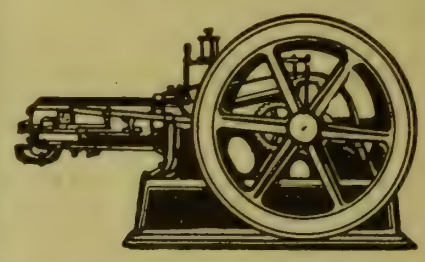

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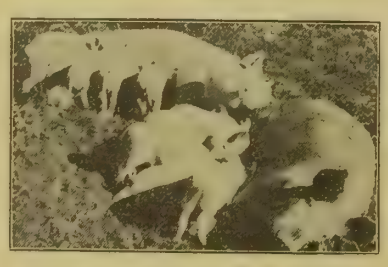

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California Cultivator

Vol. XLVIII No. 16 LOS ANGELES: April 21, 1917 One Dollar Yearly

Great Opportunity for Bean Producers

California Called Upon to Produce Food as Never Before. Stick to Staples. Beans Offer Great Opportunity. Millions of Sacks Already Produced Should be Doubled This Year. Planting Information.

OVERENTHUSIASTIC people, appreciating the situation confronting the United States and the world, say "Plant everything everywhere", but in planting as well as fighting there is need for keeping cool-headed. Plant intelligently and plant with an idea of continuing with the game until harvest. Hundreds of acres will be planted to crops which will never be harvested with any profit, but let Cultivator readers consider "Why? What? Where? When?"

Beans will give a great supply of food which will in part make up for the shortage of winter wheat which now appears probable. Spring wheat planting will be large but we need more beans.

In planting beans, don't plant Limas on the desert nor Teparies in the ocean. So pardon some of the simplest elementary points in bean culture, for there are many of us who need these elementary lessons.

Variety and Locality

First, as to locality and varieties, let us quote a bit from "Bean Culture in California", written for Cultivator readers by Geo. W. Hendry and given in our issue of May 13, 1915. The principal commercial varieties in this state are Limas, Pinks, Large Whites, Blackeyes, Bayous, Small Whites and Teparies. The Lima is sensitive to frost, demands more or less humidity, and will not stand hot, drying winds. Plant near the ocean. Pinks are grown more or less in all sections of California and will stand a degree of drouth and heat. Large Whites, Sacramento and San Joaquin delta sections, unproductive under heat and drouth. Mexican Reds are fairly successful in interior valleys. Blackeyes, a cow pea and different botanically from the other beans, grown in valleys both interior and nearer the ocean, will stand more heat and drouth than Pinks, used as summer green manure crop. Bayous not grown extensively, mostly near banks of San Joaquin and Sacramento Rivers. Small White will not stand heat and drouth, cool, humid climate necessary to best development, grown in Monterey, San Luis Obispo and Santa Barbara Counties. Teparies developed by the Arizona experiment station, grown for centuries by Indians under hot desert conditions, Rather poorly received in market when first introduced, the past year have sold at long prices. The Mexican Pinto is a new variety which stands drouth, grown most successfully at attitudes of 4500 to 5000 feet.

Soil Preparation

Soil usually preferred by the bean is the loam type, but fairly good success is secured on adobe. Sandy soil may answer. This depends, however, upon the subsoil conditions.

While planting is in the springtime, preparation of the seedbed should begin in the fall. Deep plowing, at least eight inches deep, thorough harrowing and conserving every drop of moisture that has fallen will be a great aid in securing a big crop at lowest cost. If such preparation has not been made, great care in securing a perfect seed bed will now be necessary. Plow deeply and harrow until a perfect dust mulch is secured. If the late plowing is done use sub-surface packer or in some way pack the soil so that it will hold every drop of moisture. After settling the soil go over the field two or three times with the heavy harrow and after the lightest rain harrow again.

Seed Per Acre

This table and some of the other facts following are taken from "Bean Culture" by V. C. Bryant of the state experiment station.

The first column shows pounds of seed to plant per acre where there is a minimum amount of moisture to produce crop, the second when abundant and the last column average.

Characteristic Bean Leaves

The upper narrow pointed leaf is that of the Tepary. The stems are very short. Evaporation reduced to the minimum. Heat and drouth resistance great. Lower leaf of ordinary bean vastly greater evaporating surface.

	Lbs.	Lbs.	Lbs.
Tepary	7	18	10 to 12
Small White	8	20	12 to 15
Blackeyes	12	25	18 to 20
Pinks	15	30	20 to 22
Mexican Red	15	30	20 to 22
Large White	15	30	20 to 22
Lady Washingtons	15	30	20 to 22
Cranberries	18	35	22 to 25
Bayou	20	35	27 to 30
Red Kidney	20	40	30 to 32
Limas	..	..	50 to 60

Planting

Rows 30 to 36 inches. Plants in row six to eight inches. There are regular bean planters or a grain drill may be adapted. If an 11-row grain drill with seven inches between tubes is used fit it by plugging all the cups except the second, sixth and tenth. This spaces rows 28 inches. The depth depends upon soil, as an average, an inch and a half of moist earth over the seed which with deep dust mulch provides for a depth of three inches from the surface. Bear in mind this depends on character and condition of soil.

Time of Planting

In the interior valleys plant the crop at such a time that it will not blossom during the extremely hot summer months. If blossoms appear at this time the hot wind will "blight" them so that the beans will not "set." If beans are planted as late as the last of May or the first of June they will usually bloom late enough to avoid this trouble. The exception is where the Tepary is grown in some of the dryer localities. In this case it is necessary to plant earlier to make use of rainfall. Along the coast and in the delta areas some time during the month of May is usually the best time to plant.

In the interior valleys where irrigation water is available beans can be successfully grown as a second crop. In this case the land should be irrigated and the seedbed thoroughly prepared as outlined above. This work should be rushed so that the beans can be planted by July 1.

Cultivation

Conserve moisture by surface mulch two or three inches deep by an occasional cultivation. Cultivate no deeper than is desirable to have the surface mulch. Deeper cultivation produces excessive drying by exposing the moist soil from below and will also disturb surface roots. Thorough shallow cultivation should be given every two or three weeks until the beans begin to "set".

Irrigation

Beans should receive very little irrigation. Plenty of moisture should be stored within the soil before planting and a surface mulch maintained in order to hold it. Where grown as a second crop, or where the soil dries out before a seedbed is formed a thorough irrigation should be given and the mulch established before planting. It will not be necessary to irrigate the growing crop, except on very light, sandy soil. If irrigation is necessary thoroughly cultivate after. Many fine looking fields fail to set beans because they have been irrigated too much and cultivated too little.

Insects

Bean weevil appears in midsummer and enters the bean while green. They remain within the beans during harvesting and threshing and continue to breed and reproduce within the stored beans. If the beans are planted late the trouble will be somewhat avoided, as the adult insect will have to deposit her eggs elsewhere before the bean pods have developed. Fumigate with carbon bisulphide at the time the beans are stored, and if treated in this manner very little damage will result. Other insects are the black and green aphids, red spiders, thrips and wire worms. The aphids can be avoided by planting late, as they do their work in the early part of the season. The red spider can be controlled by dusting with dry or spraying with atomic sulphur. There is no practical control for the thrips; it is one of the chances that the bean grower has to take. Wire worms begin by attacking the seed and continue working on the growing plant. For the wire worm apply 1000 pounds of freshly air-slaked lime per acre.

Cost of Production

This will be higher than usual this year. Seed is extremely high and the figures below, considering former prices, are only to give a basis for figuring approximately the cost per acre: Plowing $2.00, sub-surface packing and fining soil $1.40, seed $1.00, seeding 35 cents, three cultivations $1.50, hoeing $1.00, harvesting $1.00, threshing at 25 cents per cwt. (probably too low) $2.75, sacks and cleaning $1.60, total $12.60. This is for the smaller beans; Limas cost per acre probably around $20. In addition there is irrigation, if needed, cost depending upon locality. Average yield per acre one-half ton or 1200 pounds.

NOTES

Get Good Seed—Where one can secure cheaply enough possibly seed which was weevil-infested but which has been treated may answer. It must be planted much thicker than good seed, however, and labor is too expensive to run any chance this year.

With Limas seed of several different strains are grown and these each have their friends. The kind which is known to be adapted to the section will do best.

A liberal supply of sulphur will prevent mildew and possibly do much good.

Inoculate seed, that is, if the soil needs it. Soil which has grown successful crops of beans, alfalfa soils, or almost any soil rich in humus will probably not require inoculation in order to secure successful bean crops, but where one is planting under desert conditions or in places where leguminous crops have not been produced crops will be materially increased by inoculation with nitrifying bacterial cultures. This may be done by using soils known to be inoculated or, far simpler, by the use of cultures which now may be purchased of almost any seed concern. Full directions for using these cultures are given by the dealers.

Harvest is several months off but some who would plant beans have said "There is no thresher near." But even in some of the most successful bean growing sections the old pioneer way of "tramping" out the beans is still followed when necessary. With

Continued on Page 465

Threshing Ventura County Lima Beans

DUNHAM
CULTI-PACKER
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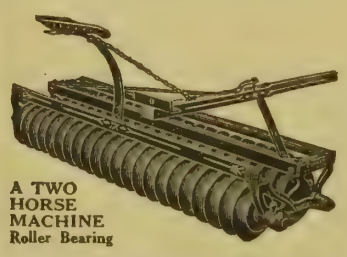
Saves Moisture

The Culti-Packer does every one of the three things necessary to save moisture in dry seasons—it pulverizes the soil, firms out all large air spaces and stirs the surface to form a mulch.

If you want to beat the drought, Culti-Pack your fields after plowing, then again after seeding to firm the soil about the seed, and finally use the Culti-Packer on the wheat, corn, oats, etc., until it begins to joint.

Order a Culti-Packer from your John Deere dealer before the dry weather sets in.

Showing how rear wheels split the ridges left by front wheels thus forming a mulch.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FREE BOOK "Soil Sense"

Tells how the Culti-Packer is used for saving moisture and for nine other important farm jobs. 48 pages, 100 soil photographs.

Ask any Deere Dealer or write us direct.

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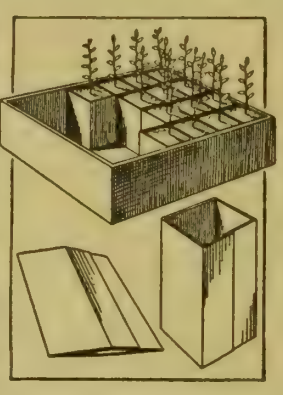
that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.



Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour.

For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus and Conifers. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.

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If it did not cost so much to produce our trees, we could sell them at competitive prices with other nurseries,—why, our methods of selecting our budwood alone would sell our stock. We have had over 20 years' experience in Citrus Trees, and were among the first to advocate bud selection from fruit-bearing wood. The price of the tree is the smallest item in the cost of bringing into bearing. Fertilizer, labor, investment tied up in land—these are the big factors that go to pot if, years after the trees are planted, the grove bears miscellaneous offspring.

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Santa Ana Compounding Co.
908 West Fifth Street Santa Ana, Cal.

Oroville Grower Explains Method of Pruning Young Olive Trees

By C. L. Chaffin in The Olive Grower

MOST growers will have finished pruning their young olives by the first of February, but it is not too early to consider the plan or method to be used next season.

One-Year-Old Trees

When the trees were set out they were headed back to one main stem 20 inches above the ground. Twelve-inch tree protectors were put on so that the new growth came out on the upper ten inches. These new shoots, which are to form the laterals, were thinned out at the end of the first year's growth. From three to five were left to form the main laterals, these being spaced as far apart as possible. In no case were these headed back, i. e., the ends clipped back. Heading back a vigorous growing olive tree by a method similar to that practiced with certain deciduous fruit trees does not make it more stocky but hinders its development. The olive tree, which makes a strong vegetative growth of say four feet in one year, will tend to reduce its growth the following season. It does not need to be cut back but, if left alone, will usually check itself; whereas if vigorously cut back it may be forced to throw out more vegetative growth to regain its balance, thus defeating the very object for which the heading back is done.

Thus for the first year we have from three to five laterals well spaced between ten inches and 20 inches above the ground. These laterals are not cut back nor are the small branches thinned out.

When the trees are pruned this way the first year, the second, third and fourth years the pruning is very simple. It is only necessary to remove the cross limbs and crooked or broken branches. In some cases it may be advisable to thin out a few small limbs. The main laterals should always be kept in mind, pruning each year to keep them straight, properly spaced, and growing in the proper direction to make a strong, open, symmetrical goblet-shaped tree.

The real injuries which result from clipping back the main laterals are, (1) It causes a crooked lateral, for the branches in an olive tree come at right angles to the main branch. Crooked laterals check sap flow and cause many suckers to grow. (2) It removes part of the foliage which is very much needed to strengthen and extend the root system. (3) It causes the laterals to be weak, due to several right angle turns and it makes a bad appearance, thus reflecting discredit upon the orchardist.

It has been our practice to leave as much of the foliage as possible on the trees. The olive, being an evergreen tree and some of the leaves remaining on the tree for three years, needs all the foliage possible in order to make the fastest growth.

Each year any trees that may have been blown over or do not stand straight should be straightened and tied to stakes. One-year-old trees, which should be over three-quarters of an inch in diameter when planted, very seldom blow over. If they are properly staked when two or three years old, they probably will not need staking after four unless the ground gets very soft and the wind unusually strong.

The writer has recently completed the job of pruning and staking 350 acres of young olives near Oroville. A map was made of each block showing the individual trees and indicating their present size and condition, An accurate account was kept of the materials and time required for this work, and at the current rate paid for labor the cost was as follows: One year trees, 60 acres cost 45 cents per acre; two year trees, 50 acres cost 50 cents per acre; three year trees, 150 acres cost 55 cents per acre; four year trees, 60 acres cost 65 cents per acre; five year trees, 30 acres cost 70 cents per acre.

The average cost per acre for pruning, staking and mapping the 350 acres was 52 cents.

The Ideal Walnut

IN a discussion as to the walnut and its culture L. D. Bachelor of the experiment station staff at Riverside gives as his idea of the ideal:

"Before taking up a discussion of the merits of our present day varieties of walnuts, it will be well to consider the characteristics which may be looked for in a so-called 'ideal variety.' It is not to be expected that an ideal or perfect variety of walnut will ever be found any more than a perfect apple, a perfect orange or a perfect man. An ideal is necessary, however, as a guide in any progressive undertaking, and the more nearly we approach such an ideal, the greater our success.

"Heavy production is the first and most important quality. A fancy market nut may be unprofitable if the tree is a light producer. The average production for the state is less than 1000 pounds per acre, amounting to about 50 pounds per tree. This low yield is due in part to the wide variation among our seedling trees. Certain trees in a grove may produce as high as 200 pounds, while others may average less than 20 pounds. Since individual mature grove trees produce as high as 200 pounds of nuts as a yearly average, this figure should not be considered as too high a standard to set. Many solitary trees with plenty of room for top and root development will exceed this standard nearly 100 per cent. Due observance should be made, however, that such trees usually experience ideal environmental conditions for the development of the one individual, while trees in a grove are keenly competing with each other for sunlight and moisture.

"Precociousness or ability to reach profitable bearing at an early age is a desirable character in any fruit if this tendency does not impair the future usefulness of the tree. Whereas the 'prolific' variety will possibly average 30 pounds of nuts per tree the fourth year, most varieties now grown will fall short of this standard about 50 per cent.

"The character of the nuts of varieties and seedling trees varies widely and may make a difference of nearly 100 per cent in the selling price. Commercial seedling nuts are graded in three sizes, namely: the second grade includes nuts which will pass through a square hole 1 1-32 of an inch in diameter; the first grade will not pass through the 1 1-32-inch hole but will drop through a 1 3-8-inch square opening; a third grade includes all nuts known as the Jumbo grade. By far the greatest commercial demand is for the medium sized or first grade nut. Regardless of size, the nuts should be uniform in shape and relatively smooth, presenting the appearance of standardized product. This is not possible with seedling trees for although this product is graded strictly for size, the nuts vary in shape to a considerable extent. Of course these last two points, uniformity and smoothness, are simply market fancies, but there is a commercial premium of three or four cents per pound on them nevertheless. The color of the shell is of minor importance as the bleaching process makes up for a deficiency in this regard. The shell should be of medium thickness and well sealed so it will pass through the packing house machinery without injury, and yet it should be easily cracked with a small nut cracker. The very thin shelled varieties are apt to crack open during the harvesting processes, becoming contaminated and spoil in storage. They are also more apt to be injured by sunburn and perforation than the thick shelled sorts. The meat should crack out whole. It should be plump, light colored, filled out evenly, pleasant flavored and should compose about 50 per cent of the total weight of the nut. There is very little stress laid on quality ac-

cording to the present commercial grading so long as the nut is not actually bitter; however, as the named varieties become better known and sold under their true names the public is certain to put a premium on good quality as they do with food stuffs. There is a decided antipathy at present for the dark kerneled nuts and better prices are realized for the light meated varieties when other characters are at all equal.

"The blooming season of the different varieties may have considerable bearing on their adaptation to certain localities. The French varieties, as the Franquette, and Mayette; and the Eureka are from one to two months later than the soft shell seedlings in starting growth in the spring. The factor of lateness may avoid frosts and make such varieties preferable for the cooler sections. It seems to be a matter of observation that the late blooming varieties also avoid blight infection to some degree during most seasons; while the early varieties often encounter damp weather which is favorable to the spread of this disease. The tendency for the variety to either avoid or resist the blight is a very important considerations. Whereas no perfectly immune variety has ever been discovered, nevertheless a varying amount of injury is a matter of common observation in studying the several varieties now being propagated.

"A consideration of the adaptation of varieties to the various soil and climatic conditions of the state is of prime importance in choosing the sort for one's local conditions. Although the French types are successfully grown in Central and Northern California and in Oregon, they are a total failure in the chief walnut sections of the South. Even greater sensitiveness to environment may be observed in comparing the behavior of the Franquette and Eureka grown in Santa Clara and San Joaquin Valleys. The Franquette seems to be adapted to conditions found in the Santa Clara Valley whereas the Eureka thrives best in the San Joaquin Valley. Certain varieties may endure the adversity of a light sandy soil much better than their surrounding neighbors. The densely foliated sorts should withstand to a greater degree than the sparsely leaved ones, the high temperature and low humidity of the inland valleys; sunburning of the twigs, trunks and nuts is a serious factor to be contended with in such localities. As our knowledge of varieties increases everything points to an eventual production of a greater number of varieties, each of which will be especially adapted to a particular soil and climatic condition. In selecting varieties for the new sections, a thorough study should be made of the few trees of the locality and the behavior of varieties to the various soil and climatic conditions."

DATE SET FOR UNIVERSITY FARM PICNIC

One of the biggest agricultural events in the state, "Picnic Day" at the university farm, Davis, has been set for next Saturday, April 28. This event has grown from a mere picnic under the trees to a gathering at which last year 15,000 people were present and 2800 automobiles were accommodated.

Picnic Day is managed by the students at the university farm and consists of exhibits, lectures and demonstrations by the divisions of the experiment station, stock judging contest, athletic contests, speeches by prominent Californians, and a parade featuring floats of an ornamental and humorous nature, and some of the finest live stock in the state.

The lectures and demonstrations of the divisions will be of such nature that a great deal of information can be obtained in a short time concerning hog feeding, truck gardening, poultry raising or other branches of agriculture.

Members of the faculty and student guides will be on hand at all times to answer questions and give information.

Accommodations will be arranged for 30,000 people, and will include a guide service to conduct parties around the farm; a free checking station and information bureau. A playground will be made where small children can be left in competent charge, and coffee and cream will be served to those bringing their own lunches.

BE ON YOUR GUARD

RED SPIDER and MILDEW are active NOW. Every bit of your crop will be needed this year. Are you doing all you can to save it?

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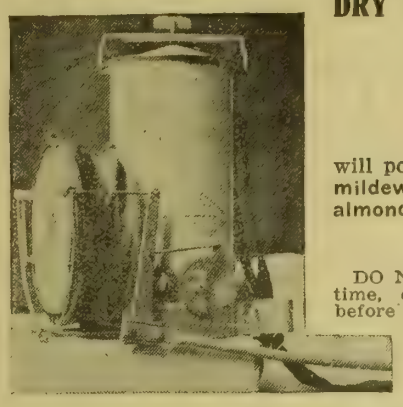

will positively destroy red spider, mite, and mildew on vines and trees—grape, prune, almond, citrus fruits, etc.

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DO NOT let your red spiders multiply. Save time, expense, and fruit by "getting them" before they "get you." Do you know how much damage they cause in your groves? Dust now. Get an American Beauty at once. The best dust sprayer that money can buy.

For sale by all progressive dealers. If your dealer can not supply you, send us $11.00 for a vineyard size, or $13.50 for an orchard size machine, and we will send you an AMERICAN BEAUTY DUST SPRAYER, all charges paid. Try it a week. If it is not entirely satisfactory, return it at our expense, and we will cheerfully refund your money. Send for circular and price list today.

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Mixed farming as profitable an industry as grain raising. The excellent grasses full of nutrition are the only food required for beef or dairy purposes. Good schools, churches, markets convenient, climate excellent.

Military service is not compulsory in Canada, but there is an extra demand for farm labor to replace the many young men who have volunteered for the war. The Government is urging farmers to put extra acreage into grain. Write for literature and particulars as to reduced railway rates to Supt. of Immigration, Ottawa, Canada, or

Gilbert Roche, San Diego, Cal. — Canadian Government Exhibit, Canadian Gov't Agt.

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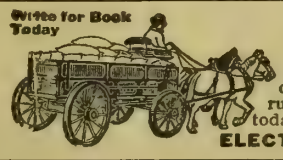

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The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, April 21, 1917

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

The magnitude of the bean industry is impressed at least to a small degree by the photograph on the cover page and by the illustrations of plowing on Page 464. In the matter of Lima beans a very small section of Southern California produces more than any other similar amount of land in the world, and our reputation is world wide. In Small Whites thousands of tons go to Boston and often come back to California in cans. This year's production will probably be greater than any previous year's. Hence we take pleasure in talking for more and better beans in this week's Cultivator. This is no year for new varieties. Stick to the staples. Produce more and better.

EFFICIENCY

Touching one point which we made on this page last week:

Labor is going to be scarce and high. Every farmer should fortify himself by supplying his ranch with the latest labor saving machinery and equipment. Right now is the time for you, Mr. Farmer, to push your production to the limit. Use every means at your command to bring into use all the labor saving machinery you can possibly use. It will be dollars in your pocket.

Labor saving implements of every form should be brought into action. Where a tractor will save one or two men it will justify a material investment. Cultivators which will work two or three rows of beans, beets or other product should be used instead of one-row cultivators. Instead of planting with the hoe use planter or drill.

It costs money to equip, but it takes equipment to make money. This is the year when patriotism and profit both demand efficiency.

MORE LABORERS

While highest efficiency demands fullest preparation, it is very probable that the labor situation will not be so serious as anticipated by many.

The Farmers' Protective League is urging the passage of a bill empowering the governor to increase summer vacation period in all schools and colleges to enable pupils to aid in farm work. Already in Los Angeles the upper classes of the high schools have been excused to aid in sugar beet thinning. This will not afford hardened ranch labor, but at the same time it will give, as a rule, a most effective force, if properly directed. Again, as on former occasions, it is very probable that clerks and others may be excused in time of stress to aid in the harvesting campaign.

Effort is now being made to perfect a systematic organization or group of organizations which may be able to distribute and aid this type of labor.

THE STATE COUNCIL

The California State Council for Defense, which was recently appointed by Governor Stephens, announces a survey of California for a food mobilization campaign. In the endeavor to spread the gospel of greater production the council has appointed meetings for various sections of the state. These will be held during the present week and continue through the next. Addresses are being made on methods of work, and farmers are being shown the necessity for highest production.

PATRIOTIC RESPONSIBILITY

Secretary Houston wires under date of April 15 to Cultivator readers:

"I desire to call your attention to president's appeal to the nation appearing Monday morning. Hope you can display it in full, emphasizing in full the parts addressed to farmers. Your cooperation will be appreciated."

The president says:

"My fellow countrymen:

"The entrance of our beloved country into the grim and terrible war for democracy and human rights which has shaken the world, creates so many problems of national life and action which call for immediate consideration and settlement but I hope you will permit me to address to you a few words of earnest counsel and appeal with regard to them."

The president then refers to the army and navy both being forced into preparation for the great task before them. "There is not a single selfish element, so far as I know, in the cause we are fighting for." "We are fighting for the rights of mankind and for the future peace and security of the world." "To do this great thing worthily and successfully we must devote ourselves to service without regard to profit and with energy and intelligence." "Besides fighting, these, then, are the things we must do:

"We must supply abundant food for ourselves and the army and for the nations with whom we have made common cause.

"We must build ships.

"We must mine coal.

"We must improve railways.

"We must develop to the limit every industry.

"Above all, to the farmers:

"The supreme need of our own nation and of the nations with which we are cooperating for an abundance of supply, especially for the present year, is superlative. Without abundant food, alike for the armies and the peoples now at war, the whole great enterprise upon which we have embarked will break down and fail. The world's food reserves are low. Not only during the present emergency but for some time after peace shall have come both our own people and a large proportion of the people of Europe must rely upon the harvests in America. Upon the farmers of this country, therefore, in large measure rests the fate of the war and the fate of the nations.

"The supreme test of the nation has come. We must all speak, act and serve together!"

HOGS AT $3000

Chicago is reporting some prices on live hogs; 12 cents, then 14, 15, 16, 16½. We are not certain, but we believe 17 has been touched. The like has never before been known.

California hogs are still higher priced. Humphrey's boar at $3000 per one hog seems to be, as Frost would say, "Some hawg", but he is a long producer, and blood will tell.

BE FAIR TO THE BOY

We recently saw a cartoon in an Eastern farm paper showing a farmer being handed a roll of bills by the purchaser of his boy's pony. The boy, with tears running down his face and arm about the pony's neck, sees his pet being sold and of course the money going into dad's hands. Under the cartoon is this:

"Resolved, That I will never again sell any animal belonging to one of the children and pocket the money. Hereafter the horse, calf, pig or other pet shall be his to keep or sell, and if sold, the money shall be his."

The father can do no more unfair thing than to sell the property which by all right belongs to his son, and as a matter of policy such treatment of the youngster is the best method of destroying any desire to remain on the farm.

A BIT COLD

Monday morning was somewhat nippy. Newspaper reports, which we hope are exaggerated, claim that in Sutter and Yuba Counties the cold was severe enough to materially injure even apricots and prunes and severely injure less hardy garden truck. The wire shows lowest temperatures that morning at Red Bluff, 34; at Sacramento, 38. This would not indicate any severe injury.

Wednesday morning was the coldest in the south. At San Bernardino a temperature of 31 was registered and at Los Angeles, 36. It is thought that this will not injure even the most tender plants.

HONEY

Phone messages from some of the larger honey producers indicate uncertainty as to the coming output. All producers are hoping for a rain. If this should be given during the next few days there is every promise of a big crop. If, on the other hand, a drying wind should sweep over the sage the crop will be cut far below normal. Producers are in position to take advantage of favorable conditions, and the output will be immense if the rain does come.

DRY MARCH

March, 1917, was about the dryest ever. March is a month of heavy precipitation; the normal is around three inches. In many sections the precipitation this year was not much over one-eighth inch, in fact, no rain at all. Too bad, but we are still hoping. Meantime, let every producer conserve every drop possible.

Agricultural Notes

Siam has planted 200,000 acres more to rice this year than last.

Florida's shipments of oranges are so far much behind last year's.

A bonus for grain production on hitherto unused lands is this year.

The United States secured from Odessa, Russia, last year 385,000 pounds of beet seed.

Frosted oranges from Florida last month brought as low as ten cents per box on the Chicago market.

Over a million and a quarter acres of land in the United States were devoted to raising tobacco in 1915.

Several cars of frozen and decayed Florida oranges were ordered dumped from the rails in Pittsburg last week.

Japan has harvested an enormous crop of rice, more than 12,000,000 bushels in excess of her last year's crop.

The American Railroad Association reports the net shortage of freight cars in the United States on March 1, as 124,973.

Bean oil is being shipped to Seattle in large quantities from Dairen, Manchuria. Counting shipments made since February 1 and those now on the way the total is 40,000 tons.

New Zealand's average yield of wheat per acre during 1916-17 harvest was 25.15 bushels; oats, 30.88 bushels. The total yield of these grains is much less than the previous year.

Estimated shipments of fruits to the United States from the Porto Rico Fruit Growers' League from March 10 to July 1 will be 444,000 crates of pineapples, 91,000 boxes grapefruit, 7500 boxes oranges.

The handling of modern tractors and other improved farm machinery is being taught to mutilated French soldiers in the great school at St. Etienne which is devoted to training the crippled veterans to work suited to their disabilities.

The area of the Bermuda onion crop for Texas for 1917 was estimated on March 15 at 12,050 acres, an increase of about 2000 acres over the area for 1916, when that state shipped out 4903 carloads. The average yield per acre last year was 225 crates.

"If we are to have war, we must have roads; if we have peace, we must also have roads. It may be that I can be of the most service to my country, whether in war or in peace, by promoting in every way possible the building of better highways", said Senator Bankhead at the big roads celebration at Birmingham, Alabama, April 7.

A law passed by the national congress of Peru at its last session and approved by the president of the republic on February 10, 1917, provides for a prize of $500 to be awarded for the best text from which to teach temperance in the public schools of Peru. Intemperance, especially in the mining regions, is said to be a serious problem in Peru and Bolivia.

The Automobile Association of America has prepared a special transcontinental map containing the present main travelable interstate and intrastate roads which would fit into a countrywide system that would lend itself in great degree for military purposes. One of these maps goes to President Wilson, one to Maj. Gen. Hugh L. Scott, one to Brig. Gen. Joseph E. Kuhn of the war college division, and a fourth to Director W. S. Gifford of the Council of National Defense.

Agricultural News Notes of the Pacific Coast

Northern California

Recent rains have been of great benefit to grain crops.

Biggs, Butte County, reports grain prospects the best in years.

A bill removing protection from blackbirds has been passed by the assembly.

Almond growers of Sacramento County report promise of a better than normal crop.

Several requests have been made of Colusa County supervisors for a farm adviser fund.

An armed guard has been placed on the government dam of the Orland irrigation project.

Horticultural Commissioner Gould of Yolo County estimates the almond crop at 80 per cent.

A peach grower of Oswald, Sutter County, reports sale of his entire crop on the trees at $45 per ton.

The schools of Gridley, Butte County, have an agricultural club which this year will raise corn and beans.

There will be local meetings of the Glenn County farm bureau at Elk Creek April 23, 26, 27, Plaza April 27.

Horticultural Commissioner Hassler of Eldorado County, reports very little damage to orchards from the recent frosts.

The Chico Business Men's Association is today holding a rally at Chico to urge a farm adviser for Butte County.

The Pioneer Mother-Daughter Canning Club of Orland, Glenn County, will hold its next meeting April 27 in the afternoon.

Nine hundred acres near Arbuckle, Colusa County, have been planted to sugar beets by the Sacramento Valley Sugar Company.

Hop growers are warned to reduce their acreage as the demand is small and the prices very low. There is also a large surplus of holdover.

Hereford breeders of California and the Pacific Coast have been invited to meet on the evening of May 2 at the Palace Hotel in San Francisco.

Dairymen of Northern California will meet at Colusa at an early date to consider the forming of a branch of the Northern California Milk Producers.

The Sherer Company made a recent shipment from Arbuckle, Colusa County, of three carloads of cattle to Los Angeles at an average price of $122.50 a head.

Stock growers of Mendocino County have formed an association and adopted a constitution. The association is to meet in annual convention on the first Saturday in October of this year.

A. B. Humphrey of Mayhews has sold for $3000 Grand Leader 2nd, the Berkshire boar who was grand champion at the Panama-Pacfic. Twenty of his sons and daughters were sold at the same time for $1500.

At the California Forest and Wild Flower Fete to be held at the Fairmont Hotel, San Francisco, April 24-28 the forest service will install a model ranger camp equipped with telephone, heliograph and fire fighting tools.

Two thousand sacks of Colusa County rice were sold recently to a San Francisco firm at $2.20 per sack, this price including freight charges to San Francisco. The company making the sale has on hand in the neighborhood of 30,000 sacks unsold.

Central California

Hay is bringing $32 and $32.50 a ton in Stockton.

Stanislaus County has prospects for a good crop of Smyrna figs.

The Stewart packing house at Sanger has started on Valencias.

A four-mile parade is promised at Fresno on Raisin Day, April 30.

Efforts are being made to organize a branch of the Farmers' Protective League in Stanislaus County.

A branch of the Lundy Dried Milk Products Company will be established at Newman, Stanislaus County.

The March report of the Stanislaus cow testing association shows 70 cows testing over 45 pounds butter fat.

A fund of $1000 has been assured by Coalinga for the state poultry show which will be held there November 14-18.

The F. H. Buck ranch in the Christian Colony is provided with 200 smudge pots for use in deciduous orchards.

More cattle will be allowed grazing privileges in the national forests of California during the next season than ever before.

Amendments of the workmen's compensation act, now before the state legislature, provide for bringing farm labor under compulsory state insurance.

The California Peach Growers plans to erect packing houses at Hanford, Selma and Parlier. Construction has already begun on the plant at Kingsburg.

The Lindsay-Strathmore irrigation system is now 90 per cent complete. Twenty wells ranging in depth from 90 to 204 feet are now ready to supply water.

Poplar, Tulare County, expects a large bean crop this year. Many contracts have been signed for Blackeyes on a 5½ cent basis with five cents for Teparies.

The approved grazing allowances for the national forests of California during 1917 provide for 521,000 sheep and goats, 221,000 cattle and horses and 6,600 swine.

The next meeting of the Stanislaus Fig Growers' Association is to be held at Ceres June 9. Many growers have stated that they will not contract their crop until after that date.

A 12-year lease on 356 acres of asparagus land is reported for $107,043. The deal was made between R. M. Durbin of Walnut Grove and the owner, the Vrooman Company.

The Turlock board of trade is collecting data on the dairy industry of the district. The immediate occasion for gathering this information is the possibility of securing a dried milk plant.

A plan has been announced for the building of a great dam on the Kaweah River below Three Rivers at a cost of $8,500,000. The land to be included in the project takes in part of the Lindsay-Strathmore district, the Alta district, and the property of 21 ditch companies.

The Associated Peach Growers' announce that they have control of 90 per cent of the canning peach acreage in Tulare County. A sales committee has been named to handle the crop. This committee is W. A. Sims, Farmersville, J. K. Tuttle, Mineral King, and J. W. Davidson, Visalia.

Southern California

Santa Maria will hold an agricultural fair October 24-27.

G. H. Waters of Pomona reports sale of 40 acres of apricots at $50 a ton.

Beet growers of Chino have organized an association with E. V. Wire as president.

There was much trouble in the citrus orchards of Rivera last week with gangs of striking Mexican laborers.

Manager Hamilton of the Hemet Orange Growers' Association reports sales of blood oranges at $3.35 a box.

At a recent meeting of Arlington poultrymen discussion was had of plans for protection from chicken thieves.

Apricot growers of the Hemet Valley who have suffered loss through frosts are urged to plant tomatoes for the cannery.

The Lankershim district in Los Angeles County reports a 40 per cent apricot crop in sight and hopes for a $50 a ton price.

Imperial Valley sheep growers report many sales of lambs on the Los Angeles market at prices ranging around 14 cents.

Manager Thorpe of the California Walnut Growers' Association addressed the Walnut Association at Hemet last week.

Orange growers along the foothill boulevard in Claremont are losing great quantities of fruit through the vandalism of automobile parties.

A meeting was recently held at Arlington, Riverside County, in the interests of the formation of a county farm bureau and the appointment of a farm adviser.

Enough signatures have been secured to assure the calling of an election in the Imperial irrigation district for the issuance of $2,500,000 bonds for improvements to the canal system.

The Pomona Milling Company is reported contracting Blackeye beans at six cents. It is estimated that 5000 acres will be planted to Blackeyes in the district between Pomona and Etiwanda.

The Puente Walnut Growers' Association held its annual meeting in the West Covina club house on April 10. L. D. Bachelor of the state experiment station was one of the principal speakers.

Growers of Egyptian cotton can now procure seed without the formality of application to Arizona authority as County Commissioner Waite has just released a carload of seed imported from Maricopa County.

Farmers of the Imperial Valley who have found benefit from the work of lady birds in their cantaloupe fields are asked to write to the legislature asking more aid for the work of the state insectary the coming year.

The board of supervisors of Santa Barbara County has passed an ordinance making it a misdemeanor for traction engines and farming implements to travel on oil surfaced roads unless the vehicles are so made that they will not injure them.

An incipient strike of Mexican laborers on the Limoneira Ranch at Santa Paula last week was promptly squelched. The management of the ranch two weeks ago gave all laborers a 25-cents a day raise and some of the Mexicans thought this indicated that they could get anything they asked for.

The Coast

Washington County, Oregon, will hold its fair October 2-5.

There are still 15,000 bales of hops in the hands of Oregon growers.

The Salmon River section of Idaho reports a long cold winter, with feed exhausted.

Roseburg, Oregon, will hold its strawberry festival three days beginning May 17.

The Coos and Curry Fair Association has chosen the dates September 12-15 for its annual fair.

The first shipment of Japanese Irish potatoes on the Seattle market was sold last week at $50 and $55.

The agricultural class of the Chandler high school is able to sell a good many vegetables to the townspeople.

A number of beet loading stations are being erected in districts where farmers are agreeing to plant this year.

The construction work on the Nyssa-Arcadia Drainage District of Idaho is nearly completed. The work has cost $70,000.

Potato growers of Benton County, Oregon, recently met at Irish Bend and formed a county potato growers' association.

Apple growers of the Yakima Valley are not planning to wrap their apples this season because of the high price of paper.

The state university extension department of Arizona is organizing various planting clubs among the school children. There are corn clubs, cotton clubs, sorghum, potato, pig, poultry, canning, etc., clubs.

The Round Valley Farm Improvement Association of Apache County, Arizona, has arranged for the importation of a carload of Swedish select oat seed from Portland, Oregon. The same association is now importing a carload of dairy cows.

LIVE STOCK SALES

Wm. M. Carruthers, 45 head registered Shorthorns, Mayfield, May 2.

D. O. Lively Stock Farm Sale, Hereford Cattle, Mayfield, May 3.

Lake Mills Holstein Breeders' Consignment Sale Co., Lake Mills, Wisconsin, May 8 and 9, 1917.

Thatcher, Ennis & Williamson —Dissolution of partnership Berkshire Sale. Riverside, May 9, 1917.

California Breeders Sales and Pedigree Co.—Willowwood herd registered Jerseys of C. G. McFarland, Tulare, May 17.

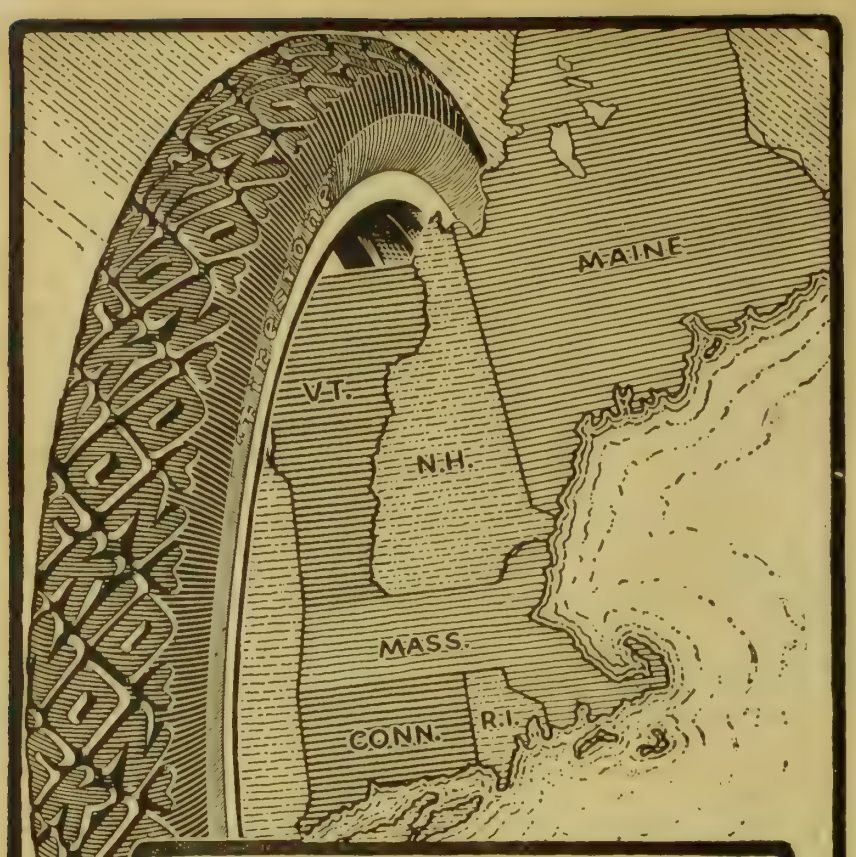
California Breeders Sales and Pedigree Co.—Holsteins, Jerseys, Percherons. Rosamond Farms, Stalder Bros., Riverside May 22.

California Breeders Sales and Pedigree Co.—20 registered Holstein bulls, Chico, May 24, 1917.

California Breeders Sales and Pedigree Co.—Quality Holstein Sale. State Fair Grounds, Sacramento, May 31, June 1.

University Farm Sale Pure Bred Holsteins, State Fair Grounds, Sacramento, May 31-June 1.

Stanford University Sale of Pure Bred Holsteins, entire herd, 400 registered Holsteins, Vina, June 5, 6, 7.



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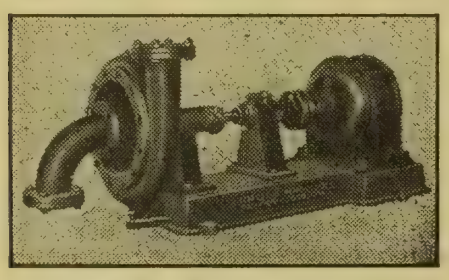

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Timely Hints for the Home Gardener

PRACTICALLY all truck crops do better on a sandy loam soil than on one that is sticky and heavy. Larger-sized crops, however, such as cabbage, tomatoes, beans, and peas, will do well on heavy soil provided it contains the necessary vegetable matter.

The soil in most backyard gardens is distinctly heavy. It will help the soil greatly if the owner works into it a good amount of finely sifted coal ashes free from all cinders. Coal ashes are used largely for the physical effect in breaking up a compact, heavy soil. Such ashes do not take the place of fertilizer.

Plentiful use of well-rotted manure is still more beneficial in breaking up heavy soil because this improves the texture and adds fertilizing material.

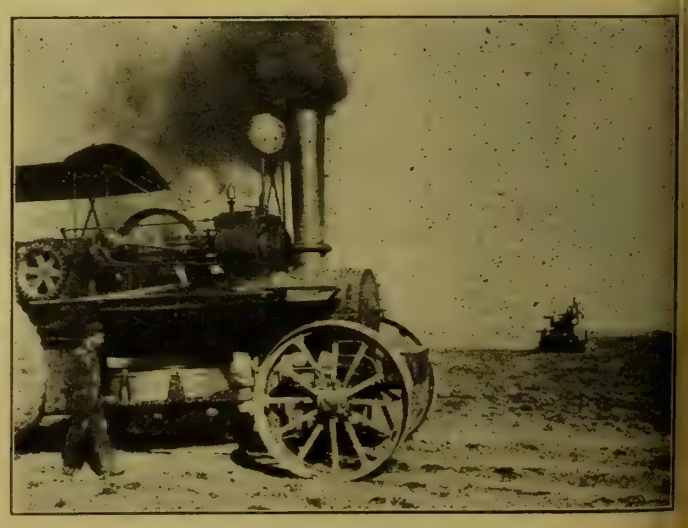
Many garden soils are sour. To offset acidity and also to improve the physical properties of the soil the garden specialists recommend the use of lime. Burnt lime should be applied at the rate of 1,000 pounds to the acre or slaked lime at the rate of about 1,500 pounds per acre. A garden plot 50 by 100 feet is approximately one-ninth of an acre.

To apply the lime, broadcast it and mix it freely with the surface soil by harrowing or raking. Lime should be applied before the crops are set out or planted and should not be applied at the same time that fertilizer or manure is put on.

Manure will greatly improve land. If well-rotted manure is not available, it may be advisable to use a complete chemical fertilizer. Apply at the rate of 800 to 1000 pounds per acre a mixture containing 2 to 4 per cent nitrogen, 8 per cent phosphoric acid, 1 to 2 per cent potash. The amateur gardener will find it easier to use ready-mixed fertilizer, which can be obtained from any reliable dealer.

Sunlight Necessary

No amount of fertilizer, watering, and cultivation will make up for the absence of sunlight in a garden. Home gardeners before attempting for the first time to use a back yard or other space should consider carefully how many hours a day any part of the yard is in shadow from buildings, fences, or trees. At least five hours of sunlight a day is necessary for a successful garden. The more sunlight they get the better it is for most vegeta-



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bles. For this reason it is bad practice to put plants of low habit between tall-growing plants which will shade them for the greater part of the day. As a rule, foliage crops such as lettuce, spinach and kale do fairly well in partial shade, but even these must have sunshine two or three hours a day. In laying out the garden, therefore, use shadier parts for such plants and reserve the sunny spaces for those which must have plenty of sunlight to grow and fruit properly.

BEAN PLANTING NOTES

Continued from Page 459

small lots even the old time hand flail is used successfully and we have known of hundreds of sacks being threshed on great "threshing floors" of smoothed off dirt on which the vines are piled and threshing done with single animals or with teams hitched to disk cultivators. Where there is a will there is a way of threshing.

Prepare the ground in good season but don't plant seed too early. The ground wants to be warm and there are other advantages from late planting in some sections, as may be seen in the preceding article.

Cultivate shallow. Like corn, beans root near the surface.

Keep in best of condition until blossoming time. When in bloom if possible keep out of the field.

GARDEN BEANS

Written for California Cultivator
By D. F. Reichard

UNDER this heading are included string or edible pod, shell and garden Lima beans. The string or edible pod beans were first discovered in northern South America and were altogether of the vining habit. From these were developed dwarf varieties which matured in less time than the originals. With the shortening of their growing season the area of their distribution has been extended to the northern limits of the United States.

The ideal conditions for garden bean growing are plenty of warm sunshine with the air tempered by cool breezes, a friable soil that retains its moisture well, but is well drained. These conditions are found in Southern California, and fresh garden beans are obtainable eight to ten months of the year. During October and November the hardier varieties of beans are planted in frostless districts for early markets. These are harvested during February and March according to the season and are mostly sent East to those who can afford to pay for them. They bring from 20 to 40 cents per pound. The varieties used for this and the early spring plantings are almost exclusively the Canadian Wonder for the green beans and the Ventura Wonder Wax for the yellow pod beans.

In the Imperial and Coachella Valleys the weather is warm enough so that plantings may be made during February. The product of these is ready for market during April, getting in just ahead of the beans grown nearer the coast.

As spring weather comes on beans may be planted freely, first the hardier bush or dwarf varieties such as the Canadian Wonders, Early Valentine and French Mohawk. These are of the flat type and are inclined to be stringy if not picked very young These are followed by the tenderer round podded varieties such as Burpees Stringless Green Pod, which is the most popular bush bean grown; Stringless Refugee Green Pod and Early Refugee, in green pods, and Stringless Refugee Wax, Black Wax and Golden Wax in the yellow podded varieties.

By the middle of April in practically all locations any or all varieties can be planted. At this time the popular Kentucky Wonder and other pole or vining varieties and all varieties of Lima beans are put in. There are four varieties of Kentucky Wonders offered, each with its good points. The brown seeded, or Old Homestead, is the most popular. This has light green pods. The White Seeded Kentucky is becoming very popular with the market gardeners because it has a deep green pod, giving it a very attractive appearance. Besides it is more resistant to mildew than the ordinary Kentucky Wonder. The gray or speckled seeded is a particularly good variety, having deep green pods considerably broader than the other varieties. This variety must be poled to get the best results. Then there is the Kentucky Wonder Wax which has the good qualities of the other varieties of Kentuckys but with clear waxy yellow pods.

Lima beans may be planted as early as March, but to little purpose as beans will not set on the vines until warm weather has set in during July. The bush varieties are far more popular than the pole varieties although the latter will produce more pods per plant. Fordhook bush is becoming the most popular of the dwarfs on account of its plump kernels.

From the middle of August on we use only very quick maturing varieties like Early Refugee or the hardier ones like the Canadian Wonders. During the late fall months a coarse bean known as the Horse or Broad Windsor Bean, is planted for winter use. This bean is highly prized by Europeans as a shell bean.

Garden beans require fairly rich, loose, well drained soil, well cultivated to insure a quick uninterrupted growth.

The plot selected should be deeply plowed and thoroughly harrowed and leveled. If rains do not come irrigation must be resorted to. Each rain or irrigation should be followed by cultivation to make a mulch to retain moisture and destroy weeds. Bush varieties will be ready to pick six or eight weeks from planting, pole varieties and Limas, two to four weeks later.

When beans have been up four or five weeks they should be sulphured by dusting a small quantity of flowers of sulphur over the plants. This prevents mildew. As soon as the crop of green beans has been gathered it is advisable to plow the vines under. They make fine fertilizer. There are some varieties, however, that produce several crops, notably the Kentucky Wonder; green beans may be gathered for several months.

BEAN QUERIES

Irrigating at Blossoming Time

I shall plant Blackeye beans near Hemet this spring. I understand that irrigation during blossoming causes blossoms to drop. Is this true? Is there any particular time for irrigating?—Subscriber, Los Angeles.

We might answer either yes or no to the above question and both would be correct, likewise incorrect. That is, if the plants are growing, have had sufficient water and are still not suffering there would probably be no injury. However, it must be borne in mind that the blossom of most beans is very delicate and cultivation at blossoming time or working about the vines in a way to injure in the slightest the blossom may cause it to blight and drop. Again, if the plants have been allowed to dry off, irrigation might cause such a shock to the plant that the blossoms would drop, therefore the safest course would be, for the grower to anticipate blossoming time and have the plants in best condition to carry over until the beans are set. Again, the bean plant is of such a delicate nature that when cultivation is done in the morning while covered with dew the slightest injury to foliage may permit the entrance of fungus and serious injury may result.

Weevil in Beans

Notwithstanding we have repeated many times information regarding destroying weevil in beans, requests continue to come for this pest has proved exceptionally exasperating the past year. Place beans in tight room, or, better, a tight bin or box. Use carbon bisulphide full strength in shallow vessels or plates, set on top of the beans. The gas which arises from this chemical is much heavier than the air and will settle through the mass of beans. It must be used in a box as nearly air tight as possible and the beans left in the fumes 24 hours or more. Use the bisulphide at the rate of a pint to each 1000 cubic feet. This is not a preventive for after the beans are exposed to the air and the fumes of the bisulphide have entirely disappeared they are subject to another attack, therefore keep the beans or peas stored where it is impossible for insects to reach them. Before storing in the fall all beans from the field should be treated. Always bear in mind that this gas is explosive and a lighted cigar or other fire brought near it may cause serious damage.

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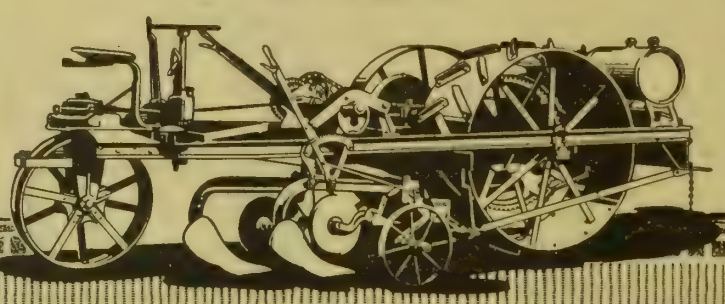

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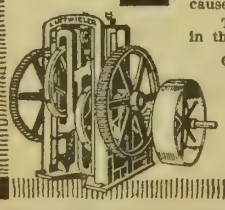

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Beautifying Home Grounds

Written for California Cultivator By E. Braunton

THIS article is written for the home owner who does his own planning and planting and seeks to point out what best to do.

Overplanting is one of the serious shortcomings of the novice, with both trees and shrubs. This occurs in places both large and small and even where gardeners are employed. Sometimes the fault lies chiefly with some nurseryman who wished to dispose of stock and advised too much material in the way of plants, but generally it is due to lack of judgment and foresight and realization as to ultimate size the trees will attain. If quick massed effects are desired, first plant the permanent trees far enough apart so they will not touch each other at middle age, but only with greater age. Next see that none are so placed that they will interfere with roads or paths or buildings. Then make a secondary planting of fast-growing trees and shrubs of cheap sorts with the thought in mind that these shall be cut away one by one as they interfere with the trees to remain permanently.

Do not plant many of a kind in a small place. In a large garden many of a kind add simplicity and dignity but the smaller the place the greater the necessity of entertainment through variety. It is also necessary to have many of a kind to awaken and keep alive interest in watching and caring for development that comes at various times throughout the year. Time of blooming is alone a warrant for variety, and monotony should be avoided. In small places it is best to use small subjects or you will have few in number. Use shrubs rather than trees.

If you are seeking ease of growth it will be well to use some native material, and much of this may be obtained close at home. If not, and you still wish to be relieved of care and worry use Australian and South African trees and shrubs. Native material will not prove monotonous and uninteresting for it will thrive in the garden beyond its natural development in the wilds. And what could be more spectacular than our own Matilija poppy.

It matters little how somber the background if the borders and edgings are made bright with flowers of annuals and perennials. After trees and shrubs are in place plant flowering material wherever shrubs do not come out to paths. There is no necessity for the lines to be continuous along paths or roads. If a shrub grows out to point of contact, the interruption gives valid warrant for a complete change of plant material.

I am very fond of dwelling on the necessity of thorough preparation of the soil, for it is a part of the work, the only part in fact that cannot be overdone. If a tract could be dynamited five feet deep wherever the soil is heavy, it would prove an ideal bed for roots, but too much dynamiting is done without supplementary work. If all that is done is simply to shatter the soil the results accomplished are of little value, for the soil will quickly readjust itself to former position and condition. If top soil is light, porous and rich, by washing the same down in the opened crevices permanent improvement is established. Better still to throw a few shovelsful of sand in each hole and I am not sure but the addition of well-rotted manure may be of permanent benefit. But do not waste money to shatter soil and then allow it to re-cement or again solidify. In any case plow as deeply as possible and fertilize generously and make sure fertilizer is thoroughly mixed with the soil.

After planting allow every tree and shrub to develop naturally. Prune very little; few plants demand it. Some young trees may need a clearance of the stem to enable one to get under the branches, but shrubs should be allowed to grow as they will. Growth is often much retarded by heavy pruning when young. At a more mature age no injury will accrue from annual pruning. This is also good procedure with roses, many young plants being ruined permanently by severe cutting back before a proper and sufficient framework has been grown and matured to the stage of well ripened wood, for growing wood on roses needs no cutting back, only finished growth.

Aim at some variety in smaller material, not in colors, but in class. Annuals and perennials are good but climbers must have a place, and a variety of bulbs should not be forgotten. Then, too, range outside of all this. Have a few cacti or plants of a succulent nature, also a little water garden or a wet place for bog or marsh plants. A rockery or a fernery should find place, one in the sun and the other in the shade. Or if the place be small the two may be combined. Have as many features as possible, if space is available; a sundial, garden house, pergola, arbor, seats, etc., but avoid cutting up the grounds by superfluous or useless roads or paths.

The Dependable Laurestine

One of the most dependable shrubs common in nearly all lands is Viburnum tinus, the laurestine. It may be sheared without harm into any shape or size and is one of the best hedge plants we grow. When in full bloom it is as attractive as any hardy shrub I can recall. I have one ten feet high and as far across and each year give away layered plants to friends and neighbors. It is very easy to propagate from cuttings, but easier still to allow it to propagate itself by layers. Pull down some of the lower branches if they do not already lie on the soil as they should do. Bury the branch slightly under the ground at a point a few or many inches back of the tip and allow to so remain until very early spring next year when they will be sufficiently rotted to remove to place desired for permanent growth. A hundred may thus be rooted each year beneath a large laurestine.

Deciduous Flowering Shrubs

Spireas, or bridal wreath, deutzias, weigelias, and all that class of shrubs are now in bloom, and remember that the proper time to prune these is when they have done blooming, and not in the spring. But also observe those on which you wish a greater quantity and bear in mind that in the spring just before the buds swell and while the wood is still entirely dormant is the best time to propagate from cuttings. It matters little the size of the wood or what precautions are taken; if cuttings are put in at proper time or season they are almost certain to grow. Allow them to remain in temporary home until the young plants are again dormant in early spring when they may be transplanted in bare roots to permanent position and not one plant among a thousand be lost as a result of removal.

Keep up a Procession

The charm of a garden lies chiefly in finding it attractive at all times. Daffodils and Dutch bulbs in general are now past blooming. Iris, Spanish iris, anemones, ranunculus, dwarf gladioli, etc., are now blooming, as well as snapdragons, sweet Williams and spring-flowering perennials. The unmatchable Primula malacoides will soon bloom no more, and all these should have their places filled "by those who in their turn shall follow them." So plant that when the summons comes you will have plenty of material to keep up the procession throughout the season. The best gardener is the resourceful one, whether of flowers or vegetables.

Feed Hydrangeas Now

The large-flowered, or hortensia group, of hydrangeas are now coming into full leaf and should be heavily fertilized. They are gross feeders and while much need not be fed at one time, it is best to give them a dosing every two weeks. If you wish to turn the blossoms blue, try sulphate of iron in the soil. Iron filings from machine shop drills or from blacksmith shop will also aid, as will a mass of rusty nails.

What protection are you giving the birds in your vicinity? You can at least give them a pan of water to drink and bathe in on warm days.

Queries

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Municipal Inheritance Tax

I have been told that there is a special law or city ordinance by which a certain per cent of the estates of deceased persons is collectable by the city, this outside of the regular inheritance tax.—Subscriber, Keyes.

There is no such ordinance in the city of Los Angeles, nor could there be under the constitution. There is a county administrator who takes charge of the estates of people who die without direct heirs in the county. For this administration we believe there is a certain small percentage charged to the estate.

Mildew—Curled Leaf

Please advise what causes the trouble with roses which are covered with a whitish mildew. The leaves are curling up. Please give cause and remedy for the curling of peach leaves.—Subscriber, Santa Ana.

The trouble with these roses is the ordinary mildew which may be controlled in part at least by the use of flowers of sulphur. Use in powder can or shake over the leaves from coarse-meshed bag. Do this in the morning when the leaves are moist with dew. If the roses are situated where they can get the full rays of the sun further affection may be prevented. The fungus which has already become established on the leaves, however, will not be destroyed. The peach leaf curl is another proposition and its control is effected only by spraying when the trees are entirely dormant. It is too late to do anything with the trees this year. Spray them next February, or before they leaf out, with Bordeaux mixture.

Hubbard Squash

Am told that Hubbard squash cannot be grown successfully in this part of the country because of insects. What sprays should be used?—Subscriber, Lemoore.

We see no reason why Hubbard squash should not be grown successfully in the Central Valley. As to insects, we take it the inquirer refers to the ordinary squash bug, about the only means of controlling which is the liberal use of repellants or else gathering by hand. If the bugs are gathered and destroyed early in the season when they first put in their appearance later control will be comparatively easy. To capture most easily lay boards near vines. The pests hide under these traps in the morning and may be easily captured. Weeds and rubbish which make hiding places should be cleaned up. Also fertilize and water vines freely so as to enable plants to repel attack. Hellebore is a good repellant ,as is gypsum or ashes which have been saturated with kerosene.

Winter Crop

What crop can be planted in September after water is turned out of ditch, which will give some return and may be harvested before the first of March?—Subscriber, Lemoore.

Barley or rye is a good winter growing crop. It may be pastured off and with natural subirrigation or with good rainfall give good return in the form of winter pasturage. With hogs perhaps a better crop would be Canadian field peas.

Flemish Beauty

When coming down Topango Canyon last summer I stopped at a ranch and bought some of the most delicious pears I have ever eaten. The owner said they were Flemish Beauties. Would like to know why they are not more generally grown.—Subscriber, Kansas City.

The Flemish Beauty is one of our most delicious pears and a tree or two for home use will bring much enjoyment. As commercial proposition, however, it is one of the poorest shippers and from that standpoint does not compare at all with the Bartlett. It is also somewhat irregular in bearing.

Greening Potatoes

Noting the article in your issue of March 17 on greening potatoes, please advise if this should be done before cutting or after. In case of treating with formaldehyde for scab should this be done before greening?—Subscriber, Victorville.

The greening and treating with formaldehyde both preceed cutting. Dip in formaldehyde just before cutting.

Pruning Grapes

Have 100 acres of grape vines which have not been pruned. Is it too late? Would they be killed or injured by pruning at this time of the year?—Subscriber, Los Angeles.

The vines will bleed seriously if pruned this late. Fearing there might be injury the question was referred to Prof. Bioletti and he answers:

"Your subscriber need have no fear of injuring his vines by pruning them at the present time. They are much more likely to be injured overbearing poor grapes if he does not prune them, and moreover if he does not prune them, he probably cannot cultivate them, and his vines may die of overbearing without producing a grape fit to harvest. The loss of sap or bleeding is not serious and in fact will be less now than it would be just as the buds commence to swell. There is indeed a slight weakening effect due to the removal of leaves after the shoots have started, so that the sooner the pruning is done the fewer leaves would be removed with a less weakening effect."

Adamson Law

Will you kindly give in your columns the synopsis of the Adamsson eight hour law. — Subscriber, Hot Springs.

As the Adamson law has to do only with railways and a small portion of their employes, only 25 per cent, it would hardly be of sufficient value to agricultural interests to give it, other than to say that it prescribes that for certain employes of the railways the eight-hour day shall obtain and that any additional hours be charged as overtime.

"Some men grow with responsibility while others only swell."

The Genuine FAIRBANKS Scale-1000 lb. Size

Large Platform-Wide Wheels

When you weigh on a FAIRBANKS Scale you don't "guess it's right"—you *know*. Most scales are correct when new, but a FAIRBANKS *stays* correct, because it has Steel to Steel Bearings and Arrow-tip Beam

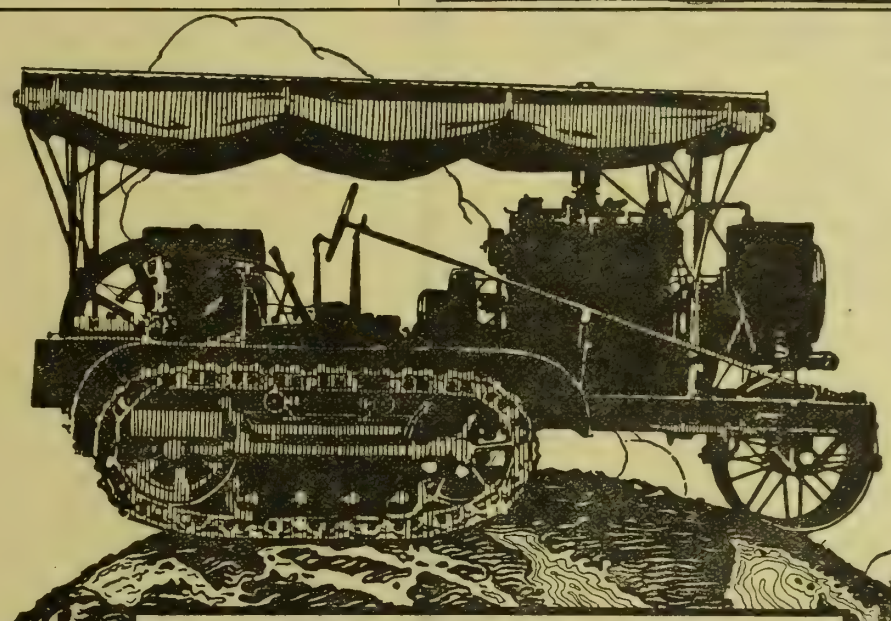
$18.00

500 Lb. Size, $15.00
Both Prices F. O. B. Chicago

Go to Your Local Dealer—see the scale and you'll buy it. A reputable dealer selling a reputable scale certainly is a strong combination. If you don't know the local *Fairbanks-Morse* dealer, write us

FAIRBANKS, MORSE & CO., Chicago

"If it's weighed on a FAIRBANKS there's no argument"



There's but ONE Caterpillar Holt builds it

THOUSANDS of owners in thirty countries have nothing but praise for the wonderful Caterpillar Tractor—nothing but praise for its design and for the sound mechanical construction of it.

The famous Caterpillar track, plus the steady, powerful, economical Caterpillar motor (built entirely in the Holt shops), plus the best of materials, workmanship and inspection throughout—these have made the Caterpillar the foremost tractor of the world today. Other tractors, lacking one or more of these elements, cannot achieve the same success.

There's only one Caterpillar—Holt builds it. Don't say Caterpillar unless you refer to this tractor.

We will gladly send details on all models.

The Holt MANUFACTURING CO. Inc.

Stockton San Francisco Los Angeles Portland Spokane

CATERPILLAR

Reg. U.S. Pat. Off.

GREAT SALE

Scotch Shorthorns

Carruthers Farm

MAYFIELD, CALIFORNIA

Wednesday, May 2, 1917

AT 1 O'CLOCK

This will be the

Greatest Shorthorn Sale

ever held in the West from one farm. In this sale will be cows of rarest of Scotch breeding. Such stock can not be bought in the East, as there never before has been Count Avon stock sold at public auction.

There are eight yearling Bulls and Heifers sired by Sultan Mayflower—a bull purchased at the Harding sale by Leslie Smith, to head the Great Meadowlawn herd, which was known all over the United States for its great collection of Shorthorn matrons.

There will be ten Cruickshank Cows in the sale, which will be hard to duplicate in any herd for conformation, smoothness, size and finish.

The yearling heifers and bulls sired by a grandson of Choice Goods are large, smooth and thick, mostly all of Scotch breeding, and ought to please the eye of the most critical judge.

All the cattle are in good flesh, and anyone making a purchase to strengthen their show herds this year will have no trouble to get them in shape by fair time. This is foundation stock, tuberculin tested, and vaccinated for blackleg.

45 HEAD OF HIGH-CLASS

28 Females —SHORTHORNS— 17 Bulls

From the Following Sires:

Count Avon 334946—An International Grand Champion.

Count Glory 426982—Last year's California Grand Champion.

Mayflower Sultan 402251—A grandson of Whitehall Sultan.

Ringmaster 307894—Three successive years Grand Champion of America.

March Knight 188105—America's greatest heifer producer during his lifetime.

Fair Knight 329053—Grandson of Choice Goods and Imp. Fairplay, a Highland Champion.

Visitors will be welcome at the farm any time before the sale.
Send for copy of Catalogue.

COL. CAREY M. JONES, Auctioneer

ADDRESS

W. M. CARRUTHERS

513 Hearst Building, San Francisco — Mayfield, Cal.

The Dairymen's League of New York

Written for California Cultivator By Leroy Anderson

NEW York City consumes more than 2,000,000 quarts of milk daily, and this is produced on about 44,000 farms located in six states. The milk is transported from 50 to 450 miles on more than 250 special milk cars and requires over 6000 wagons for delivery in Greater New York. Taking all the work, an army of 200,000 persons is daily engaged in handling this immense amount of milk.

Prior to last October the milk dealers set the price to both producer and consumer, but then an organization known as the Dairymen's League stepped in and had something important to say about the price to the producer. Prices were then fixed for the six months beginning October 1, 1916. During the last month (March) prices have been agreed upon for the six months beginning April 1, 1917. Having won its first big battle last fall the Dairymen's League now is received in conference by the dealers and prices adjusted to the satisfaction of both parties.

The league started in a small way in 1907 with a few farmers in Orange County. In 1910 it had grown to larger proportions and was incorporated under the laws of New York. During these years the league's efforts were chiefly educational and no concerted effort was made to fix prices until the summer of 1914, then a committee was sent to New York to confer with the dealers, but the latter refused to treat with the league. Owing to the war and other disturbing economic conditions the time did not seem ripe for drastic action.

In June, 1916, the league directors met in Albany and decided to institute a strike if the dealers would not come to terms. The dealers gave the league no alternative except to fight, and encouraged by the success of the Chicago milk producers in the preceding spring the directors proceeded on the fight basis.

CLOSE OF ENTRIES IN STATE DAIRY COW COMPETITION

DAIRYMEN and breeders of dairy cattle who are considering entering cows in the state dairy cow competition are reminded that entries close May 1. Nearly 100 prizes, varying in value from $300 to $10 each, are offered for records of production, the aggregate value amounting to nearly $8000. More than one half of this amount will be awarded to grade and common cows. It will be well worth the effort of any dairyman who owns good cows to enter these in the competition, on account of the prizes they may win, the knowledge that will be gained as to the value of the individual cows, and the advertising that will be received through the publication of good records of production in the herd.

Members of cow testing associations may compete for the prizes offered for yearly herd records without extra expense, and at greatly decreased cost for prizes for individual cows and groups of cows in their herds. The complete list of prizes with copy of the rules will be found in Circular 153 of the College of Agriculture, which may be secured upon application to Director Experiment Station, Berkeley. Further information and entry blanks may be obtained from Professor F. W. Woll, University Farm, Davis.

"More and Better" is the watchword in every department of agriculture, and while dairymen for several years have been working to this end through cow testing associations, breeders and marketing associations, the duty is still more imperative because of war conditions.

Let every member of cow testing associations keep in mind the offer of the California Cultivator of three prizes of $100 each to dairies, members of cow testing associations, which make best records during the 12 months.

Entries will positively close Tuesday, May 1. This is little more than a week now and calls for immediate action. Write at once to Prof. Woll for necessary blanks.

Long Pedigreed Shorthorns

Written for California Cultivator By C. A. Briggs

Mayflower, Property of W. M. Carruthers

In green pastures in fenced yards and well kept barns on the Carruthers farm at Mayfield are about a hundred head of sleek cattle. The lordly herd sire, Count Glory, has stamped his individuality on the young stock and they promise much for the herd's future. Forty-five head are to be sold at auction on May 2 and go to build up the herds of other breeders in the state and on the coast. Mayfield Knight, a young bull bred on the place, red in color, is an especially fine specimen. He was calved March 1, 1916, and is large and well developed for his age. A roan, Sultan Twinkle, of about the same age and size is perhaps equally good. Sixteen others promise well in every way and are all worthy to be sires of good herds. The cows offered are individuals of much merit. They show good breeding and are in excellent condition.

The selection made for the sale includes many of the choicest animals in the herd. Col. Carey M. Jones, a Shorthorn auctioneer, will cry the sale. A lunch of good things will be served under the oaks, and if many come many will be fed. This will be the first auction sale of registered Shorthorn cattle ever held in the state and will mark a red letter date in California's beef cattle history.

WILLOWWOOD HERD OF

Registered Jerseys

contains 13 Register of Merit cows and heifers with yearly records averaging 516 pounds of 85 per cent butter.

Practically every heifer in the herd is a daughter of a Register of Merit cow.

You men and women who own Jerseys know what it means to have such cows and heifers.

You may buy them at your own price when we sell at public auction, to the highest bidder, absolutely without reserve or limit, the entire Willowwood Herd of

60 REGISTERED JERSEYS
owned by C. G. McFarland

Tulare, California
on Thursday, May 17, 1917

This sale will be a rare opportunity for established Jersey breeders to strengthen their herds.

Individual tuberculin test certificate with every animal over six months of age.

Write for Catalog.

Sale under management of

California Breeders' Sales & Pedigree Co.

Auctioneer Col. Ben A. Rhoades, Los Angeles
Sales Manager C. L. Hughes, Sacramento, Cal.

Salt for Stock

Highest authorities on animal feeding in both America and Europe recommend plenty of salt for stock.

We sell MORTON'S SALT BLOCKS, pure salt compressed into hard blocks under great hydraulic pressure. No waste, cheap, easy to handle, no mineral particles. Cattle and horses like it. We also sell Pure Lump Rock Salt and bulk commercial salt for mixing with hay.

If your dealer cannot supply you, write for prices. To anyone interested in salt for stock we will send free of cost a neat instructive booklet on THE RELATION OF SALT TO STOCK FEEDING, written by a well known Western authority.

Try a sample shipment.

Fuller, Leighton & Stratton
WHOLESALE SALT
615-617 E. 3rd St., Los Angeles, Calif.

HOOD FARM BREEDING POWDER

Makes barren cows and mares breed readily; destroys germs of abortion; causes cows to come in season; makes cows clean without force; stops unhealthy discharges; has been used with marvelous success by thousands of breeders. Guaranteed to cure barrenness if a cure is possible. We want you to try it. Advice free.

Prices prepaid $1.15, $2.75 and $5.00. Flexible Injection Tube 90c., or with $5.00 order 75c. Order now, mentioning this paper.

C. I. HOOD CO., Lowell, Mass.

Holstein Bulls

Well bred, vigorous, registered Holstein bulls of good type for sale. Steady sales have moved all our bulls of service age, but we have a few unusually good calves to offer at moderate prices.

The McCloud River Lumber Company
McCloud, California

Dependable Sales Service

¶ We offer an unexcelled service for the conduct of dispersal and consignment sales of registered livestock. Sales conducted anywhere. Write for terms and dates.

California Breeders' Sales and Pedigree Co.
C. L. HUGHES, Sales Mgr., SACRAMENTO, CAL.
Col. Ben A. Rhoades, Auctioneer, Los Angeles

Organizers were put into the field and met with much encouragement from producers. A strike was ordered to begin October 1, the directors advising that it be conducted with moderation in relation to non-cooperating dairymen. However in many localities some milk was spilled and unruly dairymen otherwise taught to respect the merits of cooperation. Very little milk found its way into New York City. The strike lasted 14 days before the big dealers gave in. Several small dealers capitulated in seven days and thereby secured milk formerly purchased by their big rivals. Cooperative milk depots that had almost died came to life and now in a few villages the big dealers' plant is gasping for breath and seeing the cooperative handling nearly all the milk. The cooperative plants are now consolidating with a view to more profitably selling their product in the city.

The Dairymen's League covers all of New York state and parts of Pennsylvania, New Jersey, Connecticut, Massachusetts and Vermont, or all the district supplying milk to New York City. The membership fee is 25 cents per cow and a commission of one cent per 100 pounds for selling the milk. This money furnishes the sinews of war for the league. The government is vested in 24 directors elected from as many districts and representing the entire territory. The directors are authorized to sell the milk and no member is at liberty to sign any sale contract not approved by the directors.

The league realizes that public opinion as to the cost of producing milk and the food value of milk is a valuable asset in fighting the producer's battles. The public is being educated through advertising, and in March the sum of $17,000 was spent through New York City dailies. During the summer the advertising campaign is to be carried to the larger up-state cities, like Albany, Buffalo and Rochester.

The following schedule of prices shows what has been gained by the league as compared with the preceding year. The prices are per 100 pounds of grade B milk and in the first zone, or within 100 miles of Greater New York:

Price for 100 lbs. of 3 per cent milk.

	Year Beginning Oct. 1, 1916 League	Year Beginning Oct. 1, 1915 No League
October	$2.15	$1.71
November	2.25	1.81
December	2.25	1.81
January	2.20	1.71
February	2.15	1.66
March	2.10	1.56
April	2.05	1.36
May	2.00	1.06
June	1.90	1.01
July	2.10	1.26
August	2.55	1.41
September	2.55	1.46

Milk produced more than 100 miles from New York is considered in the second zone and producers receive 10 cents less per 100 than the above. Grade A milk receives 15 cents more per 100 and grade C milk 10 cents less per 100 than above prices. Milk testing over three per cent fat receives in addition to above prices three cents per 100 pounds for each one-tenth per cent increase in fat, up to March 31, 1916. Since that date the differential has been increased to ½ cents, another result of league endeavors.

The league is on a firm basis and dealers like to do business with it. Some smaller dealers are volunteering to pay non-league members ten cents less per 100 than members, another boost for membership. The league has been growing all winter at the rate of 60 locals per month. At present writing (April 1) the membership is approximately 36,0000, representing 440,000 cows.

Skim milk should always be used when it is available. It is not only a good flesh producer in itself but it also makes the ordinary grain feeds more digestible and so adds greatly to their value. While skim milk alone is rarely profitable, from 20 to 40 pounds being required to make a pound of meat, when mixed with grain in the proportion of three pounds to one pound of grain its value is greatly increased. Skim milk is worth about 30c per 100 pounds when used in the proportion above given.

20 well bred Heifers and A. R. O. Cows in calf to a 34 pound grandson of King of the Pontiacs.

15 granddaughters of Prince Gelsche Walker, sire of the new 34 pound junior 4 year old California champion.

These are only a part of the choice ones that we will sell for

Rosamond Farm

Stalder Bros.
RIVERSIDE, CALIFORNIA
TUESDAY, MAY 22, 1917

when the total offering will consist of

60 REGISTERED HOLSTEINS
16 REGISTERED PERCHERON STALLIONS, MARES, COLTS.
20 GRADE HOLSTEINS and JERSEY HEIFERS.

This sale is the place to buy top Holsteins and Percherons, and they go at your price, absolutely without reserve or limit.

The offering of registered Holstein bulls is of exceptional quality. It contains:

A son of a 34-pound cow sired by a son of Prince Gelsche Walker out of a 28-pound daughter of a 30-pound cow that held the world's record for milk production for one year.

A son of a 28.91-pound cow sired by the same son of Prince Gelsche Walker as above.

Five sons of a 34-pound sire and out of good dams.

Catalog in preparation. Write for one.

Sale under Management of

California Breeders' Sales and Pedigree Co.

Sales Manager **C. L. Hughes**, Sacramento, Cal.
Auctioneer **Col. Ben A. Rhoades**, Los Angeles

Elliott-Brant Rancho Guernseys Are Persistent Producers

The results of our first two years of official testing show our herd to average 10,172.28 Pounds of Milk and 507.97 Pounds of Fat. One half of these cows were heifers with first calf who averaged 8,670.24 Pounds of Milk and 436.01 Pounds of Fat (only 7 pounds under the average of all A.R. records). Our mature cows averaged 12,710.5 Pounds of Milk and 621.52 Pounds of Fat (120 pounds over the average of the mature cows of the breed).

A bull from these cows will increase the production of almost any herd.

Elliott-Brant Rancho, - Owensmouth, Cal.

BERKSHIRES

A few fine fall pigs, strong in Bandmaster, Masterpiece and Rival's Champion blood. They are strong and active with good top lines, heart girth and moderate heads. Glad to show them or send full particulars and prices.

MAPLEWOODE RANCH

E. M. HOLGE, Owner
HOMER HEWINS, Jr., Manager
Calistoga, Cal.

Forest Grove Duchess 5th

B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K

THINK OF IT—ONE PRODUCT—SCORES OF FARM USES

Awarded Gold Medal Pan.-Pac. Exposition.

In B-K the POWERFUL disinfectant (NOT A POISON), you have in one clean glass bottle a concentrated liquid—safe for children, old folks, or the hired help to handle—that can be heavily diluted with water and used as a spray—dip—disinfectant; also for mixing in the drinking water; also effective for treatment of many contagious diseases of cattle—hogs and poultry. Our bulletins give scores of farm uses.

B-K is worth from 2 to 10 times as much as any coal tar disinfectant or carbolic acid—on the basis of germ-killing strength alone. Its other remarkable advantages put it entirely in a class by itself. This has been proved by thousands of farmers and breeders.

Dealers Wanted in Every Town.

FREE BULLETINS—Send for complete information—"trial offer" and bulletins on Farm Disinfecting—Contagious Abortion, Calf Scours, Hog Sanitation or Poultry Raising.

General Laboratories
3104 S. Dickinson St., Madison, Wis., U. S. A.

B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K

The One **Product**
"Bacili-Kil" the Liquid Sterilizer

B-K Bacili-Kil Trade-Mark

For Many **Farm Uses**
"Bacili-Kil" the Germ killer

759 S. Los Angeles St. **O. J. WEBER CO.** Los Angeles, Cal.

B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K

The Remco Redwood SILO

will enable you to furnish your cows with SWEET, GREEN FEED during the LONG, DRY SEASON.

To have desirable feed means more and better milk with higher prices and a larger income. It is not only economy but sensible business judgment to provide your ranch with a REMCO REDWOOD SILO.

It will more than pay for itself every year and will last a life time.

CONSTRUCTION

The REMCO REDWOOD SILO is made from clear air dried redwood. It is built according to scientific specifications by skilled mechanics using the most approved wood working machinery.

TANKS and PIPE

We also manufacture REMCO IRRIGATION PIPE in all dimensions from two inches to twelve feet in diameter. Water tanks from 500 to 500,000 gallons.

Write us for our instructive booklets on any of the above subjects.

Redwood Manufacturers Company

1604 Hobart Building -:- -:- SAN FRANCISCO

FOREST GROVE LAUREL 8TH
First and Reserve Grand Champion
California State Fair 1916

The Type We Are Breeding For

Hardy, prolific sows of best blood lines and breeding. Strong, upstanding, prepotent boars. In short the best possible specimens of the Berkshire breed. We plan to do this by breeding large numbers and from them making a rigid selection.

James Mills Orchard Corporation
Hamilton City, California

D. O. Lively Stock Farm's

FIRST ANNUAL SALE OF

REGISTERED HEREFORD CATTLE

Will be held under the auspices of the American Hereford Cattle Breeders' Association at

Mayfield, California, Thursday, May 3, 1917

The offering will be made up of sixty-five head—twenty bulls and forty-five females. A splendid opportunity to start a pure bred herd. Write for catalog.

D. O. LIVELY STOCK FARM, 215 Hobart Bldg., San Francisco

Prize Winning HAMPSHIRES

The farmer who wants a hog that puts on 200 lbs. of firm meat at six and a half months of age buys the Hampshire.

Boars, gilts, bred and open, for sale from the P. P. I. E. Champion Hampshire stock, just as nearly perfect as they make them.

F. A. Langdon, Manager — Llano Vista Ranch, Perris, Cal. — F. V. Gordon, Owner

Use Tuberculin Tested Sires in Your Herd

WE HAVE A NICE LOT OF SHORTHORN BULLS and HEIFERS THAT WILL SELL FAST WHEN THE SPRING FEED COMES. SELECT YOURS NOW FROM THE BRIGHTON FARM HERD.

H. L. & E. H. Murphy, Perkins, Cal.

Northern California Live Stock Notes

Written for California Cultivator By W. S. Guilford

COOPERATIVELY OWNED SIRES

ONE of the greatest Percheron stallions in the world is owned by two farms, and he does duty in two different studs. One farm is in Illinois, one in Indiana. One-half interest in him was sold for $10,000. This stallion is the famous Carnot.

The same principle will work in the neighborhood ownership of bulls and boars and rams—if the neighbors can agree and will see the thing in the right way. Take a locality where there are 30 pure bred sows for instance owned by five different owners. A man with six sows might not think he could afford to buy a $500 boar; one costing $100 might be about his limit. But every pig sired by the $500 boar should easily be worth $5.00, maybe $10, more than those sired by the cheaper one.

Now it would surely be worth something in the way of give and take neighborliness, and little inconvenience, to accomplish this result. This is a matter worth considerable thought.

SAVE ALL THE HAY THIS YEAR

In the districts where irrigation is available there are many fields that do not raise nearly as large a total tonnage as they should. Sometimes the time of cutting the crop is delayed a few days, then this makes the irrigation late, and by the end of the season one delay or another has caused the loss of at least one full cutting during the season.

We need every pound of hay that can be produced in 1917.

HAUL THE MANURE

Every forkful of manure should be hauled out this spring and put where it will do the most good. Only in this way will the maximum production of the individual farms be obtained.

MORE IRRIGATION

The state water commission, consisting of the governor and W. F. McClure, W. A. Johnstone, A. E. Chandler and Irving Martin, has just issued report for the period from March 15 to December 1, 1916. It gives an idea of the progress which is being made in irrigation development of California. There will be millions of dollars spent for labor within the next few months.

The book contains not only a number of tables giving a mass of information regarding irrigation matters of the state but has chapters touching methods of application for permits to appropriate water, also a chapter on water rights in California, dealing with riparian rights and present practices. It is a most valuable book and should be in the library of every California irrigator.

A Great Sire

THE live stock men of the Coast opened mouths and stared when Mr. Taylor, manager of Mrs. Baldwin's great Santa Anita Rancho, paid the Morrises $12,500 for Prince Gelsche Walker. It seemed a long price. As new daughters enter the A. R. O., and now as Miss Valley Mead De Kol imported cow Hiske 24th. Juliana King of Riverside is out of former world's record two year old, Juliana De Kol. He has sired a number of cows that have produced over 1000 pounds of butter in one year and is also grand sire of the only cow in California to produce over 35 pounds of butter in seven days. He now has 25 A. R. O.

Lady Hiske Walker

Walker proves a world beater, his real worth becomes more apparent.

Lady Hiske Walker No. 197489, another daughter of the famous Santa Anita Rancho herd sire, Prince Gelsche Walker, has just finished a seven day record of 34.246 pounds of butter from 600.3 pounds of milk. This gives her the state record for California as a Junior four-year-old. She formerly held the state record as a three-year-old with 25.61 pounds of butter from 579.7 pounds of milk. At two years she produced 19.70 pounds of butter from 447 pounds of milk in seven days.

Lady Hiske Walker's dam, Hiske of Riverside, made 26.68 pounds of butter in seven days and 711 pounds of butter in one year. She is the daughter of Juliana King of Riverside and the daughters, this cow being the first to freshen as a four year old.

Miss Valley Mead De Kol Walker another daughter, produced 25.68 pounds of butter from 533 pounds of milk in seven days as a two year old. She produced 102 pounds of butter in 30 days and 754 pounds of butter in 240 days. At eight months after calving she produced 21.33 pounds of butter from 404 pounds of milk giving her the world's record in that class. She holds the California state record as a two year old.

Prince Gelsche Walker's daughters have carried off nine of the California state records. This remarkable young sire and 30 of his daughters are owned by Anita M. Baldwin, Santa Anita Rancho.

Field Notes From the Live Stock Men

Thatcher, Ennis & Williamson announce a sale of pure bred Berkshires the second week in May.

C. E. Patterson, Red Bluff, has recently purchased 20 Poland-China gilts from S. F. Williams of Orland.

The California Holstein-Friesian Association met at the Hotel Hughson Modesto, on Wednesday evening April 18. An interesting program was prepared. On the 19th the Holsteins of the Cornwell herd were sold at auction. More next week.

Warranted to Give Satisfaction.

Gombault's

Caustic Balsam

Has Imitators But No Competitors.

A Safe, Speedy and Positive Cure for Curb, Splint, Sweeny, Capped Hock, Strained Tendons, Founder, Wind Puffs, and all lameness from Spavin, Ringbone and other bony tumors. Cures all skin diseases or Parasites, Thrush, Diphtheria. Removes all Bunches from Horses or Cattle.

As a Human Remedy for Rheumatism, Sprains, Sore Throat, etc., it is invaluable. Every bottle of Caustic Balsam sold is Warranted to give satisfaction. Price $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use. Send for descriptive circulars, testimonials, etc. Address

The Lawrence-Williams Co., Cleveland, O.

KRESO DIP No! 1

Farm Sanitation

Will Increase Your Profits by Keeping Live Stock and Poultry Healthy.

Kreso Dip No. 1

Easy to Use. Efficient. Economical. Kills Sheep Ticks, Lice, Mites and Fleas. Helps Heal Cuts, Scratches and Skin Diseases.

Prevents Hog Cholera.

Experiments on live hogs prove that a 2½% dilution of Kreso Dip No. 1 will kill virulent Hog Cholera Virus in 5 minutes by contact.

We Will Send Free Booklets on

The treatment of mange, eczema or pitch mange, arthritis, sore mouth, etc.;
How to build a hog wallow which will keep hogs clean and healthy;
How to keep your hogs free from insect parasites and disease.

WRITE FOR THEM.

Kreso Dip No. 1 in Original Packages.

FOR SALE BY ALL DRUGGISTS.

PARKE, DAVIS & CO.

Department Animal Industry.

DETROIT, - - MICH.

The Leonard Jersey Herd

Gerties Lad; Gerties Son; Melia's Fox

Service bulls and heifers from Registry of Merit cows of strong individuality and best lines of blood and breeding for sale. For information, prices and pedigrees, write to

Chas. L. Leonard

Glenn, - - - California

DUROC JERSEYS

Sows, gilts and a few boars of the best breeding FOR SALE

H. P. Slocum & Son R 1 Willows, Cal.

H. I. Marsh of Sandyacre Farm reports sales of Poland-China hogs as follows: A yearling boar to Fred Hartsook, Los Angeles County, and a 14 months' old boar sired by "Model Major" to Miller & Lux, Inc., and two boar pigs to Roy Willison of Mazatlan, Mexico, and also nine open and bred gilts to this same gentleman.

The J. S. Gibson Company's Holstein cow, Princess Jetze, has completed a seven-day test which records 30.1 pounds butter, 485.4 pounds milk, showing 4.96 per cent fat. She is the best daughter of Jetze Zwartha, the bull that was imported for the old Pierce herd from Holland at a cost of $5000. He was an undefeated show bull in both the United States and Holland.

President Keisel of the California Holstein-Friesian Association writes of the active campaign which is now being conducted for the advancement of the Black and Whites. A committee has been appointed to revise the by-laws of the association. This committee consists of Frank M. Helm, Fresno; A. R. Magruder, Ripon; W. H. Taylor, Santa Anita; Gion W. Gibson, Williams; A. W. Morris, Woodland; Owen Duffy, Napa, and J. M. Henderson Jr., Sacramento. This committee met with the president and the by-laws have now been revised. The association is in shape to begin putting in action its plans for the advancement of the interests of Holstein cattle in California, and needs in this work the cooperation of every breeder and dairyman in the state, together with the cooperation of all others who are interested in any way in the betterment of the entire dairy business.

Guy H. Miller reportes recent sales of the following young Jersey bulls: Baron Constantia 149821 to F. N. Hale. Baron Constantia is a typey youngster sired by Baron Underwood. His dam, Constantia of Venadera, is a two-year-old heifer now on yearly test doing good work. She is a daughter of Owl of Belleview, the university farm bull, and her dam is old Signora Bruce, R. M., 573 pounds butter, grand champion state fair 1908.

"Sergeant Altama 149822 to F. E. Robertson. He is sired by grand champion Altama Interest, sire of eight R. of M. heifers. His dam is Beatrice of Venadera, R. of M., 532 pounds of butter.

"To J. H. Holgate, yearling bull, Juanita's Interested Fox 141536, son of Altama Interest, dam, Juanita of Venadera, 628 pounds butter. She is another of the tested daughters of Margery Golden's Fox. Her dam, Wanda of Venadera, 609 pounds butter, is dam of three R. of M. daughters. Wanda's dam, Anita of Venadera, R. of M. 518 pounds butter as a three-year-old, is dam of seven R. of M. daughters. Anita holds world's record for number of R. of M. daughters with yearly records, Anita's dam, Nettie Underwood, is in R. of M., 668 pounds butter and is dam of three R. of M. daughters. Juanita's Interested Fox was a prize winner at the last state fair.

Toyon Farm, Los Altos, is progressing rapidly in the development of its herd of registered Holstein-Friesian cattle. The foundation was selected with high requirements as to breeding and individuality, and the beginning of official testing promises records that will be a distinct benefit to the breed. Recent creditable seven-day official records completed include: The three-year-old Finderne Soldene Korndyke, 21.25 pounds butter; the three-year-old Miss Wayne of Yuba, 25.33 pounds butter; Creamcup Colantha De Kol, 27.86 pounds butter, record made after a double case of milk fever; and the exceptionally good record of 27.90 pounds butter by the three-year-old Tulista Johanna Princess. She went on test right out of pasture, with absolutely no preparation, and barring accidents she is a sure 30-pound cow at next freshening.

W. J. Higdon, the popular Holstein and Guernsey breeder of Tulare, has just sold his entire herd of registered Guernseys and will hereafter devote his energies toward developing his registered Holstein herd. The Guernseys sold are one of the very choicest herds in the West, the females consisting of practically all three-year-old heifers with Advanced Register records around 400 pounds fat in one year. Mr. Higdon's Holstein herd is made up of well bred cows, many of which have high A.R.O. records, and these females are headed by a sire of

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Resists rot and fire

Permanent—contains a natural preservative that prevents decay. Not affected by sun, rain or violent changes of weather.

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California Redwood Association

770 New Call Building

San Francisco, California

Santa Anita Rancho

Anoakia Breeding Farm

ARABIAN-THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three-year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars, Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Geische Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent Santa Anita, Cal.

SHORTHORNS BERKSHIRES

Hopland Stock Farm

Fifteen head Shorthorns at State Fair awarded 19 premiums. Herd boar awarded Reserve Grand Championship. Grand Champion Sow now added to our herd.

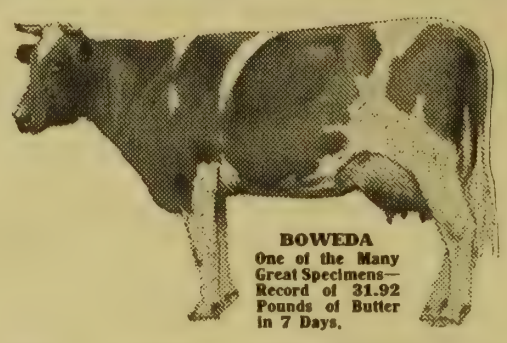
Bulls, Boars, Bred Sows and Gilts

San Francisco Office: 1210 Flood Bldg.

VINA CALIFORNIA, June 5, 6 and 7, 1917

America's Greatest

Holstein Auction



BOWEDA
One of the Many Great Specimens—Record of 31.92 Pounds of Butter in 7 Days.

The Board of Trustees of Leland Stanford Jr. University has decided to dispose of the entire herd of about 300 registered pure bred Holsteins on the Stanford Ranch at Vina, California, at public sale, June 5, 6 and 7, 1917.

The foundation for this world famous herd was laid by the late Governor Leland Stanford in the early 80's; and, by the intelligent introduction of new blood strains, it has been developed to a point where it is without a peer. The value of this great herd has been proven in the last year by the most successful official tests.

Cows of wonderful capacity and bulls of character have been developed at Vina.

The herd will be auctioned without reserve. This will be an unequaled opportunity for the advanced breeder, the beginner and the dairyman.

At each drop of the hammer somebody's herd will be improved.

There are more good prospects in this sale for A.R.O. work than ever before offered. Cows with big records. 40 A.R.O. cows are to be sold.

300 Registered Purebreds Tuberculin Tested

In the herd are:

40 daughters of King of the Pontiacs 14th. 84332, best individual son of King of the Pontiacs and one of the greatest show bulls in the West.

20 heifer calves of Segis De Kol Pontiac Burke 160339, all great prospects.

40 daughters of Dutchland Colantha Sir Ormsby 55055, a great son of Colantha Johanna Lad, all making good records.

Geneseo Lad 90356 and 40 very promising daughters.

Special trains will be run between Chico and Vina each day of sale.

For Catalog or Information Address **M. H. TICHENOR** Sale Manager **Palo Alto, California**

The

Quality Holstein Sale

The Spring Consignment Sale scheduled to be held at University Farm, Davis, during Farmers' Week, has been transferred to the

STATE FAIR GROUNDS,

Sacramento, May 31, June 1

This sale will contain some of the greatest breeding animals ever offered to buyers of registered Holstein-Friesians in any sales ring.

Detailed announcements will appear in later issues.

Write for catalog now.

California Breeders' Sales and Pedigree Company

C. L. HUGHES, Sales Manager
Sacramento, California

Announcement

Knob Hill Stock Farm

Registered Poland Chinas

To My Friends and Patrons:

I have sold my aged herd of Poland-Chinas to H. I. Marsh of Modesto, Cal., which he will combine with his Sandyacre Herd. Mr. Marsh is a well known Poland-China breeder and requires no introduction.

This combination will give Mr. Marsh one of the largest and best herds of Poland-Chinas in the state. I bespeak for him a continuance of your liberal patronage and friendship, for which I thank you.

Farmington A. M. Henry California

outstanding breeding and individual excellence. Prince Riverside Walker, whose sire is the famous Prince Gelsche Walker and whose dam is Aaggie Acme of Riverside, the dam of Aaggie Acme of Riverside 2nd, the wonderful young cow now making remarkable records in the Morris herd.

A. M. Henry, the Poland-China swine breeder, announces that he has sold his aged herd of Poland-Chinas to H. I. Marsh, a Stanislaus County breeder. Mr. Henry writes that he hopes for an extension of the good will toward Mr. Marsh which has been shown to him in the many years he has been growing prize winning Poland-Chinas. Mr. Marsh will have a magnificent herd, and we doubt not the skill which he will use in building it up into a bigger and better will make for a continuation of the popularity of this great herd. These animals are all of the large type and have been shown at state and other fairs for many years. We do not know whether the blue ribbons have all gone with the herd, but blue ribbon winning capacity has, and we will expect to see Mr. Marsh at future state fairs.

W. E. Premo, manager of the Porterville Alfalfa Company, has contracted with the Prosperity Alfalfa Company for the delivery of 1000 corral fed cattle within 30 days at a price of $120,000. This is said to be a record figure.

Alexander & Kellogg of Innisfail Farm, Suisun, report "sale of two bull calves last week, one out of an imported heifer to C. J. Kingry and the other out of an eastern cow to A. G. Watkins. As there is to be a classification for Milking Shorthorns at the Chico fair in May we will show a representation from our herd there, including our herd bull, Glenside Royal, and two imported English cows, Bellvue Daisy, who won the silver cup at the Solano County Fair last year, has just completed her year's record of 8468.7 pounds milk and 311.67 pounds butterfat. In addition to this she suckled her calf for a month before beginning the record. Her heifer calf weighed 880 pounds as a yearling. We consider this a good demonstration for the dual purpose cow. We have a four-year-old cow that is now milking 50 pounds a day on dry feed. She has a fine roan bull calf that we will show at the state fair."

Thatcher, Ennis & Williamson announce a Berkshire sale to be held May 9. "The catalogue shows names of two sows that are as well known as any other sows on the coast. They are Rookwood Lady 96th and Rookwood Lady 97th. In breeding and individuality they stand in the class of truly great sows. Rookwood Lady 96th won first and grand championship honors at the Riverside fair, the largest live stock show in Southern California, in both 1915 and 1916, and was second in the junior yearling class of 37 entries at the Panama-Pacific International Exposition, and she is better today than she ever was. She is a sure breeder and transmits her qualities to her pigs. Rookwood Lady 97th was in the Berkshire View Herd at the P. P. I. E. as a representative of the ideal Berkshire sow."

A GREAT BOAR

A. B. Humphrey, one of the most enthusiastic Berkshire breeders of the coast, holds the record as to price received for one boar. At the time of the Panama-Pacific Exposition and on one or two other occasions $1000 has been paid for California bred stock, but now Mr. Humphrey puts Grand Leader 2nd—which by the way was grand champion at the P.P.I.E.—in the ring and he sells for a round $3000. Worse than all, from the California standpoint, is the fact that the purchaser also takes away 20 sons and daughters of the champion, carrying the whole bunch back to Pennsylvania. It is to be regretted that such a great family of hogs has been sold out of California.

A question frequently asked is; "What breed of hogs should I take up?" All breeds look alike to the packer, provided they are well matured and properly conformed. Neither the Duroc, Chester White, Poland-China, Berkshire, Hampshire, Yorkshire brings a premium one over the other, provided the grade and finish are the same. That being the case raise the breed that your fancy dictates.

SILOS

Concrete OR *Wooden*

GRAIN STORAGE

Artesia Lumber & Cement Co.
W. L. Jencks
ARTESIA, CALIFORNIA

Globe A-1 Brand

Cottonseed Meal

45% Protein and Fat

EVERY DOLLAR SPENT FOR A-1 COTTONSEED MEAL REPLACES $2.00 TO $3.00 WORTH OF GRAIN OR OTHER CONCENTRATED FEEDS.

Feed Dairy Cows, Horses, Poultry Fatten Cattle and Sheep

Write us for circular

Sold by **Globe Mills,** Los Angeles
San Francisco Colton San Diego
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Purebred Registered
HOLSTEIN CATTLE

A Cornell University test proves the value of a purebred Holstein bull in grading up a herd of ordinary cows. A cow three quarters Holstein, in 45 weeks, produced 11,693 pounds of milk containing 413 pounds of butterfat, and another three quarter blood Holstein cow, in 48 weeks, produced 13,574 pounds of milk containing 430 pounds of butterfat. A purebred Holstein bull is one of the most business-like investments a farmer or dairyman can make. There's big money in the big "Black and White" Holsteins.

Send for FREE Illustrated Descriptive Booklets The Holstein-Friesian Association of America. F. L. Houghton, Sec'y, Box 120, Brattleboro, Vt.

El Dorado Holsteins

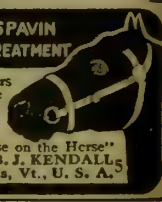
Headed by
SEGIS PONTIAC DE KOL BURKE LUIT.

Out of a 32.76-pound 4-year-old. His sire is a son of Riverside Sadie De Kol Burke, 32.29 pounds butter in 7 days.

Herd officially tested for 7 and 30 days.

Alex Whaley, Tulare, Cal.

KENDALL'S SPAVIN TREATMENT



—has saved thousands of dollars and thousands of horses. The old reliable treatment for Spavin, Ringbone, Splint or Lameness. For sale at all druggists. Price $1 per bottle, 6 for $5. "Treatise on the Horse" free at druggists or write to Dr. B. J. KENDALL COMPANY, Enosburg Falls, Vt., U. S. A.

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HEREFORDS

Perfection and Beau Donald breeding. Noted for their size, bone and quality.

Now booking orders for service bulls for future delivery.

Visitors always welcome.

W. J. BEMMERLY, Woodland, Cal.

Foundation Herds

of any size our specialty. Best blood lines.

Write to

Butte City Ranch

The Home of Good Berkshires

Butte City, - - - Calif.

Linnview Farm BIG TYPE **Poland Chinas**

We have a choice lot of young sows and boars ready for delivery, sired by champion Iowa boars and out of big boned, prolific sows. A Wonder, Iowa King and Big Orphan blood—none better.

O. L. LINN, Route A, Modesto, Cal.

CUTTER'S
BLACKLEG PILLS

"California's Favorite" for nearly 20 years

For the Prevention of Blackleg in calves and young cattle

Their superiority is due to nearly 20 years of specializing in "Vaccines and Serums only."

Year in and Year Out they give better satisfaction than any other vaccine made, and the cost of a few cents per dose is cheap insurance against a disease that always takes the fattest and best.

Single Pills may be used for ordinary and range stock.

Double Pills should be used for pure bred and high grade stock.

Use any Injector, but Cutter's simplest and strongest.

Prices:

10 dose pkge. Single pills	$1.00
50 dose pkge. Single pills	4.00
10 dose pkge. Double Pills	1.50
50 dose pkge. Double Pills	6.00
Cutter's Pill Injector....	1.50

Insist on Cutter's. If unobtainable, order direct.

Write for new booklet, "The Control of Blackleg." It tells about Anti-Blackleg Serum which cures Blackleg and may be used simultaneously with vaccine to combat outbreaks and safely protect valuable stock.

The Cutter Laboratory, Berkeley, Calif.

The Cutter Laboratory of Illinois, Chicago
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Raise Your Calves on
Blatchford's Calf Meal
and Sell the Milk

More calves have been raised on Blatchford's Calf Meal than on all other milk substitutes combined.

100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk.

Prevents scouring and insures the early maturity of sleek, handsome calves.

It is steam-cooked and no trouble to prepare or use.

Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or Blatchford Calf Meal Factory, Dept. 5 Waukegan, Ill.

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326-328-330 SO. MAIN ST.
LOS ANGELES. CALIFORNIA

HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families. Some of serviceable age.

REGISTERED BERKSHIRE PIGS

Masterpiece, Longfellow and Robin Hood Strains. Fine individuals of both sexes—we pay registration fee.

Careful attention given to mail orders.

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Sales conducted in all parts of California and Adjoining States. 25 Years' Experience.
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Berkshire Hogs—Milking Shorthorns
Breeding Stock For Sale
G. A. Murphy - Perkins, Cal.

BREEDS OF SWINE

The Department of Agriculture, Washington, D. C., is issuing Farmers' Bulletin 765, "Breeds of Swine," by F. G. Ashbrook of the Animal Husbandry Division.

There are two distinct types of swine, the lard and the bacon types. Swine of the lard type far outnumber those of the bacon type in the United States. The lard type is preferred by the people of this country, consequently the majority of feeders produce the rapid fattening, heavily fleshed lard type.

The bacon type is not raised extensively in the United States. The production of choice bacon is more general in those countries where the feed of the hog is more varied and where corn is not relied upon as the principal grain for hogs.

The principal breeds of the lard type are the Poland-China, Berkshire, Chester White, Duroc-Jersey, and Hampshire.

The principal breeds of the bacon type are the Tamworth and the Large Yorkshire.

There is no best breed of swine. Some breeds are superior to others in certain respects, and one breed may be better adapted than another to certain local conditions. This is a matter which the farmer will have to decide for himself.

BIGGEST SALE OF PUREBREDS EVER HELD

On account of the great diversity of the interests of the trustees of the Leland Stanford Junior University they have decided that it will be to the advantage of all concerned to concentrate the resources of the university and thus make administration safer and easier not only now but for the future.

The sale of the entire herd of pure bred registered Holstein cattle on the university ranch at Vina will be the first move under this new policy. About 400 head will be sold on June 5, 6 and 7 under the direction of M. H. Tichenor as sales manager. Tichenor is one of the owners of the Palo Alto Stock Farm, the home place of the late Governor Stanford, and is recognized as one of the best authorities on registered cattle in the United States. In the early 80's Governor Stanford founded the herd and it is one of the best and most interesting in the world.

STANISLAUS COUNTY SWINE BREEDERS

The Duroc-Jersey Swine Breeders' Association of Stanislaus County held its regular meeting at Modesto, Saturday, April 7. J. M. DeVilbis of Patterson, vice president, presided. Mr. C. H. Connor, county farm adviser, gave a talk on "Food Values of Farm By-Products." He showed us how we can cheapen our hog ration by utilizing the waste products such as sweet potato culls, cantaloupes, pumpkins, skim milk, etc. He showed how the skim milk which is being sold to the casein factories at 18 to 20 cents per hundredweight, if fed to hogs would displace grain to the value of 40 to 60 cents. At the next meeting W. M. Way will talk on "Cooperative Marketing of Hogs." It is the purpose at each meeting to discuss some subject of vital interest.—Elmer Lamb, Secretary.

RAPID INCREASE IN BUTTER MAKING

Written for California Cultivator
By C. A. Briggs

The Orland cheese and butter factory is rapidly coming to the front as a producer. Beginning in 1915 in a small way it did a $193,000 business in 1916. In February of this year the output was 100 per cent above that of the corresponding month of last year. In March an average of 2300 pounds of butter was produced every day of the month, including Sundays, and the pay checks for the month to the farmers amounted to over $20,000.

At the Western Dairy Products Show in Portland, Oregon, just closed the factory's exhibit of butter won a "Highest Score" bronze medal. The entire output finds a ready sale at best prices.

HERCULES
JUMBO-RIVETED
HALTERS

LIKE everything else in the *Hercules* line, the Halters are made to last, to give good service, to wear well, and always to be relied upon in an emergency.

Those Jumbo Rivets have a quality all their own. The heavy halter is oak-tanned in California, the source of the best harness leather.

They are so strong we could almost afford to offer to pay for a new horse, in the event that one of these Halters broke; but we will give you a new halter if one breaks under ordinary usage.

Ask your dealer for *Hercules* Halters.

When a dealer offers you a *Hercules* Harness, Horse Collar, or Saddle, he is offering you *THE BEST THERE IS*

W. DAVIS & SONS
333 MARKET ST. SAN FRANCISCO
Three Blocks From the Ferry

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W. DAVIS & SONS, Dept. B14
333 Market Street, San Francisco
Send me, free, copy of your road map.

Public Sale **Berkshires** Public Sale

Wednesday, May 9, 1917
RIVERSIDE, CALIFORNIA

60 Bred Sows and Gilts
10 Boars - 50 Weanling Pigs

DISSOLUTION OF PARTNERSHIP

An Opportunity for the breeder who is after the best in type, quality and breeding for his foundation herd. An Opportunity for the man who wants young stock. An Opportunity for the man who wants animals for his 1917 show herd. An Opportunity for the man who is after the right kind of pure-bred Berkshires in his herd for profitable pork production. There isn't a breeder on the Coast who will not find something in our offering that will attract him, that will add strength to his herd, and that he can afford to buy. Come and bring your friends with you. Remember the time and place. May 9th, at Riverside. Write for catalogue.

Thatcher, Ennis & Williamson

ABORTION IN CATTLE
PREVENTED AND CURED PERMANENTLY
YOUR COWS MADE PROMPT, REGULAR BREEDERS BY
STERILOID

STOP LOSING CALVES

TREATMENT: If STERILOID is used at the first sign of abortion, the cow will go her full time and have a healthy calf. If your cows or heifers do not come in season, or fail to get with calf, use STERILOID. Cows get with calf after only one treatment. Write today for FREE BOOK. It explains the causes and symptoms of Abortion and tells how to cure Abortion, and make your cows regular, healthy breeders with STERILOID. Also contains letters from breeders who have used STERILOID successfully.

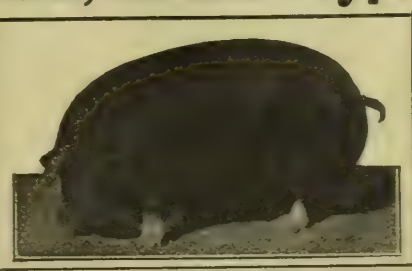
GUARANTEE: We will refund money in every case when STERILOID FAILS to make good. Price $1.00. Mailed postpaid, in plain wrapper.

MARTIN REMEDY CO. Dept. L, 388-408 Columbus Ave., New York City. References, Colonial Bank

Poland Chinas, Medium Type

Choice breeding stock, both sexes, from Panama-Pacific International Exposition prize winning strain. 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to

M. Bassett
Hanford, Kings County, Cal.



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TREES

For Sale — Washington and Thomson Navels, Valencias, Seedless Grapefruit, Eureka, Lisbon, Villa Franca and Seedless Lemon, Harman Avocados. Buds were selected from the best bearing trees and will yield bumper crops. Also 40,000 Mission and Manzanillo Olives. The above stock is growing in Rialto, Whittier, Glendora and Fallbrook. Budding cloth 30c yard, post paid. No frost damage. We solicit your patronage. Prompt replies to inquiries. Cyrus W. Wilhite, P. O. Box 154, Glendora, Cal. Phone 303.

For Sale, Seed Bed Stock—About 100,000 extra fine and absolutely clean sour stock. Will run from 6 to 16 inches. Also two-year-old Marsh Seedless Grapefruit, Eureka Lemons, Valencia and Washington Navel Oranges. Prices on application. W. B. Richards, 935 N. Park Ave., Pomona. Phone 6302.

Citrus Trees, 7 kinds, at "live and let live" prices. Stock that will bear fruit. No high priced reputation charged for. Why pay a dollar for something you don't get? A few thousand left. No culls. Come or write B. C. Dodson, Glendora, Cal.

Citrus Trees—All leading varieties. Large line, Lisbon & Villa Franca Lemon and Washington Navel trees. All first class and clean. Special prices to dealers or in carload lots to growers. Randall Bros.' Nurseries Co., Whittier, Cal.

For Sale—1000 Washington Navels, 2 years old, 500 Valencias, 2 years old, 500 Eureka Lemons, 2 years old, 200 seedling Avocados, 2 years old, 4-6 ft.; 75 Italian Cypress 6-8 ft. Enterprise Nursery, R. F. D. No. 2, Box 305, Pasadena, Cal.

For Sale—Valencia, navel oranges and Eureka lemons, 2-year-old good stock. Write or call for prices to Nursery on North Azusa Avenue between 11th and Sierra Madre Ave., E. Minabe, Azusa, Cal.

By Far the Lowest Priced means of reaching a buyer for what you have to sell is through classified advertisements in California Cultivator. The cost is only 3 cents per word per issue, with a minimum of 35 cents.

Orange, Lemon and Grapefruit Trees. Fine strong, sturdy trees. Best root system. Grown at San Dimas. No frosted trees. Get our prices. Smith Citrus Nurseries, F2729, 315 Marsh-Strong Bldg., Los Angeles.

For Sale 6000 Valencia Trees—One year old this spring. Buds from Performance Record trees in one of the best groves in the state. Write today. L. V. W. Brown, Riverside, Cal.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

20,000 Valencia and Washington Navel orange trees, some lemons, 3 years old, at a bargain. Inquire No. 2116 Cedar St., West Alhambra, Cal. Telephone Alhambra 332-R.

For Sale—6000 fine thrifty two-year-old Lisbon lemon trees. Bud selection the best. Address Chas. Story, Rivera, Cal. Phone Whittier 4721.

Avocado Budding—Trees budded to the Bartley, Lyon, Sharpless, Fuerte and other varieties. Will bud trees anywhere, any size, any time. A. R. Rideout, Rideout Heights, Whittier.

For Sale Citrus Trees—Valencia, Navels, Grapefruit, Seedless Lemon, Villa Franca and Eureka; also Manzanillo olive and walnut trees. W. W. Burns, 631 Security Bldg., Los Angeles. F-3110.

Olive Trees—Mission, Manzanillo, Ascolano. Propogated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, Cal.

Valencias, one and three years old. Eureka lemons, three years old. Selected stock. May A. Miller, Glendora, Cal.

Will Trade budded avocado trees of choicest varieties for Pueblo, Fuerte or Sharpless buds. W. K. Fanderson, 424 North Pickering Ave., Whittier.

Budded Avocados—All leading varieties. Address Mather's Avorado Nursery, 137 N. Fair Oaks Ave., Pasadena, Cal.

Citrus Trees—All kinds, any quantity. Butler's Morning Side Nursery, Lamanda Park, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Olives—Large stock of Mission, Manzanillo and Ascolano olives. No scale, no defoliation. C. E. Moyer, Hemet, Cal.

Quality Trees—Prune trees 10c each. Cash Nurseries, Sebastopol, Cal.

HORTICULTURAL PRINTING

Catalogues — Good Printing. Specialists in preparing nursery, seed, poultry and live stock catalogues and all kinds of commercial printing. For prices and information address WOLFER PRINTING CO., 115 No. Broadway, Los Angeles.

Paper is advancing; save money by ordering your printing now from G. C. Gallagher, The Service Printer, 441 Sacramento St., San Francisco.

IRRIGATION ENGINEERS

Contour Tree Staking, pumping plants, pipe lines, flood control and conservation. Bennett & Duling, Engineers, 1125 Central Bldg., Los Angeles, Cal.

LUMBER

AAA—Lumber, New and Second-Hand; rough, $10 M; finished, $15 *A*R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St., San Francisco, Cal.

HOGS

Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

Make Big Money with our famous Whitten Ranch Big Type Poland-China. Prolific breeders and profitable feeders. Grow rapidly, fatten quickly. Top the market at 225 lbs. in six months. Make greatest profit for feed consumed. Prices reasonable; satisfaction guaranteed. Send for free illustrated book, "Hogs for Profit". Finest ever issued. Packed with valuable information; tells how to become successful. Ranch in Tulare County, but address owner, R. H. Whitten, 610B Security Building, Los Angeles.

The Billiken Herd of Chester Whites. The type that is ready for the market in 7 months or less. Sold out of bred gilts and service boars. Three open gilts, show prospects to offer. Some young stock of last October farrow, as follows: 18 sow pigs and 8 boar pigs. These are from 6 different litters and 3 different sires. Write for description and prices. C. B. Cunningham, Mills, Cal.

Large Number of excellent young boars ready for immediate service. Weanlings of either sex. Sired by Joker, first prize boar at Wisconsin State Fair 1915. Sows and gilts, sired by Iowa Wonder and bred to Joker and Sunnydale's Chief. For prices and further information write to Geo. A. Smith, Corcoran, Cal.

Cholera Immune Berkshires — A few choice gilts large enough to breed for fall litters, also fall boars at attractive prices. Several have strong line of best imported blood. Young pigs $15 and $20 each. All registered. Quality stock at utility prices. W. H. WAUGH, Riverside, Cal.

Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P.P.I.E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

Superba, World's Grand Champion Poland-China boar and one of the greatest sires of the breed. Spring boars ready for service, also few sows bred to this noted sire, reasonably cheap. Rough's Greenfields, Arlington Sta., Riverside, Cal.

Duroc-Jerseys—Finest herd of brood sows on the coast, bred to and sired by the best boars in the world. Peters, Lamson & Walker, breeders for Fontana Land Co., Devore and Fontana, Cal.

Registered Poland-Chinas, prolific, fabulous, profitable, porkers. Choice young boars now ready for service, $25 each, weanlings $15 each. Dr. J. A. Crawshaw, Hanford, Cal.

Poland-China Swine Recorded. Stock for sale at all times. We please you or refund your money. W. A. Young, Lodi, Cal.

Choice Boar Pigs for Sale. Sired by Superba 220620, champion Poland boar at San Francisco. Prices right. C. R. Hanna, Riverside, Cal.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, Cal.

Cholera Immune Duroc-Jerseys of the large type. Bred for show and utility. Derryfield Farm, I.O.O.F. Temple, Sacramento.

Rancho Rublus Durocs all sold except a few extra good July and September gilts. Write for prices. Elmer Lamb, Ceres, Cal.

One Large and two medium type boars, extra choice, 9 and 10 months old. W. Bernstein Ranch, L. C. Trewhitt, Mgr., Hanford, Cal.

Carruthers' Farm Berkshire Hogs. Our herd won Premier Exhibitor prize at the P. P. I. E. Exposition. Mayfield, Cal.

Duroc-Jersey—Sow and boar pigs from registered stock. Low prices. Delta Farm and Livestock Co., Colton, Cal.

Berkshires—Two hundred pounds at six months. Ray C. Hannan, Corning, Cal.

Durocs—A few gilts of exceptional quality. H. E. Boudier, Napa, Cal.

Poland-Chinas—A few good breeding boars. S. F. Williams, Orland, Cal.

Big Type Durocs—Quick maturing, easy keeping. F. M. Johnson, Napa, Cal.

ESSEX

Little Black Essex—New crop nearly ripe. Supply very limited. L. W. Millsap, Yolo, Cal.

AGRICULTURAL IMPLEMENTS

Large Assortment slightly used and agents' sample plows, harrows, cultivators, wagons. Call and see them before buying. Save 50 per cent on some. Four floors. Largest stock. Arnott & Company, Ranchers' Supply House, 112 to 118 South Los Angeles St., Los Angeles.

For Sale—5000 Mower and rake parts. Good as new. Sections 50c box, guards 15c, sickles, pitmans, 75 sets. Rake teeth, $2.75, cost $7. Snap for dealer if he takes all. In ordering, send sample. Demmitt Co., 120 N. Main St., Los Angeles.

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New Zealand Rabbits are money makers. Send 25c for our new book on their culture—also catalogs. Gilmore Rabbit Farm, Dept. C, Santa Barbara, Cal.

LIVE STOCK

Butte City Shorthorns, Shropshires, Berkshires and Ponies. Stock of all ages for sale. Can supply one or a carload. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., Cal.

At Last the Perfect Silo—the Stay Round. No hoops, no bolts. No experiments. Any one can erect. Close price. Address D. O. Lively, 125 Hobart Bldg., San Francisco.

Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco, manufacturers of Calf Meal, Balanced Dairy Feed, Balanced Hog Feed. Write for samples.

Registered Shires — Blackhawk Stock Ranch. Importers and Breeders. Easton & Ward, Burlingame, Cal.

CATTLE

For Sale—From 1 to 70 extra fine, straight, well marked, light colored, registered Holstein heifers, from 8 to 20 months old. Those old enough are being bred to a first prize son of Prince Gelsche Walker, whose dam has a high yearly record. Some of these heifers are sired by bulls whose dams have from 35 to 37-pound records. They carry the very best blood of the breed and are good enough for any herd, anywhere. Prices to fit any pocketbook. Geo. A. Smith, Corcoran, Cal.

For Sale—70 cows and equipment for dairy; silos, machinery, etc. If you want to go into the dairy business this is your chance to get in right. Or would sell stock and machinery for half cash and lease the land. Ranch 50 miles east of Los Angeles. M. L. Carter, 603 Title Insurance Bldg., Los Angeles.

D. O. Lively Stock Farm, Inc., 215 Hobart Bldg., San Francisco. Breeders of Hereford cattle. A few choice heifers for sale. We buy and sell live stock on commission. Farm at Mayfield, Cal.

Have a Nice Registered Holstein bull calf from dam with 18.025 lbs. record. Is 3 years old. J. W. Benoit, Route C, Modesto, Cal.

For Sale—Ayrshire Bull, 4 years old February, Santa Maria Prince No. 16266 Ayrshire Breeders' Association. Bred by Brown & Brandon, Santa Maria Ranch Company, Watsonville, Cal.

Venadera Jerseys, the herd with official yearly records. Calves of both sexes for sale. Guy H. Miller, Route 1, Modesto, Cal.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit". It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

Budding Successfully Done. Can change your old citrus grove to any variety. Will guarantee all work. Have had 25 years' experience changing old trees successfully in one year. I introduced the idea of budding into old wood, thereby putting on a good top of buds the first year. Can furnish best references from any section of Southern California. O. D. Wilhite, El Cajon, Cal. Home phone El Cajon 451-2 bells.

Second Hand Pipe For Sale—All sizes standard water pipe and screw casing, half inch to ten inches. Also valve and fittings. Guaranteed good as new. Cheap for cash. Write for our prices. Weissbaum Pipe Works, 169 Eleventh Street, San Francisco.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St. San Francisco.

DESCRIPTIVE CATALOGUE FREE. ALISO APIARY COMPANY, GLENDALE, CAL.

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Bronze Turkey Eggs—$3.50 per dozen. Immediate delivery. Brehm Bros., St. Helena, Cal.

WANTED

Agents Wanted—Male and female, for Los Angeles City and County to sell "Compressed Air Washing Machines". Washes tub of clothes in six minutes. Works like magic. Price only $1.50. Agents coining money. A sale at every house. Robinson Citrus Nurseries, San Dimas, Cal.

Wanted—Man in each California county to represent established California company. Should have rig or auto to get around. Good pay and several weeks' work to right parties. Address J. H Yetter, Sales Department, 810 Santa Marina Building, 112 Market St., San Francisco, Cal.

One of the Most perplexing problems to farmers and ranchers is that of help. A small liner ad in California Cultivator is the quickest and easiest means of securing farm help.

Wanted—By steady man, pruning, citrus or deciduous trees of all kinds; also budding or grafting. Satisfaction guaranteed. Address Mike Detore, 127 North Main St., Los Angeles.

FARMS WANTED

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

Wanted to hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wis.

DUCKS

Baby Ducks—Mammoth Pekin, Rouen and Fawn Runners, $2.25 to $3.00 dozen. Eggs 75c to $1.50 dozen. Ship anywhere. R. N. Murchison, 6264 S. Vermont Ave., Los Angeles, Cal.

POULTRY

White Leghorn Baby Chicks—We have interest in and get our eggs from t flocks of 1500 each carefully Hogani hens that lay 190 eggs per year. Th hens are fed to produce a strong, vig ous chick that will live. We guaran satisfaction. $9 per 100. 1000 same ra Lyon Hatchery, Gardena, Cal.

Baby Chicks, reasonable prices—Wh Leghorns, R. I. Reds, settings, 100 1000's. Hatched right in our $60,000 brick and concrete hatchery from quality heavy layers. Stock, hatchi eggs. Pebbleside Poultry Farm & Hatc ery, Sunnyvale, Cal.

200-290-Egg Early Maturing, Winter La ing Leghorns; Reds, White, Bar Rocks; White, Buff Wyandottes; B Orpingtons, Anconas. During May e third off, chicks fifth. Breeders priced guaranteed pay for themselves this s son. $3-$10 profit every hen. C. Bees Pasadena, Cal.

East Side Poultry Yards, Establis 1904. Our object, egg type and size ideal utility stock. Thoroughly Hoga ized, correctly hatched baby chicks, d en or 1000. White Leghorn 8c, R. I. R 12c after April 1. Satisfaction guara teed. 255 S. 18th St., San Jose.

Baby White Leghorns—Hatched fr high producing utility and ribbon w ning matings. Booking orders for ba chicks, pullets, cockerels and hatchi eggs. A. D. Roberts Poultry Yards, B 566, Ceres, Cal.

Poultry Wanted—We pay the high market price for all the local poult we can get, no matter how large t quantity; also fresh ranch eggs. We mit immediately. National Poultry C 607 E. Third St., Los Angeles, Cal.

Free—How to Mate and Breed Rho Island Reds. Just what you want know, but could not get correct inform tion. Send stamp. Trap-nested sto both combs, big dark velvety red stra for sale. Ava Poultry Yards, Ava, Mo.

Baby Chicks—Hatching Eggs. Whi Buff, Brown Leghorns, R. I. Re Barred Rocks; sturdy chicks from w mated fowls. Prompt, efficient servi Write for circular. Campbell Poult Ranch, Campbell, Cal.

Model Poultry Farm, White Legho specialists. Baby chix and hatchi eggs from heavy laying stock, bred by for thirteen years. Our prices are rig W. C. Smith, Prop., Corning, Cal.

Baby Chicks from S. C. White Leghor from trapnested hens with records 192 to 297 eggs. Also S. C. Black Minor chicks and eggs. J. W. Benoit, Rou C, Modesto, Cal.

Baby Chicks from my thoroughbred flo of S. C. White Leghorns, after April to July 1 for $8 per 100, $75 per 10 Write for leaflet. J. R. Heinrich Poult Yards, Arroyo Grande, Cal.

"Blue Orpingtons", "Blue Andalusia and "Anconas". Sheppard's stra Stock and eggs for sale. Write for circ lars. J. R. Huddleston, 342 Edgewa Road, Los Angeles, Cal.

Petaluma Hatchery, Established 19 Capacity 16,000 chicks a week—the ki the hen hatches. Five varieties. Se for free circular. L. W. Clark, Petalum Cal.

Hatched Chicks For Sale—Barred Rock R. I. Reds and White Leghorns. Stron vigorous chicks. Send for circular. G. Hawley, Madera, Cal.

Rhode Island Reds—Dark red, vigorou heavy layers. Eggs by setting or hu dred. John Reed, Route C, San Jos Cal.

Baby Chicks—White Minorcas and Gold Buff Leghorn. Two popular breed Cockerels for sale. Sandridge Hatche Kerman, Cal.

Earl E. Sanders, Modesto, Cal., breed of M. B. Turkeys, S. C. White Minorca S. C. Black Minorcas and S. C. Barr Plymouth Rocks. Nothing but the be

Incubators—Essex Model Incubators factory prices. Write Geo. H. Croley Co., Inc., 631-637 Brannan St., San Fran cisco. Poultry supplies.

White Leghorn Baby Chix; strong an healthy, for particular people, fro Hoganized heavy laying, mature fowl T. C. Hawley, 504 E. Elm Street, Lod Cal.

For Sale—Anconas—Smallest of eate and heavy layers of large eggs. Fi strain. Eggs of guaranteed fertility per 15, $5 per 100. A. E. Nelson, El Mont Cal.

Next Winter's Layers should be hatche now. White Plymouth Rocks, all pu pose breed. Eggs $1.25-15. R. G. Robin son, 1291 107th Ave., Oakland.

"Eastman's Bred-to-Lay" Barred Ply mouth Rocks. Chicks, eggs, cockerel We Hoganize and trapnest. Fairmea Poultry Farm, Fairmead, Cal.

Baby Chicks—White Leghorns, Brow Leghorns, Reds, Barred Rocks, Blac Minorcas, Anconas. Prices on applicatio Orland Hatchery, Orland, Glenn Co., Ca

For Sale—Rhode Island Red Baby Chick from our carefully selected mating $14.00 per hundred. Williams Poultr Place, 236 No. Gage, Los Angeles.

Rainescourt Reds—Eggs from prolific lay ing strain and exhibition winners fro $1.50 up. Day old chicks $15 per 10 Rainescourt Poultry Ranch, Zel ah, Cal

Day Old Chix—Barred Rock, R. I. Red White Leghorns, Black Minorcas, Ligh Brahmas, Buff and White Orpington Enoch Crews, Seabright, Cal.

Baby Chicks (White Leghorns) shippe on approval before remitting. No wea ones charged for. Schellville Hatchery Rural 1, Sonoma, Cal.

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For Sale—Chinese Pheasant eggs $1.00 pe doz. A. R. Rideout, Rideout Height Whittier.

Turlock Hatchery—Baby chicks. A chic that will live. Turlock Hatchery, Tur lock, Cal.

Bantam-Cochins and Seabrights; all col ors; selling out. 100 birds. Be Kuechel, Orange.

Guinea Eggs $1.00 per setting, postpaid E. A. McKinley, Ukiah, Cal. R. D.

POULTRY

Extra Quality White Leghorn Chicks 12c each until March 1, then 10c. Carefully line bred from MacFarlane, Young, Cypher's and Martin strains of foundation stock. Eggs $1.50 per 15, $2.50 per 30, $5.00 per 100, $50 per 1000. Acres of free range connected with our breeding pens, 20,000 feet under roof. Only Jubilee incubators used, disinfected every hatch. Don't save 2c per chick in buying and lose a dollar per pullet in raising, get the best and succeed. Newton Poultry Farm, Dept. 3, Los Gatos, Cal. Catalogue free.

Roofden Ranch Chicks are well hatched from first class utility breeding stock; money making egg producers our aim, and the prices are right. 7 to 14c, depending on breed, month, quantity (dozen to thousands). White, Buff, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks. For Dollars and Sense. Send card for circular. Roofden Poultry Ranch and Hatchery, Campbell, Cal.

Baby Chicks and Eggs for Hatching from pure bred McFarland strain of carefully culled and Hoganized stock; bred-to-lay S. C. White Leghorns, $8.50 per 100 and $80.00 1000, shipped on approval. Sonoma Valley Hatchery and Poultry Ranch R. F. D. 2, Sonoma, Cal. Box 48.

FARM LANDS FOR SALE

BIG MONEY IN COTTON THIS YEAR FOR EXCHANGE OR SALE BY OWNER 157 acres best cotton land in Imperial Valley. Well located on main cross valley road, only ½ mile from proposed new railroad and townsite. Fenced in 5 fields hog tight. Good house, 35 acres alfalfa, some barley. 90 acres cotton now planting. Horses, cow, chickens, new farm tools. Cash price $28,000, mtg. $5000. Want smaller improved farm, fruit or nut ranch in either southern, central or northern California. No inflated values considered. Address "Owner", Route 2, Box 38, Brawley, Cal.

ORCHARDISTS AND DAIRYMEN
Before you invest, investigate Mountain View, in the center of Santa Clara County's fruit and dairy section, 6 miles from Stanford University, 35 miles from San Francisco. Rich soils, abundance of water. Ideal climate. Write for catalogue "California's Choicest Acres." William P. Wright, Mountain View, Santa Clara Co., Cal. The oldest real estate office in Northern Santa Clara County, established 1901.

For Sale—Orange County ranch, 167 acres with good improvements and in good state of cultivation. Water conditions excellent. Artesian wells and pumping plant both. Located ¾ mile from village of Westminster and ¼ mile from Orange County's fine highway running from Long Beach to Santa Ana. Property clear and title perfect, but on account of peculiar circumstances of ownership this land is for sale under value just now. W. F. Marks, 226 S. Main St. Phone Main 1499, Los Angeles.

Oregon & California Railroad Co. grant lands. Title to same revested in United States by act of congress dated June 9, 1916. Two million three hundred thousand acres to be opened for settlement and sale. Power site, timber and agricultural lands. Containing some of best lands left in United States. Large sectional maps showing lands and description. Price $1.00. GRANT LANDS LOCATING CO., P. O. Box 610, Portland, Oregon.

FRESNO COUNTY
100 Acres Unimproved. In 10 and 20-acre lots, in rising fig district, 4 miles from town, $110 to $125 per acre, easy terms. John Waddell, Route B, 333, Reedley, Cal.

For Sale—280 acres level watered alfalfa land in tracts to suit. Near school, store and station at Hinkley. $60 to $100 per acre on long time. Send for description. Owner, Box 106, Arlington, Riverside, Cal.

Finely Improved 20 acres of almonds and alfalfa. For prices and description write George Arbuthnot, Manteca, Cal.

State, Government and Indian Lands. Bargains overlooked. Free New Blue Booklet, Joseph Clark, Sacramento.

MACHINERY

FOR SALE—USED RANCH TOOLS
Material guaranteed. Save half. Why buy new? It's second-hand after used few times, but not necessarily worn out.
WINDMILLS TANKS WINDMILLS
8-ft. windmills, $21.50; 10-ft., $29.50; 12-ft., $45 to $55; 16-ft., cost $250, for $95; 1,000-gal. new galv. tanks, $32.50; 2000, $44.00. Big stock used galv. and redwood tanks, all sizes; 25 used 1500-gal. galv. tanks with covers $22.50; 50 used redwood tanks. Special: 20,000-gal. corrugated galv. tank, cost $560, for $235; fine for oil or water storage, 15,000 corrugated 125; 200-gal. redwood, $7.50; 500-gal. $13.50.
ENGINES PUMPS PIPE
Most all sizes—in good shape.
CENTRIFUGAL PUMPS—2-in. $24; 3-in., $35; 4-in., $45; 5-in., double runner, $95; all size plunger pumps, $5 up; new pump jacks, $12.50; double-acting No. 2 Ames deep well pump, $125; No. 3 Ames pumps, 30-in., $175 cost $660; Means double-acting deep well pump, $350, pumps 50 inches; 12 H. Lambert engine $165; 9 H. Foos $125; 6 H. Stearns, $89.
BRASS CYLINDERS—ALL SIZES
Plunger rods, pipe, pipe fittings.
RANCH MACHINERY SUNDRIES
Walking, riding plows, $15 to $22.50; fine 2-gang mouldboard plow, $45; 3 or 4-gang disc tractor plow, $55; alfalfa renovator, $28; 24-disc 4-horse harrow, $38; 2-sec. spring tooth, $15; fine BULL TRACTOR, $295; cement mixer, $35; sprayer, $19.50; mowers; buck rake, $25; 250 feet 7-in. irrigating pipe, 16½c; stone grinders, $5 to $12; 500 ft. 8-in. galv. irrigating pipe, 32c; corn sheller.
Want to buy first class material. No junk wanted. Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. MAIN, LOS ANGELES.

Several new and slightly used engines at a bargain. Best makes. 1 to 35 h.p. Arnott & Company, Wholesale Machinery and Implements, 112 South Los Angeles St., Los Angeles, Cal.

For Sale—38 H.P. "Otto" gas engine in good shape, at a bargain. E. A. Hayes, El Monte, Cal. Phone 48 R.

MONEY TO LOAN

Money on Hand at all times, for good loans, on Improved Farms, Land, City Property, Business Blocks, Bungalows, to pay off mortgages, or for building loans. I deal with the largest mortgage companies in the United States, who have loans from San Diego to Seattle, and as far east as New York, also with the best companies on the Pacific Coast. Loans made on cattle in California and Arizona in amounts from $20,000 to $100,000; 8 per cent interest. Also some money to loan on cotton crops. Inventions financed. Send full information and legal description. C. G. Paul, 407 Chamber of Commerce Bldg., Los Angeles, Cal.

SEEDS AND PLANTS

* * ALFALFA SEED * *
As has been our custom in the past, we are offering alfalfa seed both retail and wholesale. This is tested stock and up to our usual high standards. Samples, prices, etc., on application. Wire, write or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.
* ALFALFA SEED OUR SPECIALTY *
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Don't You Want pure home grown seeds? Of course you do. Ours are all tested and are good enough for anybody. Prices, information, samples, etc., upon application. Write, wire or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.
* * MAKE OUR SEED YOUR SEED * *

Giant Winter Rhubarb Plants. Big profits. From ⅝ acre first season after planting I sold 675 boxes rhubarb, receiving $673.70. Grand prize San Diego Exposition. Big discount on plants for prompt orders. Booklet Free. W. A. Lee, Covina, Cal.

Seed Beans—We sell direct to the grower. Buy now before the advance. Our stock is carefully selected. Satisfaction guaranteed. Tell us the nature of your soil and we will suggest the best variety. Modesto Farmers' Union, Modesto.

ALFALFA SEED
Leo Turner, Yuma, Arizona

New Varieties sweet potato plants, Nancy Hall, Early Triumph, Porto Rico Yam, $5 per 1000, 75c per 100, April and May delivery. J. Braswell, Lindsay, Cal.

Plant a Few Acres of Dwarf Milo Maize for seed. Good seed requires about 2 pounds per acre. Choice pedigreed Dwarf Milo 10c per lb. delivered your station. Fred M. Mahoney, Box 420, Tulare, Cal.

Seed Corn—Egyptian white, large, pure white kernels. High germination test. None better offered. Also milo maize, feterita and Egyptian wheat. MODESTO FARMERS' UNION, Modesto, Cal.

For Sale—The very best seed corn, white or yellow. Selected for years. Makes large uniform ears. Chas. McNeely, Alpaugh, Cal.

For Sale—Loganberry plants, $1.80 per hundred. Himalaya Blackberry $1.50. Cash. E. R. Young, Auburn, Placer County, Cal.

Alfalfa Seed—The very best, guaranteed 16c. Wm. Stuthman, 1239 West Pico St., Los Angeles, Cal.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

Sudan Grass Seed—100 per cent pure, state analysis. Kelly's Nursery, El Centro.

PATENT ATTORNEYS

Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS".

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.
Unsigned communications receive no attention.

Lump Jaw

A swelling came on the side of the jaw of one of my cows and has formed a hard lump about the size of a hen's egg. The tongue is swollen also so that it is difficult for her to eat. She slobbers when eating. I think some of the other cattle are getting the same trouble. Is the disease contagious and what can be done for it?—Subscriber, Brockman.

Probably it is lump jaw (actinomycosis) which is caused by a germ or fungus that gets into the tissue through a wound. The fungus is found on hay and grain and is supposed to get into the gums while the animal is eating. The disease seems to thrive best in the tissue of the bones. It is very seldom that more than one animal is affected with it in the same herd. The milk is probably all right as there are no records of persons having taken the disease from using the milk. Following are two prescriptions that are the best known for curing it and unless the bone is too badly affected will do the work.

No. 1. Iodide of potash, two ounces and water enough to make one pint. Mix and give one ounce on the tongue once a day. Get an ounce bottle that will hold the dose and pour it well back on the tongue.

No. 2. Iodine crystals, one dram; tincture of iodine, two ounces and enough lard oil to make four ounces. Mix. Apply to the lump once a day.

It might be well to repeat the first prescription in a month or two.

Bloody Urine

Please tell me the cause of bloody urine in small calves and what you would advise giving them.—Subscriber, Porterville.

Bloody urine may be due to any one of many causes, as eating a poison weed, drinking water from stagnant pools in a lowland pasture or from eating musty hay. Change the feed and water and give a handful of epsom salts to empty the bowels. Give flaxseed tea by pouring a gallon of boiling water on a handful of flaxseed and when cool let the calf drink it. Give the flaxseed tea once a day. If they are run down and you think they need a tonic give them powders made of gentian, four ounces; sulphate of iron, one ounce and farina, six ounces. Mix. Divide into 40 powders and give one powder once a day.

Rheumatism in a Dog

We have a dog that has been ailing for some time. His hind legs tremble most of the time and he eats very little. He walks about the place and at times when running will fall down. It first seemed to be rheumatism.—Subscriber, Escondido.

Probably it is rheumatism but may be the result of worms. Get salicylate of soda, one dram; bicarbonate of soda, one dram; gin, one ounce and enough water to make four ounces. Mix. Give a teaspoon of the medicine once a day for a medium sized dog or half the amount if the dog is small. To make sure that the trouble is not kept up by worms get ten powders of areca nut, each containing ten grains, and give one every morning, while they last, mixed in a little milk.

Worms in Hogs

Please tell me in the Cultivator what to feed hogs for worms.—Subscriber, Los Angeles.

Give each one a teaspoon of powdered areca nut in a pint or less of milk every morning for a week. Half an hour after giving the medicine give their regular feed.

MARCH REPORT OF SAN JOAQUIN COUNTY COW TESTING ASSOCIATION

The herd averages in the association are gradually climbing, due in part to the coming of better weather, and to better feed as well as an increased effort on the part of dairymen to secure greater production. Attention is called to the fact that all of the five leading herds for March have an average of 30 pounds of butter fat, or one pound of butter fat per day per cow, or better. The average obtained by the leading herd is the highest that has so far been recorded in this association. This only goes to show what can be done with care in feeding and management, the selection of a herd by making use of records, and the elimination of poor producers.

Following is a list of the five leading herds in milk and butter fat production for March, with name of owner, number in herd and pounds milk: F. J. Kell, 15, 1347; M. N. Yokum, 23, 846; County Farm, 30, 835; E. B. Goodwin, 60, 833; M. C. Gammon Estate, 27, 826.

Following is a list of cows producing 50 pounds of butter fat, or over, with name of owner, breed of cow, pounds milk and pounds butter fat. Besides these there were 19 cows producing over 45 pounds of butter fat during the month.

F. J. Kell, H., 2737, 84.8; F. J. Kell, H., 2061, 84.5; F. J. Kell, H., 2172, 78.2; N. H. Locke Co., J., 1311, 76.0; F. J. Kell, H., 1857, 70.6; F. J. Kell, H., 1779, 65.8; E. B. Goodwin, H., 1280, 61.4; N. N. Locke Co., J., 918, 56.9; County Farm, H., 1602, 56.2; F. J. Kell, H., 1642, 55.8; F. J. Kell, H., 1141, 55.7; N. H. Locke Co., J., 973, 55.5; N. H. Locke Co., J., 967, 55.1; E. B. Goodwin, H., 1370, 54.8; S. Gronner, H., 1421, 54.1; M. C. Gammon Estate, H., 1104, 54.1; County Farm, H., 1389, 52.7; E. B. Goodwin, H., 1116, 51.3; N. H. Locke Co., J., 1117, 51.3; E. B. Goodwin, H., 1443, 50.5; Barngrover & Wright, J., 1045, 50.2; H. Bailey, H., 1162, 50.0.

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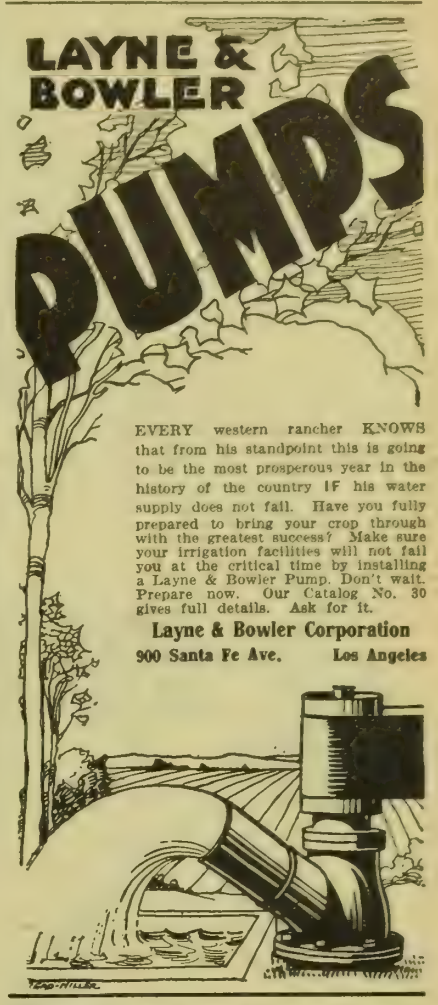

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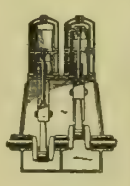

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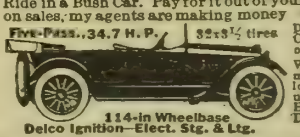

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Household Department

CREATION

Did you ever stop to ponder
Why the stars are in the sky,
Why the moon lights hill and valley,
Why the clouds roll gently by?

Do you know who makes the thunder,
Makes the little rain drops fall,
Makes the lightning flash so brightly,
Makes the sea tides rise and fall?

Can you tell me what the air is,
What makes water taste so good,
Why a seed that you have planted,
Grows and soon becomes a food?

Do you know who made the mountains,
Do you know who made the sea,
Why a tiny acorn planted
Grows to be a mighty tree?

Do you know what makes the heart ache,
And again with joy is filled,
Why sometimes its beats are faster
In the end by death is stilled?

Have you ever seen the rapture,
Gleaming in the human eye,
Or beheld the flowing tear-drops,
By sorrow, forced to cry?

Can you look into the future,
Tell what it will bring to you,
Fathom why some men are heartless,
Other men are good and true?

You do know there is a heaven,
You believe this without doubt.
He gave the world these many things,
For each one to think about.

—W. Rankin Good.

MORE VALUE, LESS COST

REDUCING the cost of food while keeping up its value is the big problem of the day for us all. New clothes we can do without; new food we must have. More milk, more eggs, more cereals in the diet will cut expenses and add to the healthfulness of the family.

One way to reduce the cost of food for the family, say the specialists of the United States department of agriculture, is to use more corn meal, where this is low in price as compared with other cereals.

A dish of mush and milk has made the greater part of many a supper on the farm, and children thrive on it, though they may rebel at cleaning the kettle and the "pudding spoon" afterward, if the old-time methods of cooking it are followed. It is a simple dish to make, just 3½ cups of water and a teaspoon of salt to every cup of meal. The water can be put in cold and the vessel heated gradually. A double boiler is very convenient in cooking corn meal mush, as well as all other cereals, and is easier to clean. The great secret of good mush is long slow cooking, the longer the better. A fireless cooker, in which the cooking can go on all day or all night, is very useful for this purpose.

For "quick action" in getting breakfast in the city flat, the corn meal and salt may be put in the double boiler, mixed with a little cold water, and then hot water may be added up to the required amount. If clean hot water is to be had from the spigot, a good corn meal mush can be made in three-quarters of an hour. But corn meal can hardly be cooked properly in less time.

Corn meal mush can be used in many other ways besides as a breakfast or supper dish. Fried mush, mush with fruit, and mush with cheese, are in the list of recipes. Fish cakes with corn meal are good and corn meal and meat of different kinds may be cooked together, "scrapple" being a favorite in some parts of the country.

Corn bread and corn griddle cakes are made in many ways, all good. Bread may be made of wheat flour and corn meal, half-and-half. Puddings and even doughnuts and cakes are made with corn meal as the basis.

Recipes for using corn meal in all these ways, and others, may be had from Department of Agriculture, Washington, D. C., upon request.

Learn how to cook all kinds of staple foods and to serve them in a variety of ways. Simple dishes well prepared are better than expensive foods badly cooked.

USE MORE CORN

California should grow more corn and eat more corn. Through the courtesy of the Sperry Flour Company we are enabled to give these excellent recipes from the Sperry Cook Book. Try them.

Corn Bread (Thin)

One cup yellow corn meal, one cup flour, quarter cup sugar, half teaspoon salt, two teaspoons baking powder, one egg, one cup milk, one tablespoon melted butter.

Mix in the order given and bake in two Washington pie tins, spreading the mixture thick enough to half fill the pans.

Boston Brown Bread

One cup rye meal, one cup corn meal, one cup Graham flour, one cup flour, three-quarters cup molasses, 1¾ cups milk, one teaspoon salt, two teaspoons baking soda, one egg. Mix all the above to a smooth batter and steam three hours. Currants and raisins may be added.

Thirded Bread

One cup white flour, one cup rye flour, or sifted rye meal, one cup yellow corn meal, one teaspoon salt, three tablespoons sugar, one-half cup yeast. Mix with milk (scalded and cooled) till thick enough to be shaped. Let it rise until it cracks open. Put into a brick-loaf pan, and when well risen bake it one hour.

Brown Bread

One cup rye flour, one cup corn meal, one cup entire wheat flour, one cup sour milk, one-half cup molasses, one teaspoon soda. Steam three hours.

Tea Gems

One pint milk, four eggs, two cups corn meal, one teaspoon salt, two teaspoons baking powder, one cupful flour, one tablespoon butter. Separate the eggs; beat the yolks and add the milk, salt and butter (melted). Add the corn meal, baking powder and flour sifted together. Beat rapidly for about two minutes. Then fold in the well-beaten whites of the eggs and bake in greased gem pans in a quick oven for a half hour.

Virginia Waffles

Cook one-half cup white corn meal in 1½ cups boiling water 30 minutes, adding 1½ teaspoons salt. Add 1½ cups milk, two tablespoons sugar, two tablespoons melted butter, two cups flour mixed with two heaping teaspoons baking powder, and two eggs whites and yolks beaten separately Cook in hot, well-greased waffle-iron.

Jolly-Boys

Mix and sift together three cups rye meal, one cup flour, one-half cup corn meal, one-quarter teaspoon powdered cinnamon, one-half teaspoon salt, two teaspoons baking powder, and two tablespoons sugar. Add one beaten egg, two tablespoons molasses, and sufficient cold water to make a thick batter. Drop by small spoonfuls in a kettle of smoking-hot fat, and cook till brown.

Griddle Corn Cakes

Two cups yellow or white corn meal, boiling water, one egg, beaten, one teaspoon salt, one tablespoon sugar, cold milk. Add salt to corn meal, pour on boiling water to form a thick drop batter; add maple syrup and sufficient cold milk to make a thick pour batter. Drop by tablespoons on a well-greased hot griddle and cook as griddle cakes. Serve immediately.

Hominy Fritters

Two cups flaked hominy (boiled), two eggs well beaten, one-half level teaspoon salt, one-half cup milk, one-half cup flour, one teaspoon baking powder. Cook all the above in a double boiler; pour out in biscuit tin and allow to cool. Cut and fry in deep fat. Good with wild game.

Flaked Hominy, a la Sperry

Two cups flaked hominy, 1½ cups milk, one-half teaspoon salt, one-half pound American cheese, four tablespoons catsup, four ounces butter, sprinkle of paprika. Cream cheese with butter, add one egg, beat all to a cream, add catsup. Butter baking dish, put in layer of flaked hominy sprinkle with paprika; spread with cheese mixture; add another layer of hominy; have top layer of cheese;

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THE SAVAGE TIRE

pour on milk and bake 10 minutes. Take from the oven and make nests, putting in each one egg. Put back in oven for 15 minutes or until eggs are set. Serve from baking dish. Better if cooked in shirred egg pan.

Hominy—Italian

One cup hominy (cooked), one-half pound cheese (grated), one-half can tomatoes, one large onion chopped and partly cooked in butter, two tablespoons Worcestershire sauce, three drops Tabasco sauce, three tablespoons butter. Butter baking dish well. Put in layer of hominy alternating with cheese until dish is nearly full. Pour on onion and tomatoes mixed with the seasonings and bake one hour.

HOUSEHOLD QUERIES

Everlasting Yeast

Would like further information regarding "Everlasting Yeast," recipe for which you publish in the issue of February 10. How much of the yeast is required for four loaves of bread and should the sponge be set overnight?—Subscriber, Los Angeles.

Make the starter by boiling three large potatoes (or one large teacup when mashed). Mash well, add one tablespoon salt and two tablespoons sugar, then one pint of cold water. Now, while it is lukewarm add one cake of compressed yeast and in 24 hours it will be a liquid yeast which will not fail and will not need more yeast cake for an unlimited time if renewed once a week in winter and twice a week in summer, and kept in a cool place between times of baking. For each baking boil (the evening before) potatoes as for starter, add salt and sugar and two pints of cold water for four loaves. When lukewarm add the pint of liquid yeast and allow it to stand until morning, then take out one pint to save for next time. To the remainder add flour to make a thin batter, let stand one-half hour in a warm place and it will become very light. Add flour to work stiff and set to rise. Work down once and when again light work into loaves.

Grapefruit Marmalade

Answering request for receipe for grapefruit marmalade in a recent Cultivator Mrs. W. A. Smith of Orange sends the following:

Remove skin and white pith, cut former into shreds and boil until tender. Put into kettle sugar equal in quantity to weight of fruit, adding to it all juice that can be drained from fruit: let this come to boil and skim. Then simmer syrup 15 minutes; put in pulp and rind and boil again 15 minutes. Put in tumblers. This is most excellent.

DO YOU KNOW?

That every bit of uneaten cereal can be used to thicken soups, stews, or gravies?

That every spoonful of left-over gravy can be used in soups and sauces, or as flavoring for meat pies, croquettes, and vegetables?

That every bit of clean fat trimmed from meat and every spoonful of drippings and every bit of grease that rises when meat is boiled can be clarified, if need be, and is valuable in cookery? Don't fatten your garbage pail at the expense of your bank account.

EASTER MORN

A most inspiring scene in these times of universal war was that offered on Easter morning at many places in California. Especially was this true at Mt. Rubidoux, Riverside, which was the setting of the origin of these services. In 1907 these Easter services began on Mt. Rubidoux. This year proved the greatest gathering, and Riverside people have issued a most beautiful booklet containing order of services used on that morning.

Don't be finicky. Be willing to try new foods. Certain plentiful and nourishing foods widely used and enjoyed in one section are practically unknown in other sections of the country. Learn to know all the good things, not a few only.

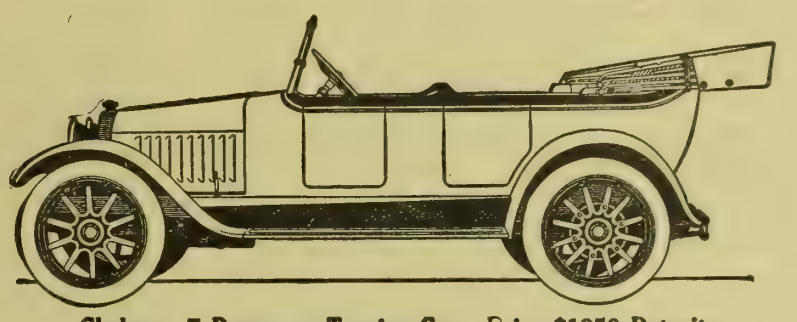
People too easily get into food ruts; insist on eating only the food they are used to, and refuse to give a fair trial to others. This causes undue demand for certain staples, with resulting scarcity or high prices when crops are short. At the same time other valuable foods may be relatively cheap and available.

Remove from your vocabulary "don't like" or "can't eat." Most individual prejudices against widely popular foods are either imaginary or baseless. Try to like every simple food; give it a fair trial for your own sake.

Make saving rather than spending your social standard.

WISTARIA

The Wistaria is now in its glory. All over California may be seen on houses, trees or pergolas this wonderful flower. There are several varieties. This shown in the engraving is Wistaria Sinensis. Another with large white flowers is Wistaria Japonica, which is becoming common. This plant demands rich soil, plenty of water and after blooming the weaker stalks should be removed and vigorous growth induced. Also, where branches are twisted about each other and liable to strangle or cause the death of either they should be disentangled or fastened on house or over pergola. — Engraving by Courtesy of Fresno Nurseries.



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Imagine the engine that weighs 550 pounds. And turns up 45 horse-power. One horse-power for every 12 pounds of weight. Which with a total car weight of 3005 pounds means power ease on the hill. One horse-power for every 67 pounds of car weight.

Strength

Then turn over in your mind the extreme strength there must be in a car that is largely built of drop forgings, chrome nickel steel, Lynite aluminum, crucible nickel steel and carbon steel.

All expensive metals. But placed in the Chalmers chassis for a specific purpose—to make it rugged and strong, though light in weight.

Such quality makes for durability and economy. For a thing made of good materials, always is well made.

Beauty

And a car made of this kind of materials you find everywhere in the Chalmers would be indeed incomplete without beauty and distinctiveness of lines.

See the high narrow radiator, the double cowl, the sweeping body lines, the finish that denotes hours of patience and care. And provides beauty, not for a day, nor for a month, but for years.

All the above means quality. The kind of quality you need in the car you buy and the kind of quality you GET in the Chalmers.

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Tells why chicks die
E. J. Reefer, the poultry expert, 426 Reefer Bldg., Kansas City, Mo., is giving away free a valuable book entitled, "White Diarrhoea and How to Cure it." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every batch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

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These who do not read the advertisements in the California Cultivator will miss a lot of useful information.

From Shell to Griddle

A Study of the Methods of Successful Poultrymen in Hatching and Brooding

Written for California Cultivator By Jean A. Koethen

HATCHING chicks by electricity is a commonplace, but who ever heard, before this year of grace, 1917, of raising them by electricity? Yet this is just what W. G. Suits of the Bandini Poultry Ranch, Riverside, is doing. Every morning at five o'clock or thereabouts, the chicks from the first day they are in the brooder are awakened by the turning on of the electric light in their house. Out they come, pell mell, eager for the meal that is waiting for them. The house is perfectly warm, of course, and they begin to eat at once and keep it up without much intermission till half past seven or later in the evening. As soon as the evening shades begin to gather the lights are turned on again, and the chick, supposing it to still be day, keeps on eating till its supper at half past six leaves it without room for another bit of cracked grain. Then under the hovers every chick goes—if there happens to be a hover for it, and sleeps while its digestive organs work, till the light is turned on again. Mr. Suits believes that by this system of lengthening the day he pushes his Leghorns along considerably faster, for the more chicks eat, and digest, the more rapidly they grow.

Some of the chicks on the Bandini Ranch are brooded by hot water pipes under hovers. Others gather about an immense distillate stove. The morning I was there 1200 had just been placed in the brooder room about the stove, and the heat was at about 97 degrees, though it seemed much warmer. The chicks, newly hatched as they were, were running about with a cheerfulness that left no doubt of their comfort, and already beginning to look for the fine grain in the straw which covered the floor to a depth of several inches. Mr. Suits prefers the stove brooder to the water pipe brooder because the ventilation in this particular brooder is better. Ventilation, in raising chicks artificially, is always a problem, and there are as many methods of solving this problem as there are different makes of brooders. There are some good hot water systems and some good stove ventilating systems, and a great many poor systems of both kinds.

Another new "wrinkle" of Mr. Suits' is the cutting off of the first joint of every chick's wing as soon as it is out of the incubator. The operation, performed at this time, is practically painless and makes it impossible for the birds to fly over fences.

Mr. Suits' method of feeding is patterned to some extent after that followed at the university farm at Davis. The chicks are not fed till they are at least 48 hours old. Then for five days they are given only a mixture of steel-cut oats, cracked wheat and fine cracked corn. This is scattered in the straw so that they may learn to scratch and to eat at the same time. On the sixth day mash feeding begins, but Mr. Suits does not follow the common practice of setting the mash before the chicks and leaving it there. Instead, he begins with a feeding once a day, leaving the trough before the chicks till their hunger is satisfied, then removing it. The number of meals per day is gradually increased till after the tenth day the feeding schedule is as follows: 5 a. m. grain mixture in litter, 9 a. m. mash, 1 or 2 p. m. grain mixture, 4 p. m. mash, 6:30 p. m. grain.

The mash, which is fed from the tenth day till the chicks are about three months old, consists of the laying mash which is fed to the hens mixed with an equal quantity of bran. This is mixed while the chicks are small with cottage cheese so that it is slightly crumbled but never really wet. The number of meals is gradually reduced after the chicks are out on the ground, but never during this first three months is the mash left standing before them. This method of feeding forces them to dig and scratch constantly for the grain which is always in their litter and thus develops the muscle a laying hen needs.

As soon as the chicks are old enough to be out (and this depends largely on the weather) they are turned into pens which were planted to barley early in the season and now afford a delightful green run, and here they grow, running in the sunshine and nibbling the succulent grain, so rapidly that many of the cockerels are of broiler size in eight or nine weeks.

The chicks at Bandini Ranch were hatched earlier this year than ever before. "Last year they all molted in the fall, no matter when they were hatched," said Mrs. Suits, "so we thought we might as well get them out early." The 1200 chicks I saw in the brooder the first week in February were the last chicks of the season. Others of assorted sizes were running in the yards or occupying the cockerel houses, but the season's hatching for replenishing the flock was over. Hereafter the chicks that are hatched will be sold to people who have not, like the Bandini Ranch people, learned the importance of early hatching. "Our chicks never grew so fast", Mr. and Mrs. Suits declared, and they attribute this rapid growth partly to the early hatching, partly to the liberal use of electricity and in no small measure to careful and liberal feeding.

EGG LAYING CONTEST AT MOUNTAIN GROVE

By C. T. Patterson, Director of Missouri Poultry Experiment Station

The 290 hens in the contest laid 6040 eggs during March, which is an average of 20.8 eggs per hen.

Pen 53, S. C. White Leghorns, Missouri, won the cup for the month by laying 150 eggs.

Four Plymouth Rock pens are in the five highest places for March, the Barred, White and Buff Plymouth Rocks tying for third place. The pens occupying the five highest places for March are as follows: S. C. W. Leghorns, Missouri, 130 eggs; S. C. W. Leghorns, Pennslyvania, 128 eggs; Buff Rocks, Kansas, 121 eggs; White Rocks, Idaho, 121 eggs; Barred Rocks, Missouri, 121 eggs (tie); Missouri White Fluffs, Missouri, 120 eggs; Partridge Rocks, Ohio, 118 eggs.

The ten highest places to date are occupied by many breeds and varieties. They are as follows: White Wyandottes, Missouri, 509 eggs; R. C. R. I. Whites, New Jersey, 493 eggs; S. C. White Leghorns, Missouri, 442 eggs; White Wyandottes, New York, 440 eggs; Buff Orpingtons, Missouri, 433 eggs; White Wyandottes, Missouri, 432 eggs; White Orpingtons, Missouri, 427 eggs; R. C. Reds, Missouri, 423 eggs; S. C. Reds, Iowa, 419 eggs; R. C. Reds, Missouri, 413 eggs.

STORRS EGG LAYING CONTEST

Storrs, Connecticut.—Report for week ending April 3, 1917.

For the first time in many weeks the hens in the laying contest at Storrs have eased up a little. They laid a total of 4403 eggs in the twenty-second week, or virtually the same number as in the preceding week, but more than 200 eggs under the mark made in the corresponding week a year ago.

The three best pens in each of the principal varieties are as follows:

Barred Plymouth Rocks

Fairfields Poultry Farms, 773; Jules F. Francais, 639; Merritt M. Clark, 617.

White Wyandottes

Merrythought Farm, 785; A. L. Mully, 706; Brayman Farm, 688.

Rhode Island Reds

Jacob E. Jensen, 777; Geo. W. Harris, 750; Allan's Hard to Beat Reds, 745.

White Leghorns

A. P. Robinson, 934; J. O. LeFevre, 774; Hilltop Poultry Yards, 762.

Miscellaneous

Obed G. Knight (White Orpingtons), 708; Cloyes & Sullivan (Buff Wyandottes), 693; Holliston Hill P. Farm (White Rocks), 665.

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Remember, you can do your buying by MAIL through our Mail-Order Dept. as advantageously as though you visited our store yourself. Write us for what you need, if unable to call in person.

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The Price ?
Well—
No tire is more scientifically nor more carefully constructed than the HARDMAN. Those peculiar looking rectangles cut out or molded out of the surface produce perfect vacuums under the weight of the car and at the same time the walls form complete bases of contact protecting the carcass and assuring long wear.

The application of an extra heavy PURE PARA CUSHION, together with the PLIABLE THREAD, STANDARD SEA ISLAND FABRIC and THICK GAUGE, ALL PARA FRICTION, render Hardman Tires much less liable to stone bruise.

Hardman tires are now sold under our regular warranty adjustment made on a basis of 5000 MILES. The price is equal to the lowest for the service rendered.—Two grades,
Hardman Sure Grip and
Hardman Junior.

Send for descriptive price list and state what car you have.
Hoffman Hardware Co.
229 So. Los Angeles St.
LOS ANGELES, CAL.

Quality Baby Chicks and Eggs
We supply only absolutely warranted stock. We guarantee every deal. Write today for prices and 66-page book.
Pioneer Hatchery, 320 S. Spring St., Los Angeles

Los Angeles Market

LOS ANGELES, April 18, 1917.

BUTTER

Wholesale prices:

Rcts. wk. ending Apr. 17, 291,660 lbs.
California extra creamery 39
Prime first 37

Extr. Cr'y Exch. past week.

Apr.	11	12	13	14	16	17
'17	.37	37	38	38	39	39

CHEESE

Brokers' prices:
California flats, lb. 24
Oregon Longhorn 28
Tillamook Triplets 27

EGGS

Exchange quotations:
Rcts. wk. ending April 17, 2372 cases.
Fresh extras 33
Case count 32
Pullet 29½

Fresh Ranch Exch. past wk.

Apr.	12	12	13	14	16	17
'17	.32	32	31½	32	32	33

POULTRY

We quote from growers:
Broilers 20-28
Fryers 30
Hens 20-22
Roasters 28
Geese, Young 22
Ducklings, lb. 22
Roosters, old 10
Turkeys .....24@30

LIVE STOCK

CATTLE—We quote cwt. f.o.b. L. A.
Beef steers, av. 1000 to 1100 lbs.....10.00
Heifers, good 8.00
Cows, good .....7.00@7.50
Fair .....6.50@7.00
HOGS—
Av. 125 lbs. 11.75
Av. 150 lbs. 12.50
Av. 175-225 lbs. 13.00
Rough, docked 20 lbs.; piggy sows, 40 lbs.; stags, 40%.
We quote per cwt. f.o.b. L. A.
Prime wethers .....9.50@10.00
Ewes .....9.00@9.50
Lambs 13.00
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:
Northern 6.00-6.50
Sweet, lb. 7½
New, lb. 8

ONIONS

Wholesale selling price:
Onions, Brown 10
Garlic, lb. 8

VEGETABLES

Wholesale prices:
Artichokes, doz. .....75@85
Asparagus, lb. .....7@9
Beets, doz. bunches 45
Cabbage, lb. 6
Red, lb. 6
Chicory, doz. .....40@50
Cauliflower, doz. 1.25
Celery, cr. 6.00
Cucumbers, Hothouse, doz. .....1.25@2.25
Horseradish, rt. lb. 15
Lettuce, doz. 35
Leeks, doz. 30
Mint 40
Onions, green, doz. 25
Oyster Plant, doz. 45
Peas, lb. .....4@5
Peppers, Chili, lb. 20; Bell.....55
Parsnips, doz. 50
Radishes, doz. 25
Rhubarb—Crimson Winter .....90@1.10
Strawberry .....1.40@1.50
Romaine, doz. 45
Spinach, doz. 25
Turnips, doz. 45
Tomatoes, cr. 2.25

FRUITS

Wholesale prices:
Apples—
W. W. Permain .....2.10@2.25
Newtown Pippin, Yellow.....1.85@2.25
Avocados, doz. .....8.00@12.00
Bananas, lb. .....5¼@5½
Loquats, lb. 12
Strawberries, basket .....10@12

CITRUS

Lemons .....1.75@2.90
Lemons 1.75
Juice 1.25
Grapefruit .....3.00@3.50
Limes, basket 85
Tangerines, lug 1.50

HONEY

Wholesale prices:
Extr. lb. White 8½@9½c; A. 8½@9c; W.W. .....10@11
Comb., lb. W. 12½c; Lt.A.....12½@14c
W.W. 14½
Beeswax, lb. 32

BEANS

Wholesale Prices:
Lady Washington 16.50
Limas 16.50
Pinks 13.50
Manchurian Reds 11.00
Baby Mex. 8.50
Garbanzos 9.00
Small White 16.50
Blackeyes 9.50
Tepary 12.00
Lentils 22.00

HAY

We quote ton f.o.b. L. A. to producers:
Barley .....19.00@23.00
Oat, tame .....21.00@24.00
Alfalfa, local .....22.00@24.00
Northern .....20.00@22.50
Stock .....16.00@19.00
Straw .....10.00@12.00

GRAIN

Wholesale selling price f.o.b. L. A.
Wheat—No. 1 .....4.20@4.25
Corn—No. 2 yellow, 3.75; white.....3.85
Oats—California red 2.75
White 3.00
Texas Red 2.90
Cal. Seed Oats 2.60
Barley—Recleaned 3.05
Milo 3.75
Egyptian Corn 3.75
Rye 3.55

FEED STUFF

Wholesale, cwt. f.o.b. L. A.
Alfalfa Meal 1.65
Bran, heavy 2.40
Shorts and Middlings 3.00
Alfalfa Molasses 1.70
Meat Scraps 3.60
Beet Pulp 1.70
Cracked Corn 3.80
Cracked Wheat 4.60
Cotton Seed Meal 2.35
Oat, C. L. 3.10
Bone Meal 2.45
Feed Meal 3.85
Green Bone 2.25
Fish Meal .....3.60@3.70
Rolled Barley 3.00
Rolled Oats 3.05
Hulled Barley 3.40
Hulled Oats 4.10
Scratch Feed, 4.35, 4.40 and.....4.45
Scratch Gritlets 10 sk. 4.05; 5 sk. 4.10@4.15; 1 sk. 4.35
With Grit 3.85, 3.90, 3.95
Oil Cake Meal 3.10
Pigeon Feed .....4.55@4.65
Chick Feed 4.55, 4.60, 4.65
Blood Meal 4.20
Cocoa Meal 2.05
Rice Paddy 3.70

San Francisco Markets

SAN FRANCISCO, April 17, 1917.

BUTTER

Dairy Exchange quotations, lb.:
Rcts, wk. ending April 16, 591,300 lbs.
Fresh extras 40½
Prime firsts 39½

Extr. Cr'y. Prod. Exch. past wk.

Apr.	10	11	12	13	14	16
'17	.39	39	39	39	40	40½
'16	.29	29½	28	27	27	..

CHEESE

Dairy Exchange quotations:
Cal. Flats..20½@21½ Y. Am. ...23½@25
Ore. Triplets..23½@24 Y. Am.....24

EGGS

Rcts. wk. ending April 16, 22,839 cs.
Dairy Exchange quotations:
Fresh extras 32
Firsts 30½
Select Pullets 28½
Firsts 28

Fresh Extr. Prod. Exch. past wk.

Apr.	10	11	12	13	14	16
'17	.30½	31	32	31½	32	32
'16	.22	22	22	22	21	..

POULTRY

We quote from producers, lb.
Hens, large 24@25½; Leghorns .....22@24
Fryers, lb. .....35@40
Broilers .....25@35
Roosters, old..14@15; young.....32@35
Squabs, doz. .....2.25@2.50
Ducks .....20@22
Geese .....18@20
Turkeys, live .....22@24
Belgian Hares, live 14@15; dr.....17@18

POTATOES

Wholesale selling prices at wharf:
Delta Burbanks .....4.25@5.00
Oregon Burbanks .....4.40@4.65
Small Seed .....3.00@3.75
New Potatoes, lb. .....7.00@8.00

ONIONS

Wholesale selling price on wharf:
Australian, cwt. .....8.00@8.50
New Green, box .....1.25@1.40
Garlic, lb. .....1@3

VEGETABLES

Wholesale selling price:
Asparagus, lb. .....3½@7
Artichokes, doz., large 50; small...25@35
Celery, cr. .....1.25@2.00
Cucumbers, bx., hothouse.....2.00@3.00
Lettuce, cr. .....1.50@1.75
Peas, lb. .....4@4½
Rhubarb, box .....40@90
Squash, Summer, cr. .....1.50@2.00

FRESH FRUIT

Wholesale selling price:
Apples—Newtown Pippins.....1.00@1.75
Bananas, bunch .....1.50@2.50
Pineapples, doz. .....2.25@2.50
Strawberries, cr. .....1.75@2.00

PEACH PRICES

Please note the following advance in prices, effective Saturday, April 14, 1917, at 6 p. m. All prices are f.o.b. factories, California common shipping points. We reserve the right to refuse confirmation, at the following prices, unless f.o.b. factories where grades and varieties desired are available. All quotations are subject to our approval of variety and assortment, subject to our confirmation and subject to advance without notice; April-May shipment.

Price list No. 7 is hereby withdrawn and ineffective at 6 p. m. Saturday, April 14, after which time prices herein quoted shall apply.

	Yellows.	Muirs.
Standard Peaches	.06⅝	.06⅝
Choice Peaches	.07	.07
Fancy Peaches	.07½	.08½
Extra Fancy Peaches....	.08	.08⅞
Slab Peaches		.06¼
Choice Peeled Peaches.....		.10
Fancy Peeled Peaches		.11½..

Above prices, bulk basis.
For 50-lb. bxs., unfaced, add ..... ½c
For 50-lb. bxs., faced, add..... ⅝c
For 25-lb. bxs., unfaced, add ..... ⅝c
For 25-lb. bxs., faced, add ..... ⅞c
For 10-lb. bxs., unfaced, add 1¼c
For 10-lb. bxs., faced, add 1½c

For prices on Graded Peaches, Original, in bags, add 1c to the bulk basis prices above quoted.

Ungraded, Original, bags, nothing to offer.

	Per Lb.
Choice peeled, 2-lb. cartons.....	.12
Choice unpeeled, 1-lb. cart....	.08½ .08⅝
Choice unpeeled, 5-lb. cart....	.08¼ .08⅜
Fancy unpeeled, 1-lb. cart....	.09¼ .09⅞
Fancy unpeeled, 5-lb. cart....	.09 .09¾

	Per Lb.
Choice peeled, 5-lb. cartons.....	.11¾
Fancy Peeled, 2-lb. cartons.....	.13¾
Fancy peeled, 5-lb. cartons.....	.13¼

The above prices are guaranteed against our own decline to June 30, 1917, and apply only to sales and shipments made direct to the recognized jobbing trade. No goods will be confirmed at above prices to coast or eastern brokers, or to speculators, it being our desire to eliminate speculation in dried peaches, we preferring to carry our stock in storage here on the coast until actually required by the jobbing trade.

DRIED FRUITS

Wholesale quotations:

PRUNES—Bulk basis, per lb: 30s, 7½c; 40s, 7¾c; 50s, 7⅞c; 60s, 8⅛c; 70s, 8¼c; 80s, 8½c.

Other fruits, 50-lb. bxs:

	Stand-ard.	Choice	Extra Fncy.	Extra Fncy.
Apples	9¾c	10 c	10½c	....
Peaches .	7⅛c	7½c	.... 8 c	8⅛c
Pears ...	6½c	8½c	9½c	11¾c ....

We quote new 1917 crop layer and cluster raisins for October, November and December shipment, as follows:

Sun-Maid Layers, 20-lb. box, $1.50 per box.
low), 20-lb. box, $1.50 per box.
3 Crown London Layers, 20-lb. box, $1.50 per box.
4 Crown Clusters, 20-lb. box, $1.75 per box.
6 Crown Imperial Clusters, 20-lb. box, $2.60 per box.
(5-lb. box, 50c additional; 10-lb. box, 25c additional.)
Bulk Vineyard Run Layers, 50-lb. box, $3.25 per box.
Bulk Vineyard Run Layers, 100-lb. box, $6.25 per box.
Sun-Maid Brand Clusters
Fancy Cluster, 1-lb. cartons, 20 to case, $1.85 per case.
Fancy Clusters, 1-lb. cartons, 24 to case, $2.20 per case.
Fancy Clusters, 2-lb. cartons, 12 to case, $2.20 per case.
Fancy Clusters, 5-lb. cartons, 4 to case, $2.60 per case.

All f.o.b. California common shipping points. Regular California dried fruit terms. Prices guaranteed against decline to January 1, 1918.

Our prices on 48-16s package Sun-Maid Seedless and 50-lb. boxes bulk unbleached standard Thompson Seedless, suitable for cartons, as referred to in our Bulletin No. 63 under date of January 26, 1917, are guaranteed against decline to August 1, 1917.

NUTS

Jobbers' Prices:
Almonds.—Exchange opening prices: Nonpareil, 19c; Ne Plus Ultra, 17c; IXL, 17½c; Drake, 16c.
Peanuts, Jap, 7@7½c; Eastern...7½@7¾

BEANS

Jobbers' prices, cwt. recleaned:
Limas .....14.50@15.00
Bayous .....10.00@10.50
Garbanzos .....5.75@6.00
Small White .....13.50@14.00
Mexican Red .....9.50@10.00
Large White .....13.50@13.75
Pinks .....11.50@11.75
Horse Beans .....6.25@6.50
Black Eyes .....8.75@9.00
Red Kidneys .....13.00@13.50

HONEY

Jobbers' prices:
Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. .....11@12
Ex. Fy. W. lb.....10c; Lt. A.....8
Beeswax .....30@32

HOPS

Prices to growers at shipping points:
Sacramento .....7@8½
Sonoma .....7½@8½
Mendocino .....7@9
Oregon and Wash., lb. .....6½@8½

RICE

Price to growers:
Cal. Rough, cwt. .....3.30@3.50
Lower Grades .....2.50@3.00

HAY

Under date of April 14 Scott, Magner & Miller say:

Receipts past week 1580 tons, the preceding week 1711 tons. Percentage of California hay in above receipts very small. Most of arrivals from Oregon and Washington. All grades firm and California production has advanced materially.

The showers of the past week of great benefit to crops in all localities that were reached. It is generally conceded that there will be practically no volunteer crop this season and as that is the first hay to arrival other than first cutting alfalfa, the latter will have to be used in place of the volunteer.

We quote the average wholesale price of hay in carload lots on today's market as follows, viz:

Wheat, Fy., lt. bales.....31.00@32.00
Wheat or Wh. and Oats, No. 1.28.50@30.00
Wheat, or Wh. and Oat, No. 2.26.50@28.00
Oats, Choice Tame .....30.00@31.00
Other Tame .....26.00@27.00
Wild .....23.50@27.00
Barley .....25.50@28.00
Alfalfa .....23.00@26.00
Stock Hay .....15.00@16.00
No. 1 Barley Straw .....1.00@1.25

GRAIN

Grain Exchange prices, ctl.
Wheat—Prices too irregular to be much of a guide to the market.
Corn, California .....2.65@2.75
Corn, Egyptian White .....2.70@2.80
Oats, White Feed .....2.60@2.65
Barley, Feed .....2.70@2.75

FEEDSTUFFS

Wholesale prices per ton:
Bran .....41.00@42.00
Cornmeal .....71.00@72.00
Cracked Corn .....71.00@72.00
Middlings .....55.00@56.00
Alfalfa Meal, carlots .....33.00@34.00
Shorts .....45.00@46.00
Rolled Barley .....54.00@55.00

SEEDS

Prices in round lots, lb.:
Millet, recleaned .....3¼@4
Alfalfa .....20@21
Flax .....5@6

Citrus Fruit Market

LOS ANGELES, April 18, 1917.

During last week one day's shipments ran to 270 carloads. Other days' shipments have been close around 200. Fortunately marketing conditions are of the best and the immense quantity has been absorbed at fair prices for all good stock. There is a material easing of the market.

Shipments

Shipments of oranges from Southern California to date since November 1, 1917, 18,882 cars, lemons 3228, total 22,110; to same date last season, oranges 15,985, lemons 2606, total 19,591. From Central California to date this season, oranges 4060, lemons 164, total 4224; to same date last season, oranges 4343, lemons 146, total 4889. From Northern California to date this season, oranges 844 cars; last season, oranges 610, lemons 1.

FROM THE AUCTION

April 11

New York: 27 Navels, 5 mixed, 2 lemons, lemons lower. Nav., $2.15@3.50; bloods, $2.20@2.95; tang., $2.00, lemons, $1.65@2.65.

St. Louis: 15 cars, oranges lower. Nav., $1.80@3.05.

Philadelphia: 13 cars. Nav., $1.70@2.60; lem., $1.35@3.00; bloods, $1.85@2.80.

Boston: Nav., $1.95@3.10; lem., $2.45@3.10.

April 12

New York: 24 Nav., 5 mixed, 2 lemons. Nav., $2.05@3.40; bloods, $2.35@3.55; tang., $2.10@2.70; lem., $2.35@3.15.

Boston: 24 cars. Nav., $1.75@3.20; lem., $2.00@2.65.

April 13

New York: 21 Nav., 5 mixed, 1 lem. Nav., $1.70@3.15; lem., $3.00.

Cleveland: 6 cars, lower on lemons. Nav., $2.00@2.75; lem., $2.50@3.30.

St. Louis: 10 cars. Nav., $1.60@2.65; lem., $2.40@3.30.

April 16

New York: 53 Nav., 13 mixed, 4 lem. Nav., $1.80@3.30; bloods, $1.80@2.30; St. Mikes, halves, $.90@1.10; lem., $2.20@3.25.

April 17

New York: 55 oranges, 4 lem. Market dull. Nav., $1.65@3.00, many sales running around $2.00; lemons, $1.70@3.25.

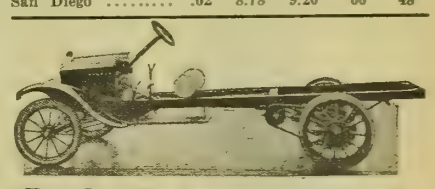
Philadelphia: 16 cars, market lower. Nav., $1.60@2.75; lem., $2.20@2.75; grapefruit, $2.70.

Boston: 22 cars. Nav., $1.50@2.75; lem., $1.85@3.25.

WEATHER CONDITIONS

For the Week Ending April 14, 1917

	Rainfall Wk.	Season	Norm.	Temp. Max.	Min
Eureka	1.84	29.65	40.70	62	40
Red Bluff	.62	16.80	22.35	74	42
Sacramento	.18	12.39	17.97	74	40
San Francisco	.28	15.69	20.53	60	46
San Jose	.13	12.29	15.43	68	36
Fresno	.01	6.87	8.47	84	38
San Luis Obispo	.01	22.44	18.47	72	36
Los Angeles	.26	14.85	14.59	68	46
San Diego	.02	8.78	9.20	66	48



Truck Attachments for Fords

THE WESTERN is a truck attachment, by means of which a Ford or other car can be converted into a commercial truck.

Among the many cars that have been converted into trucks THE WESTERN WAY are the CADILLAC, BUICK, FORD, CHALMERS, MITCHELL, REO, CHEVROLET, MAXWELL, OVERLAND AND STUDEBAKER.

BUY A WESTERN AND BE SATISFIED.

J. B. HAWKS SALES CO.
204-2 S. San Pedro St., Los Angeles, Cal.

HIDES SKINS

Send us your cow hides, sheep pelts, goat skins, mohair, wool and raw furs.

Green salt hides, over 30 pounds, 22 and 21c. Dry, over 15 pounds, 37c.

Highest prices paid for wool. Don't sell your wool before getting our quotation.

Write us for full particulars.

E. R. Skinner & Co.
1106 24th Street
Sacramento, Cal.

Fireless Brooders

Fifty-chick, $1.50; 100-chick size, $2.50; 150-chick size, $3.50; 150 outdoor type, $5.00. Freight paid. Free Catalog.

Pioneer Hatchery, 320 S. Spring St., Los Angeles

The Farmer's Duty to the Nation!

IN the present situation, clearly the farmer's duty to Our Nation is that he produce food-stuff in the largest quantities possible—that he use every means available to conserve this food supply. Also, his duty to himself certainly demands that he produce his own needs as economically, and on as little ground, as possible, so he may have a maximum amount of farm products to sell at prevailing high prices, thereby securing greater profits from his labor.

Never was the need for a silo more apparent than under present conditions. Silage crops, on account of their greater tonnage, enable the farmer to produce his own feed on a comparatively small amount of ground, and very cheaply. Thus he has more ground to devote to crops for the market—crops that mutually benefit himself and his country. Silage, being a succulent feed, helps secure increased results from dairy herds and beef stock, adding more foodstuff of this kind to our national surplus.

Any GOOD silo will more than pay for itself every year in the hay and grain its use will save. The—

INDIANA SILO

—is a GOOD silo, as is shown by the splendid record it has made the past FOURTEEN YEARS on over 60,000 American farms, a record that has proven the methods and materials used in its construction to be right. Add to this the fact that it is fully covered by the Spaulding Guarantee—backed by our great resources—and you will realize your money invested in an Indiana Silo, known and used in every State in the Union, must be better invested than it could be in one of the unimproved types found everywhere.

The Indiana Silo is within YOUR reach, for our service covers the entire Pacific Coast. Our terms will permit you to pay for your silo out of the money it saves for you, and Indiana Silo Service will enable you to get results without experimenting. A postal sent us will bring our silo book—just off the press—and complete information in regard to prices and terms; it will also be your first step toward greater profits from your farm, and the production of greater food supplies for our country. Won't you take this step today? Thank you.

Address all inquiries to Salem, Oregon.

The Chas. K. Spaulding Logging Co.

Owners of the Standing Timber, the Railroads, Logging Camps, Sawmills and Silo Factories

Portland and Salem, Oregon San Francisco, Cal.

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Send me your big FREE Indiana Silo book, also place my name on your regular mailing list for your monthly Silo bulletins.

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CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

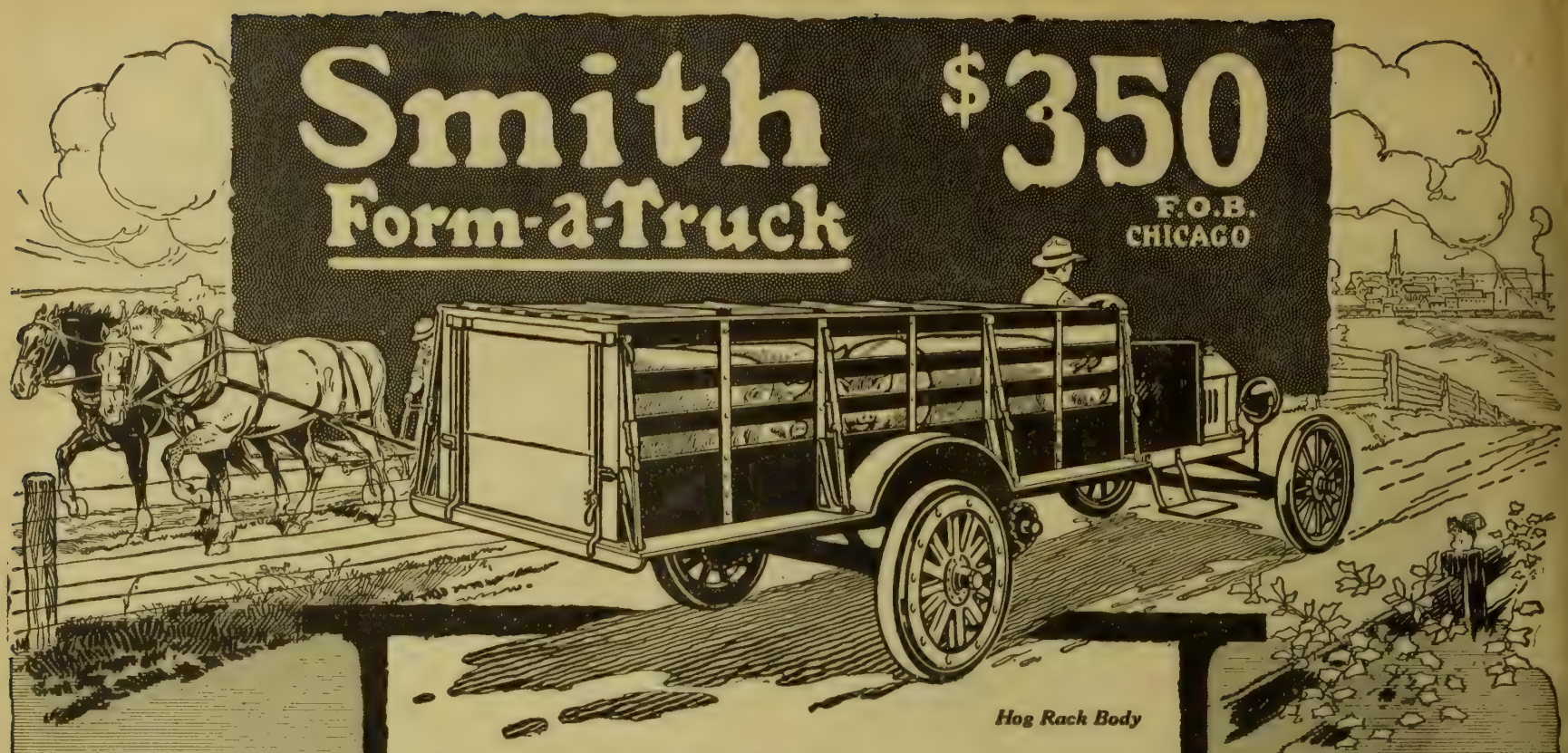
LOS ANGELES April 28, 1917 SAN FRANCISCO

Efficiency

Smith Form-a-Truck

$350

F.O.B. CHICAGO



Hog Rack Body

You Need Your Horses for Plowing—

How Do You Do Your Hauling?

Smith Form-a-Truck is keeping every horse on the *farm* for live, money-making farmers. Plowing, seeding and harvesting are real work for horses. Get *early crops* and *fancy prices* by quick seeding and harvesting. Insure against crop losses due to delays in plowing. Do it by keeping your horses at real horse work and do your hauling with a Smith Form-a-Truck.

Stock Rack Body

Flat Rack Body

Flat Rack Body, Scoop Board Down

Rack Body for Hay, Straw, Loose Grain

These Big Savings

Use Smith Form-a-Truck for hauling hogs, sheep and cattle to market. One Smith Form-a-Truck will haul as much as 2 teams. *And in half the time*—10 to 12 miles per hour!

Save the pay of 3 drivers in hauling crops to town. *One* Smith Form-a-Truck and a *single* driver will do all the work of *4 teams* and *4 drivers*—a clear saving of $8 to $10 a day!

Smith Form-a-Truck will carry 2,000 pounds of milk 10 miles and return with the empty cans in less than 2 hours. And the total cost of the round trip is but $1.50—gasoline, oil, tires and everything. Think of it!

20 More Acres for Tractor Owners

Throughout the country tractor owners are now selling their horses and buying Smith Form-a-Trucks. They are saving veterinary bills, medicine, shoeing, bedding—scores of needless expenses.

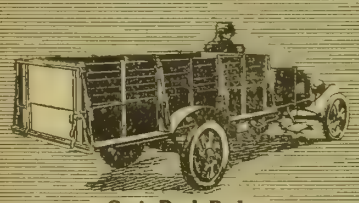
Government figures show that it requires all the feed grown on 20 acres of land to feed four horses.

A Smith Form-a-Truck *saves* this—giving you the use of this land for *other* crops.

20 acres of fine farm land for $350—think of it!

Now 8 Farm Bodies in 1

Change to any one of 8 types of farm bodies is now made instantly with the famous 8-in-1 convertible farm body. Not a single tool is required. Merely pull the lever and change from hog rack body to hay rack body for loose grain—high side flare board body—flat rack body—stock rack body—basket rack body—flat rack body, scoop board down—grain body. This is an exclusive Smith Form-a-Truck feature.



Grain Rack Body

Basket Rack Body

Double Strength

Smith Form-a-Truck combines with any Ford, Maxwell, Overland, Dodge Bros., Buick or Chevrolet—either new or used cars—to make a fully guaranteed, one-ton truck. When the chassis of these cars is telescoped on the Smith Form-a-Truck frame the remarkable strength of these cars is reinforced. You secure double construction—double strength—the strongest construction ever known to engineering.

And the rear axles of these cars become jackshafts for the powerful chain drive. The strong, sturdy Smith Form-a-Truck axle carries 90% of the load.

Amazing Economy

Never has any motor truck at any price surpassed the astonishing economy records of the Smith Form-a-Truck now being made in daily use on hundreds and hundreds of farms.

Note these wonderful economies: 12 to 15 miles per gallon of gasoline—6,000 to 8,000 miles on a set of tires—and practically no repair bills.

The first Smith Form-a-Truck ever built is still in daily service. It has traveled over 22,000 miles. And the total repair cost has been less than $8. Where else could you duplicate this economy?

High Side Flare Board Body

Send Coupon NOW

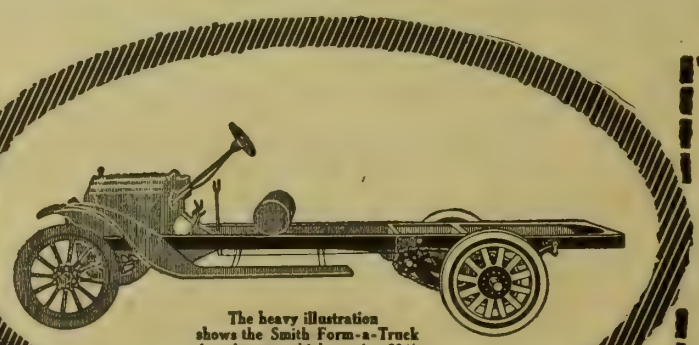
You need Smith Form-a-Truck on your farm NOW—AT ONCE. Keep your horses for farm work. Start saving money immediately by getting the full value of horses. Read the wonderful story of Smith Form-a-Truck in our big book—FREE to farmers. Yours for the coupon. Send it TODAY.

SMITH MOTOR TRUCK CORPORATION

Manufacturers of Smith Form-a-Truck

Executive Offices and Salesroom: Suite 990 Smith Form-a-Truck Building

Chicago



The heavy illustration shows the Smith Form-a-Truck Attachment, which carries 90% of the load, bolted to the power plant with a vise-like grip.

MAIL THIS TODAY

Smith Motor Truck Corporation,
Suite 990 Smith Form-a-Truck Bldg., Chicago, Ill.

Gentlemen:—Without obligation on my part, please send full details of Smith Form-a-Truck, the wonderful farm attachment with the new convertible body for farm use. I am interested in how the Smith Form-a-Truck can save me money and give me better service than I am now getting from horses.

Name.....

Town and County.....

State.....*Number Acres Owned*.....

California Cultivator

Vol. XLVIII No. 17 LOS ANGELES: April 28, 1917 One Dollar Yearly

Practical Irrigation of Lemons

Methods on the Limoneira Orchards in Ventura County as Described by Superintendent James D. Culbertson Before the Riverside Citrus Institute

THE holdings of Limoneira Company lie in Ventura County on a gently rolling south slope, about five miles west of Santa Paula and not more than 11 miles from the coast. The citrus acreage of the company consists exclusively of lemons, and the lemon orchards referred to in this paper are now 23 years old.

It has been the policy of the management always to provide these orchards with adequate moisture, irrespective of cost or other inconvenience, even to the extent of possibly using more water than necessary rather than risk a scarcity of moisture anywhere in the orchard at any season of the year. Our water supply has been so ample that there has always been a surplus, making it possible to irrigate any part of the orchard at almost any desired time. During the first six years so much stress was placed on abundant moisture supply that, in addition to over-generous summer irrigation, even during the rainy season the surplus water from the irrigation system was kept almost constantly in use with the idea of filling the soil with water against possible needs in the summer.

Like many other orchards the plantings had been blocked out in rectangles with straight rows, almost irrespective of grades. Fortunately, however, nearly every row on the ranch has a fairly uniform grade of its own, but the variation between grades in the different sections ranges from six per cent to no grade whatever. As every lemon grower would expect, the level areas were the first to suffer from gummosis, and likewise from them the first lemons infected with "brown rot" came into the packing house each year. Although during their early years the trees on these level portions were exceptionally large and productive, after about eight years this unusual vigor gave way here and there to a yellow mottling of the leaves which in some localities gradually developed into a chronic white chlorosis, in extreme cases not only robbing the trees of their power to produce fruit, but in many instances slowly killing them back to the ground. All of these troubles were attributed later to improper or excessive application of water. To remedy them the old woden flumes were replaced with cement pipe lines, and all furrows over 600 feet long on flat ground were reduced to half that length by additional pipe lines. In some blocks the direction of the irrigation was changed, and special provision made by grading and ditching to prevent flooding or accumulation of waste water or winter storm water at any point in the orchard.

These measures greatly relieved conditions, and local improvement was very evident in many parts of the orchard. In an effort to more intelligently regulate their frequency, both summer and winter irrigations were decided upon only after an examination of the soil with the aid of a shovel, usually to a depth of two feet. From the appearance of the soil to the eye, and the manner in which it held together or fell apart when compressed with the hand, the question of irrigation was determined. Depending on the amount of moisture, season of the year, condition of cover crop, or possibly immediate water supply, a 24, 36 or 48-hour run of water was advised, with practically no distinction between soils of different types, except that the heavier soils were not irrigated quite so often. In case any particular block did not appear sufficiently wet on the surface at the end of the alloted time, the water was allowed to remain an additional 12 or 24 hours.

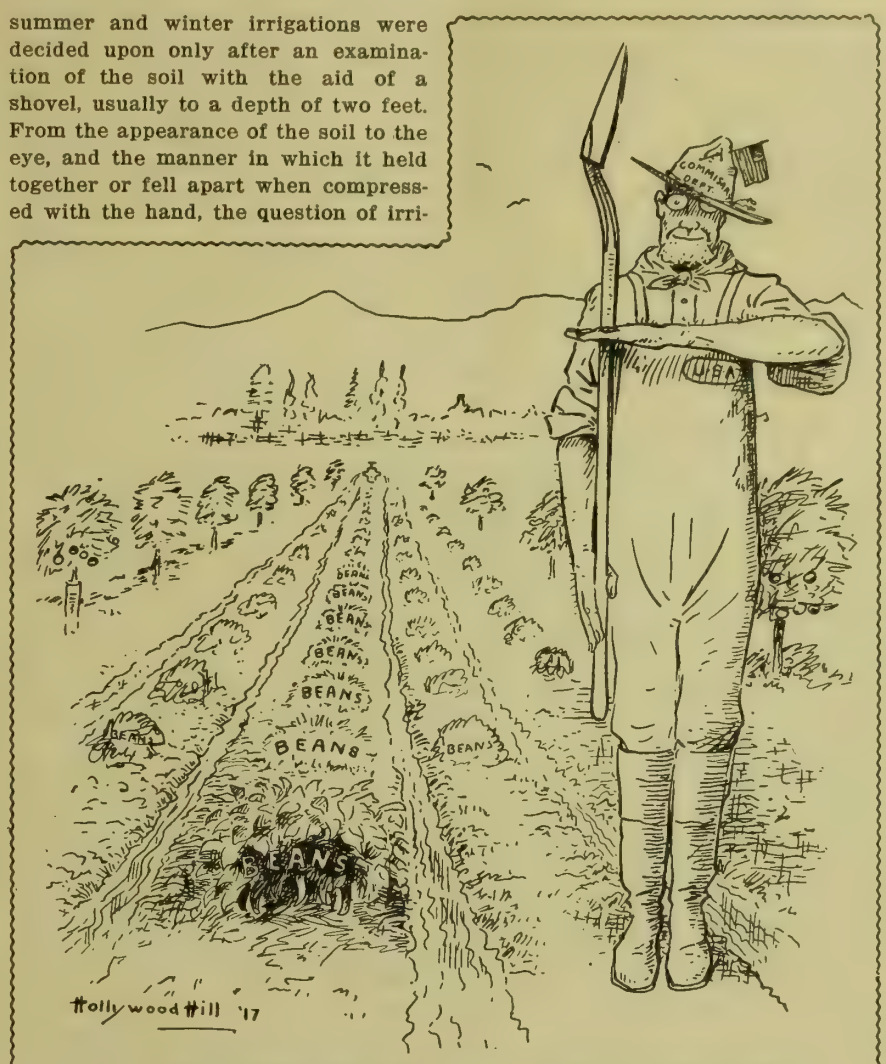
During a journey of investigation through the principal lemon growing sections of Southern California in the summer of 1911 we gathered from well known growers in several of the districts the following data as to their practices: Corona, 2½ acre inches about every 30 days; Whittier, 6 to 7 acre inches about every 42 days; Riverside 3 to 4½ acre inches about every 21 days; Azusa, 5 to 6 acre inches about every 30 to 45 days.

We returned to Santa Paula resolved to learn more definitely just what we ourselves were doing. The year previous we had begun to keep a calendar record for each section, but as our measurement of water consisted only of the total amount supplied to the entire property, the record was of value only in that it showed that our intervals between irrigations were decidedly irregular. Since the beginning of the year 1912 we have kept a complete record of the irrigation on each parcel of the orchard irrigated as a unit.

Our plan was to apply approximately five acre-inches at an irrigation as frequently as seemed necessary, still varying the interval between irrigations and making our decisions as before. Immediately we found that on the steeper land with grades running above three percent it required as much as 48 hours for the furows to absorb the specified five acre-inches, while on the flat areas often eight hours sufficed to accomplish the same result. To adjust the irrigators' and our own judgment to meet these differences was no easy task, and at the end of the year we found that we had averaged from six to 10 acre-inches at each irrigation instead of five as intended. An exceptionally deep plowing in the spring of 1913, and again a year later, so effectually destroyed the existing plow-sole and irrigation hardpan that during those years we used even more water than we did in 1912. We have prepared a brief record of the irrigation of several sections for reference, and a glance at the figures will show the amount of water used each year, the number of irrigations and the average interval between summer irrigations.

(See Table on Next Page)

Without exception the blocks that had received an average of above 45 acre-inches per year for the three-year period were in the poorest condition, while those that had received the least water were most vigorous. This record of three years was, in our judgment, fairly representative of the previous



IN THESE TRENCHES SHALL THE COUNTRY BE SAVED

The whole nation is preparing for a great war. A war we did not want for we are a peaceful people. Now that it is here we all say "Show me my part and I'll do it."

In the Southern Pacific Bulletin we note:

SONG OF THE AMERICAN RAILROAD MAN

We are the wings of the Eagle, spread to the scarlet sky.
Sturdy and Strong, we speed along heeding our Master's cry,
The Eagle's beak is the Army,—the Navy its curving claws
And both may fight through day and night, and the wings will never pause.

We are the wings of the Eagle and our steel-lined tips are spread
From shore to shore where the oceans roar,—from north to the Gulf stream's bed,
Let the soldier look to his rifle, and the sailor look to the sea
And what they need with an eagle's speed be sure they will get from me.

We are the wings of the Eagle, flecked with our labors' foam,
With freight and mail we blazed the trail for a mighty nation's home.
As in peace we have been your servant, so in war we will be your slave,
And our wings will hum, and our pulses drum till the flags of freedom wave.

We are the wings of the Eagle, eager to prove our worth,
Fitted by skill to do your will with the best trained men on earth.
Then load us up with the burdens and fire the opening gun,
And remember, Sam, the railroad man, is ever your loyal son.

To the above a member of the Cultivator staff adds:

SONG OF THE AMERICAN FARMER

We are the heart of the nation, throbbing with silent power,
Ready to answer the nation's call, ready to meet the hour
That asks the proof of our manhood, ready to pour red blood
Through every nerve and sinew, a life-bearing, crimson flood.

Ours to maintain that life-flow, to nerve to the bitter fight
The hand that strikes and the brain that plans to uphold our hard-won right.
The brain and the hand shall not falter, for, tireless, steady, true,
They know the heart is beating for the Old Red, White and Blue.

—R. D.

Samson Sieve-Grip Model S-25

READY?

Are you ready to get the best out of your farm this year?
Have you ample power for this season's work?
Do you want to get along with fewer horses and men?

SAMSON SIEVE-GRIP

Reg. and Pat. U. S. and Foreign Countries

tractors are built to help you do these things. Sturdy, simple, powerful, they can cut your farm power costs remarkably. Every farm where a Samson Sieve-Grip is working is being bettered, is producing bigger net profits.

Let us tell you more of Samson Sieve-Grips and the name of the nearest dealer. Two sizes—Models S-25 and R-12.

SAMSON SIEVE-GRIP TRACTOR CO., STOCKTON, CAL.

TEAR OFF AND MAIL!

Send me Catalog and Tractor-Farming Magazine, "Siftings."

*Name*_____

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Boost Your Citrus Trees Now

The grade of fertilizers determines the grade of Citrus Fruits. Chilean Nitrate has one hundred per cent of its Nitrogen Nitrated, and is ready to go into action the instant it is applied. It brings quicker, surer results than all others because they have to be Nitrated first. Why not buy your farm munitions ready for use, not subject to losses which the other Nitrogens always suffer? Common sense dictates that money is saved by its use. Its low price compared to others strongly commends it to the business grower.

DR. WM. S. MYERS, Chilean Nitrate Propaganda
25 Madison Avenue, New York

What are Pedigreed Trees? We want You to Reason Before You Buy Citrus Trees.

If it did not cost so much to produce our trees, we could sell them at competitive prices with other nurseries.—why, our methods of selecting our budwood alone would sell our stock. We have had over 20 years' experience in Citrus Trees, and were among the first to advocate bud selection from fruit-bearing wood. The price of the tree is the smallest item in the cost of bringing into bearing. Fertilizer, labor, investment tied up in land—these are the big factors that go to pot if, years after the trees are planted, the grove bears miscellaneous offspring.

50,000 Valencia, Navel Oranges
Eureka Lemon Trees

First National Bank Bldg. **WALKER-HUBBARD NURSERY CO.** San Fernando, Cal.

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Huntington Drive, San Marino, Cal.

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Orange, Lemon and Grapefruit

120,000 Trees
60,000 Strong, clean one and one-half year old stock
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history of the irrigation of the same areas, though doubtless the heavily irrigated portions had received relatively more water in years past.

In comparing the amount of water used on the Limoneira orchards with what seemed to suffice in other communities, we were forced to the conclusion that we were using not only more than the trees needed but so much that they were being injured as a result. Dr. C. B. Lipman had previously suggested that too much water might be responsible for some of our more general discouraging orchard conditions, and upon seeing these records was most emphatic in urging that barely more than half as much irrigation water ought to be an abundance.

The mean annual rainfall at Limoneira for the past 12 years has been 19.77 inches. Frequent fogs during the summer months, often prevailing for weeks at a time, tend to retard evaporation as well as to supply all vegetation with considerable moisture direct from the atmosphere. Derived largely from shales and calcareous sandstone the deep alluvial soils of Ventura County have exceptionally high capillary power. Such soils have the ability to absorb large quantities of moisture during rains and irrigation, and to an equal degree these same properties insure the gradual return of this moisture from great depths as evaporation and the demands of the trees and other vegetation deplete the near-surface supply. When these climatic and soil conditions were given due importance in their relation to local irrigation needs it was still more evident that our lavish use of water had little to commend or justify it if it was not necessary in the sections farther inland.

It seemed unwise longer to trust our judgment without a more reliable understanding of the moisture content as it actually varied in our orchards. This meant careful scientific work and required a man trained in a soil laboratory. Through the advice and assistance of Dr. Lipman we secured for this work L. W. Fowler, at that time just graduating from the University of California college of agriculture, and specially trained for such investigations. We were planning to reduce greatly the amount of water applied. This made frequent moisture determinations particularly desirable as a check lest we go to the extreme of using too little.

One of the most practical methods for reducing the amount of water applied at each irrigation has seemed to be to reduce the number of furrows per row, and so far as possible alternate the location of these furrows from one irrigation to another. For instance: one furrow close to the trees on each side of the row serves for the first irrigation; for the second two or three furrows made in the dry area not furrowed the first time. Only when preparing for the planting of the covercrop, usually in late August or September, have we resorted to the crowded furrows of the past. On flat land fewer furrows alone do not suffice, but they must be clean, well-made furrows, so that a fairly large head of water can be rushed through quickly, then reduced to a small stream and held long enough to penetrate to a depth of about two feet at the lower end of the row. For uniform distribution this method has proven very satisfactory where the land has but little grade, as stated above.

For nearly two years, once each week, moisture determinations have been taken at some 50 different locations in at least eight different types of soil. To a depth of six feet the moisture in each foot has been determined separately. Charles A. Jensen of the government laboratory in Riverside, kindly furnished us with determinations of the standard wilting coefficient and optimum moisture content of each of these soil types. By charting the orchard moisture as a curve and using straight lines for the wilting point and theoretical optimum moisture percentage, we have at a glance a graphic history of the moisture variations in any given field. On the basis of this data each irrigation can be timed and a close approximation made of the amount of water required.

The results of these efforts to understand better our actual need, and supply water accordingly, are shown by turning to the record of water used during the last two years and comparing it with the record of the three preceding years. The average irrigation has required from three to six acre-inches instead of from six to 10, and the average summer interval between irrigations has been reduced from 45 or 50 days to about 35. Perhaps we have used a bit too sparingly of water on two or three sections this year, but on the whole we feel that we are working toward a basis for much more intelligent irrigation than we have been practicing.

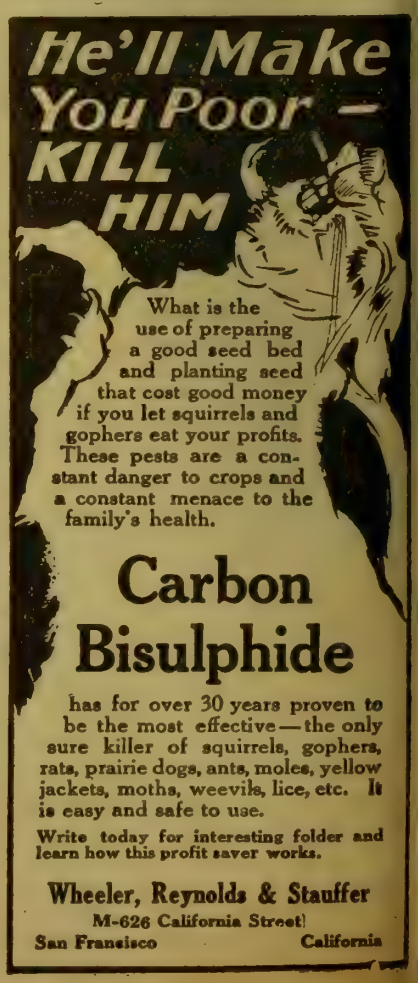
I would call your attention to the moisture condition in our Section Upper Six. This section has been consistently a normal, healthy orchard and is known to have had much less water than many of the other sections. Occasionally a tendency to wilt has been noticed near the lower end of the rows. This was undoubtedly injurious to both fruit and trees at the time and should not have happened, but it has had no permanent ill effects. It is an interesting coincidence that those blocks of orchard where trees have most often shown wilt have always received the least water, and one year with another have been our most

FIVE-YEAR IRRIGATION RECORD

Limoneira Co., Santa Paula, Cal.

Showing length of irrigation season, number of irrigations, average summer interval in days, and total acre-inches applied each year.

			Sec. Upper Six			Sec. Lower Six			Sec. Upper Five			Sec. Lower Five		
Year	Rainfall	Irrigation Season Days	Number of Irrigations	Avg. Summer Interval	Acre Inches	Number of Irrigations	Avg. Summer Interval	Acre Inches	Number of Irrigations	Avg. Summer Interval	Acre Inches	Number of Irrigations	Avg. Summer Interval	Acre Inches
1912	10.4	240	6	47	35	7	49	60	7	45	25	7	48	73
1913	19.2	250	4	51	39	5	55	55	4	47	26	5	54	54
1914	23.2	283	5	47	54	6	42	77	7	42	53	8	44	73
1915	19.2	214	6	40	29	6	41	25	6	41	26	5	40	27
1916	19.7	247	6	32	23	6	30	24	6	32	25	6	31	24
			This Section always healthy and vigorous.			Much improved last two years.			Always healthy and vigorous.			Much improved last two years.		



What is the use of preparing a good seed bed and planting seed that cost good money if you let squirrels and gophers eat your profits. These pests are a constant danger to crops and a constant menace to the family's health.

Carbon Bisulphide

has for over 30 years proven to be the most effective—the only sure killer of squirrels, gophers, rats, prairie dogs, ants, moles, yellow jackets, moths, weevils, lice, etc. It is easy and safe to use.

Write today for interesting folder and learn how this profit saver works.

Wheeler, Reynolds & Stauffer
M-626 California Street
San Francisco California

atisfactory orchards. It is also sig-ificant that these blocks are located on land having one per cent grade or more. Just what relation the theo-retical optimum moisture content of his soil—or any other soil, for that matter—bears to the normal require-ments of lemon trees is still to be de-ermined. Only a few trees below the irrigation stand, the soil moisture re-mained above the optimum but a few days following each irrigation, and then in not to exceed one-half of the soil mass in which the trees feed. Neither fruit nor foliage of trees at this particular location, have at any time in the two years suggested lack of adequate moisture. On the other hand, near the lower end of the row, the moisture condition has permitted wilt of trees, premature coloring of fruit under size and even slight dropping of leaves. The difference between the moisture percentages does not seem very great, but evi-dently it is very significant. The standard wilting coefficient for this particulary soil appears to be about correct for lemons.

C. C. Teague, manager of Limoneira Company, has an excellent 40-acre lem-on orchard some two miles from the Limoneira. The soil is very deep and uniform, and the irrigation furrows have a grade of about one percent with almost no variation. The record of water used on this orchard for the past five years is as follows: 1912, 34.9 acre-inches; 1913, 31.8 acre-inches; 1914, 35.6 acre-inches; 1915, 33.7 acre-inches; 1916, 28 acre-inches. This is a remarkably consistent rec-ord, and it is well known to many of you who have visited this orchard that it is thrifty and uniform and reputed for its very heavy production of well-keeping fruit. From this orchard's appearance and its record 30 to 35 acre-inches of water applied annually, four to six inches at fairly regular in-tervals of about six weeks, might be regarded as a safe practice for the average lemon grove in the Santa Paula district. But there are so many variable factors; soil, grades, subsoil, amount of waste water, cultivation practices, etc., that generalization is hazardous. For the past two years some of the Limoneira orchards, with other factors quite comparable, have done so well with much less water that we feel the question of how much is still an open one.

CORN EAR WORM

THE pest of worms which has infested ears of corn has been most perplexing to the gardener and to the grower of sweet and field corn. This worm is hatched from eggs laid by an adult moth which is both a day and night flier. The moth is about an inch long and her eggs are a yellow-ish white. The larva is a most repul-sive worm which is sometimes two inches long, yellowish to brownish in color with longitudinal gray and white stripes. After the depositing of the eggs on the silk end of the ear of corn the "worm" hatches and eats its way into the tip of the ear. Sometimes these worms destroy almost the entire ear. The pest is not exclusively one of corn however, for it takes tomatoes, eating holes into the bottom or sides and causing decay. It also works in the South upon the cotton bolls and is there known as the boll worm. Other food plants of the worm are alfalfa, beans, cabbage, geraniums, gladiolus, grapes, malva, okra, many of the fruits, pumpkins, squash, etc. The usual remedy given for this pest is to plant a larger crop than it is desired to harvest in the hope that the excess rows of corn may save the remander of the crop from attack.

With arsenate of lead now put up in powder form, one of the best known being known as Corona Dry, satisfac-tory results are obtained. Treatment consists of placing dry arsenate of lead without any dilution in bellows and blowing the material over the ear of corn when the formation of silk is first discovered. This treatment to be repeated some three times at a total cost per acre of less than $5, prac-tically nothing compared to the bene-fits received. Other experiments which have been tried of placing the dry arsenate of lead in sacks made of light muslin or cheesecloth and shak-ing over the ears show results almost identical with those in which the arsenate was blown over the corn with a bellows.

Book Review

"HOME LABOR SAVING DEVICES"

"Home Labor Saving Devices," by Rhea C. Scott, district agent for home demonstration work in Virginia, pub-lished by J. B. Lippincott Company, Philadelphia, at $1.00.

This is a 120-page book illustrated with many half-tones and pen draw-ings of household conveniences and necessities, with specific instruction as to material required and how to make. There are six chapters and an appendix, chapter one touching upon kitchen conveniences, describing par-ing table, wall cabinet, jelly strainer, dish drainer, dish racks, coal and wood boxes, fireless cooker, etc. Other chapters touch upon dining room con-veniences, porch equipment and mis-cellaneous equipment. In the latter are discussed dustless mops, fly traps, garbage barrels, sewing screen, shower bath, waterworks systems, etc., poultry devices and dairy devices.

It is an attractive book, it is a help-ful book, and one which will help to add many conveniences to the home, especially where either the housewife or the man of the house is handy with tools.

The Pinedale Farm Improvement Association of Navajo County, Ari-zona, is arranging to mill its corn and wheat product and dispose of it in the form of cornmeal and Graham flour.

Even Fairbanks, Morse & Co. have to do it—!

The first "Z" engine announcement in the Fall of 1915 almost revolutionized the farm engine business. Certain it is—the "Z" *evolutionized* farm engine val-ues. Within the first twenty-seven days—over six-teen hundred new F. M. & Co. dealers saw the real service they would render their customers by selling "Z" engines. The close of the first year resulted in a distribution of over seventy thousand engines in 1-½—3—6 H. P. sizes to *satisfied* farmers who knew engine quality when they saw it on the dealers floor.

After perfecting the "Z"—thru modernizing our large engineering and quantity production facilities—we knew the demand would be big. So we bought ma-terials and accessories in almost unheard of quanti-ties. But enormous as were our purchases—they were depleted sooner than our biggest expectation.

Our financial resorces—and large consumption—make it possible for us to continue to enjoy except-ional advantages in getting trainload after trainload from primary sources of supply and the situation today with us is better than the average. The one or two price advances to date were small indeed com-pared with the increases we had to pay. But the lines are sharply tightening. Raw materials are getting scarcer and scarcer — prices we must pay are jumping by leaps and bounds. This means price advances to you from time to time, because "Z" engine quality will be maintained. At todays prices this engine marvel is — as it always has been — "a wonder at the price." So buy now. At least—this is our advice.

The Service You Get When You Buy From Your Local Dealer

Go To Your Dealer and See the "Z"

Inspect it. Compare it. Match it point by point. Have him show you the features that make it the great-est engine value offered. You'll *buy* it.

The 3 and 6 H. P. Size Successfully Operate On

KEROSENE "Z" THE Z ENGINE

"More Than Rated Power and A Wonder At The Price."

Simple—Light Weight—Substantial—Fool-proof Construction—Gun Barrel Cylinder Bore—Leak-proof Compression—Complete with Built-in Magneto. Quick starting even in cold weather. Low first cost—low fuel cost—low maintenance cost. Long, efficient, economical "power service."

Fairbanks, Morse & Co., Chicago

All Fairbanks-Morse dealers sell "Z" engines on a zone carload low freight basis. If you don't know the local dealer, write us.

Teague Quality Citrus Trees

will all your citrus wants appease

R. M. Teague
Citrus Nurseries
R. M. TEAGUE, Manager
San Dimas, California

APRIL is an ideal month in which to plant orange and lemon, pomelo and lime trees. The advent of warm weather as the rainy season draws to a close, renders the soil ideal for tree growth. Ideal conditions call for ideal trees, which are the only kind we have to offer, hence are anxious to serve you. Correspondence a pleasure; a telephone message a joy; and a personal interview a delight.

Established 1888. Twenty-eighth Year.

The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, April 28, 1917

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

We have often referred to the need for greater efficiency, and this year demands more of the California producer than any other. Fortunately California producers appreciate the opportunity and are fitting their farms to produce to the limit. Scenes like the one shown by photograph on the cover may be found in every section of California. The team is not in sight, but without question it is on some other portion of the vineyard doing its share. This view is made possible by the courtesy of the Yuba Construction Company of Marysville.

PAY TAXES

Next Monday is delinquent day for second payment on all county taxes in California. Save the penalty.

GOING TO THE FAIR

Yes, we are aware that agricultural fairs are months away. September will be about the date for the first fairs, but to get the stock and other exhibits ready for an agricultural fair months are required. It will be good drill to spend the summer in fitting some of the thousands of farm products for next fall's expositions.

THIN THE FRUIT

With all of the urging to produce more there may be hesitation on the part of fruit producers to thin fruit, as short as some fruit crops will be in some sections. Yet there will be a setting of more fruit than the trees should carry. Reduce it; it costs money, but it makes money. Less draft is also made upon the tree to produce one large fruit with small pit than many small fruits with large pits.

CROP REPORT

The outlook for apricots is better than when the Cultivator's survey was made. Lester C. Reed of Ventura County writes:

"Since making my last report, conditions of the valley have changed. We have a 75 per cent crop now with the fruit well set, and from what I can hear, over the county it is very much the same way. The late bloom was never known to set so well.

"As for price we can certainly get it if the growers will stick together. With every other commodity almost double there is no reason why we should not get some of the advance for our 'cots."

Mr. Reed's former estimate was for a 60 per cent crop. From others we have similar reports.

We repeat: "Let every producer keep his head."

ONE CENT LOSS

When anything occurs which unduly depresses the market, for example on one of our farm products, that of eggs, the loss is vastly greater than is appreciated by most of our people. The statement is made that with the egg production of the United States as it is today one cent loss or increase means $18,000,000 cash loss or increase. Of course some of this falls on the cold storage man or the middle man, but the greater part of it on the producer. The value of the poultry products in the United States is nearly equal to the value of the wheat crop and is half that of King Cotton.

MORE ROADS

The forest service announces that it will soon issue a series of weekly reports on conditions of principal auto roads in the national forests. The national forests of California comprise about 19,000,000 acres, and have within their borders 8600 miles of roads. These roads are being constructed through the use of a fund voted by the last federal congress. Nearly a million dollars of this fund is available for the roads of the national forests of this country for this one year. We believe the weekly reports may be secured by writing to the San Francisco office of the United States forest service.

RAISIN DAY

Monday will be a day of festivity in every raisin section of California. It should also be a day of serious thought as to disposal of raisins for the next five years. The five years' contract made at the time of formation of the Associated Raisin Company has succeeded in making thousands of dollars for raisin producers. Will this contract or its like be signed to the same extent as formerly? Presumably it will, for raisin producers are wise enough to see the results of their cooperative effort. The new administration has entered upon its duties with the good will, not only of the producers but of the trade. Its dealings in the past have been eminently fair and have given stability which is as pleasing to dealers as to growers. Hence Raisin Day should be as much a day of rejoicing because of the accomplishment of this association as because of the fact that the last year has been one of exceptional returns to the grower. Those who are not producers of raisins should enter as heartily into the observation of this day and eat raisins for breakfast, raisins for luncheon and raisins for dinner and another small portion at bedtime.—This last partaking is not necessarily in the form of mince pie.

PROVIDE FOR THE STOCK

We have been talking for several weeks about the duty devolving upon every patriotic citizen of producing to the limit. This that the human race may be fed. Appreciation of this need has manifested itself largely in the planting of beans and potatoes.

Meantime the chickens and live stock generally are not being overfed. With wheat around five cents per pound and with hay—at least delivered to consumers in some sections—selling for two cents per pound, there must be economical feeding or these faithful farm helpers will soon eat their heads off. This is literal as to thousands of poultry. At present prices of grain and present prices of eggs the poultryman who has no grain stored from former purchases must give up or borrow money. Hence, with all the plantings now going on sorghums for fodder and for grain are essential if our meat and egg supply is to be preserved. Meantime let poultrymen not be too discouraged for the general disposal of poultry is bound to bring reaction. Meantime grow cheaper feed and be ready for the harvest.

FARMERS AND FARMERS

Speaking of producing more reminds us that there are farmers and farmers being developed by the present campaign. Some of the old-timers fear they may be driven from the producing field by the great influx of the back-to-the-landers. Especially in the cities thousands of these would-be farmers are learning some of the difficulties which confront food producers. In this respect this campaign will do a world of good to the farming industry; there will be a more sympathetic understanding on the part of thousands of city dwellers. Regarding some of these, here is a sample from the joke column of an exchange, which conveys a truth as to conditions this year:

"Going to plant some potatoes in your garden this year?"
"I thought I would, but when I looked up the way to do it I found that potatoes have to be planted in hills, and our garden is perfectly flat."
—Isle of Pines Appeal.

Again, some orchardist planting intercrops may overestimate his quantity of moisture, and when he finds his trees suffering may be compelled to sacrifice the annual crop. Every orchardist should investigate thoroughly as to amount of moisture now in the soil and as to the supply of irrigation water he may depend on.

We must produce more, but we must use judgment in starting crops which may possibly not be harvested.

It has been asserted that should peace be declared today the demand for food to be shipped to countries which we are not now supplying would be so great that our present available supply would be exhausted almost immediately. Reports from the International Institute of Agriculture at Rome show the southern hemisphere's grain crop now coming into the market is much smaller than for sometime. Europe is producing materially less. The American winter wheat crop is a partial failure, and while the spring crop is being planted more extensively there is no assurance of large harvests. There is hope, however, in the fact that most careful work is being done by farmers of all sections.

American Beauty Dust Sprayers

PROTECT

"A Puff in Time Saves the Vin"

They are sure death to Grape Mildew.
They kill Red Spider and Mite on grape vines, on prune, almond citrus trees, etc.
Destroy pests in truck garden and field.
Fastest and easiest-working machines on the market.
Throw perfect cloud—no lumps no clogging.
Use less material — do more work.

FOR SALE BY ALL PROGRESSIVE DEALERS. Or, send us $11.0 for vineyard size,—$13.50 for orchard size. We ship ALL CHARGES PAID. Try it a week. If not pleased, return AT OUR EXPENSE, and we will refund your money.

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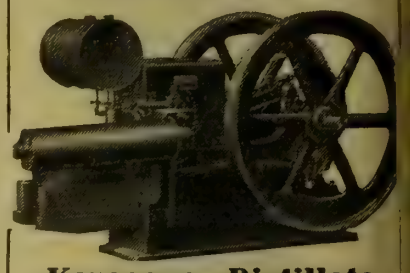

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2 to 22 H. P.

Pump your water with a WITTE. All you need is a centrifugal and my Special Model Kerosene-Distillate Engine. I can lay your engine down at least cost. **Save the middleman's profit—Get your engine NOW,** while prices are still low. Have reliable power for all your work. Made in standard sizes—2, 3, 4, 6, 8, 12, 16 and 22 H.P. Battery or magneto equipment. I am in a position to offer you the best prices and make **immediate shipment.** 90-Day Trial—5-Year Signed Guarantee. Largest exclusive engine factory in the world selling direct to user. Cash, Payments, Bank Deposit or No Money Down. Suit yourself as to terms. Don't make a deal until you have investigated my offer.—Ed. H. Witte, Pres.

WITTE ENGINE WORKS
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3105 Empire Bldg. Pittsburgh, Pa.

There is no argument as to the best and cheapest source of nitrogen for orchards where

Nitrate of Soda

is used. The fruit never fails to set and orchards produce an abundance of perfect fruit.
Write for free information and literature on all field and orchard crops.

Nitrate Agencies Co.
W. S. SPARR, Agent
321 Stimson Bldg., Los Angeles, Cal.

Your chances for getting extra machinery are certain when advertised goods are bought.

Agricultural News Notes of the Pacific Coast

Northern California

Asparagus canneries are now in full operation.

The college of agriculture, through farm advisers, is planning a silo campaign.

A Yolo County man reports a profit of $135 per acre with alfalfa and sheep.

Sharp advances in rice quotations are inducing planting of every available foot.

The poultry department of the Placer County farm bureau recently held a poultry-dressing demonstration.

The Mt. Pleasant farm bureau, Placer County, has determined on holding a farm bureau fair at Auburn.

The Valley Flower Creamery Company of Ferndale has contracted to pack 150,000 pounds of butter for the navy.

The California Ripe Olive Company at Oroville is increasing its productive capacity by enlarging its packing plant.

The Central Creamery at Ferndale is now putting up a government order for butter amounting to 780,000 pounds.

Sacramento is now canning spinach, one of the latest of canned products. There are two canneries working on this one crop.

The Anderson Water Company will furnish Shasta County growers free water under certain restrictions for the growing of food crops on waste land.

Agricultural experts from various portions of the state, at a meeting held in Berkeley, devised ways of encouraging more general planting and better care of all food crops.

The annual meeting of the California Fruit Distributors, held recently at Sacramento, organized for next year's work. The Distributors handled last year in excess of 10,000 cars. This organization is the largest handler of deciduous fruits.

Central California

Farmers near Porterville are reported to have planted 100 acres to jimson weed for sale to druggists.

Wylie M. Giffen, president of the Associated Raisin Company has been named manager with Fred A. Seymour as assistant.

It is announced that a farm adviser will soon be appointed for Merced County. Necessary funds will be available July 1.

Three hundred men are at work on the Lindsay-Strathmore irrigation system. The district owns 1172 acres of water bearing land.

The Porterville Alfalfa Company last week made a sale of $1000 head of beef cattle at an aggregate price of between $115,000 and $120,000.

At a recent meeting of the Tulare County Canning Peach Association the damage to peaches from the recent frosts was estimated at 50 per cent.

Horticultural Commissioner Roullard of Fresno County has stationed an inspector in the Kerman district to keep a sharp lookout for pear blight.

The Lindsay Citrograph is authority for the statement that during the week ending April 11, $13,377.69 worth of hogs were marketed from that district.

Director Robinson of the Associated Raisin Company states that practically no damage was done to grapes, except Seedless by the recent cold, and very little damage was suffered by Seedless.

The committee on Resource and Food Supply of the State Council for Defense is holding hearings in various sections to learn from farmers and business men as to the food resources of the state.

The California Railway Exposition, the three exhibit cars which the San Joaquin Valley Counties Association is to send East in a few weeks to advertise this section of California is now on preliminary tour through the valley.

Southern California

Many acres of beans will be planted near Hemet this year.

The Hemet News estimates a 50 per cent apricot crop for the valley.

The Hemet Farmers' Club has joined in the county farm adviser movement.

Last week's rain brought promise to many grain fields and special encouragement to vegetable gardens.

At the April 10 meeting of the Hemet Valley Farmers' Club Prof. F. T. Bioletti of the university discussed olive planting.

All Indian agencies and schools have received orders to put every acre possible into profitable crops. The Sherman school in Riverside County is farming 340 acres.

Several hundred high school boys are at work in the beet fields thinning in the places left vacant by Mexican laborers who have disappeared, apparently over the border.

Suggestion that 200,000 acres set to young citrus groves in this state be intercropped this year, to add to the state's food supply is made by Dr. H. J. Webber of the Riverside experiment station.

Manager Adamson of the Pomona Fruit Growers' Exchange expresses the opinion that Southern California's summer crop of lemons will be very short owing to cool weather holding back development of buds.

The San Pedro Growers' Vegetable Association, composed of 50 growers, has 3000 acres planted to early tomatoes, peas, beans, potatoes, squash and cucumbers. The association has a sales manager who markets direct to buyers.

It has been suggested that the pig club contests of the Imperial Valley include pigs intended for breeding purposes as well as for marketing. Auctioneer Zinn, who sold the hogs raised by the school children in the last contest, at Brawley, makes the suggestion.

The Coast

Polk County, Oregon, has 1600 acres in bearing prune orchard.

Sheep raisers in the section about Powell and Butte, Oregon, have formed an association.

A carload of flax fiber seed was sent out of Salem, Oregon, last week from the penitentiary flax plant.

The granges of Riddle and Canyonville, Oregon, have incorporated for $10,000 in order to build a processing plant for prunes.

The new cooperative creamery at Caldwell, Idaho, was dedicated March 29. The creamery has 200 regular patrons, most of whom are stockholders.

The Pomona Grange of Lane County, Oregon, has built a large warehouse to be used for storing produce of members and supplies purchased in quantity.

The Caldwell Cooperative Creamery Company of Idaho has just finished construction of a new creamery building. The new building is constructed entirely of cement.

As a result of a contest among boy cotton growers of the Salt River Valley last year Fred Medlock of Tempe won first prize, producing from one-half acre 310½ pounds of lint, valued at $165.40.

Stockmen of the Northwest are incorporating the Pacific National Dairy Show. The show is planned to be held in Portland this year, the following years at other centers in the Northwest.

The Yakima Valley estimates its fruit shipments for the coming year at 12,600 carloals. The greatest increase will be in apples, the estimate for 1917 being 1000 carloads ahead of last year's shipments.

President Hagenbarth of the National Wool Growers' Association prophesies a cut of 30 per cent in stocks of sheep, owing to the acting of the new live stock homestead law which will cut out range flocks in many states.

No elaborate equipment necessary — no messing about with a sloppy spray mixture. "Corona Dry" is applied in dust form and gets the bugs before they start to eat the growing things. Call or write for a free copy of 20-page instructive book "Garden Pests and Their Control"—it tells how to get rid of all bugs, worms and plant diseases.

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Order NOW——Special Prices

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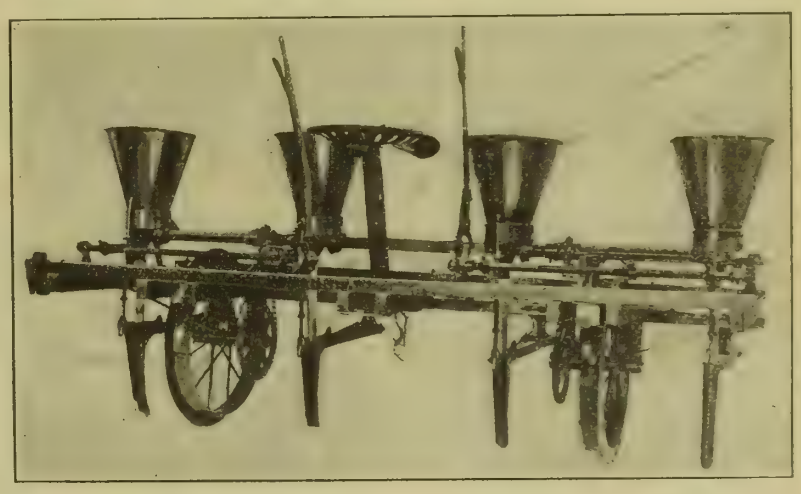

Especially constructed for sidehill, hilly or uneven ground. We guarantee this planter to work in any kind of ground to plant Beans, Peas, Corn, etc. Made in 2 and 4 rows, width from 26 to 30 inches.

BRENNEIS MFG. CO., Manufacturers of Bean and Beet Tools OXNARD, CALIFORNIA

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STABLE DAIRY

GLOBE FERTILIZER DEPARTMENT MILLS 913 E. THIRD ST. LOS ANGELES

FERTILIZER MATERIALS

SHEEP GOAT

COTTON SEED FED STEER MANURE

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Ditches from Reservoir

Please tell me what amount of gallons per minute will run through a circular opening 15 inches in diameter, placed at the bottom of one side of a reservoir, with a 2½ foot head of water and also with a five foot head of water. Also what is the cross section of ditches used in general practice with a 15-inch opening in a reservoir holding five feet of water? The soil is sandy and has a slope of 20 feet to the mile.—Subscriber, Pozo.

A smooth circular opening 15 inches in diameter in the side of reservoir with the water standing two feet six inches above the bottom of the opening will discharge 1200 gallons per minute, and if the water is standing at the depth of five feet above the bottom of the opening the discharge will be 2000 gallons per minute. It will not be practical to run 2000 gallons per minute through an open dirt ditch in sandy soil with a fall of 20 feet to the mile as the velocity of the water will be so great it will destroy the ditch by washing. If but 1200 gallons per minute is desired cement pipe 14 inches in diameter can be used as it will carry 1500 gallons per minute and cement pipe of 16 inches diameter will carry 2100 gallons per minute if the larger amount is desired. Cement pipe laid with so much fall must be well supplied with air vents to prevent bursting in case gates are suddenly closed.—J. B. N.

Ants in Fruit Trees

Answering inquiry in recent Cultivator as to method of controlling black ants that eat fruit tree buds, J. L. Stewart of Ballena writes:

"In former years was troubled i this way but now I practice frequen cultivation, especially close around th the trunk, pulverizing the ground s fine ants cannot dig their holes. Nov I have no ants in my orchard. If fo any reason this is not practicable tak a knife and very carefully remove th rough scurf bark clear around th trunk of tree one foot or so fron ground, making a smooth strip abou two inches wide. Then take axle o any semi hard grease that will stan heat of sun well, and grease tw inches wide around tree on smoothe surface. Renew this once a week. N ant of any breed will cross the grease strip. Pay no attention to those o the tree for as soon as they find the are trapped they will drop off."

Green Manure in Walnut Orchard

Please advise best time to plo under melilotus in walnut orchard Think it would be ready to plow unde about the middle of May but fear plow ing at that time would injure the wal nuts by cutting off too many roots Would it be advisable to leave th plowing until the middle of August?— Subscriber, Anaheim.

Unless one has plenty of water th cover crop from now until Augus would make a heavy draft upon th moisture in the ground. Besides, dee plowing in midsummer is generall considerd objectionable because o turning up moist soil to the sun. Un less one plows unduly deep we do no think injury would be serious if th cover crop were turned under at thi time of the year.

University—Experiment Station

Please advise if the California ex periment station and the University o California are the same or, if not what is the correct address of each —Subscriber, Hemet.

The University of California is state institution and is made up o many colleges. One of these college is the college of agriculture, also a Berkeley. The experiment station i in one sense a state institution unde direction of the college of agricultur but supported in a measure at least b funds from the federal treasury. Th first experiment station in this coun try was that provided for by the New York legislature in 1849. In 1862 the congress of the United States passed a law, which was approved by Presi dent Lincoln July 2nd, donating lands to several states and territories and providing for the establishment of col leges for the benefit of agriculture and the mechanic arts. This was known as the Morrill act. Delegates from colleges established under this act met and began the agitation for funds for stations for experimental purposes. In the early 70's this movement gained headway, and one of the first to be established was that by the regents of the University of California in 1873, with E. W. Hilgard as director. The service of the station was greatly improved after the passage of the experiment station, or Hatch act "to establish agricultural experiment stations in conection with agricultural colleges" approved by President Cleveland March 2, 1886. The state legislature has aided generously in the work of this institution. The station is located at Berkeley but has several branches, such as the citrus experiment station at Riverside and the pathological laboratory at Whittier, the university farm at Davis, and experimental plots in various other portions of the state. The dean of the college of agriculture is Thomas Forsyth Hunt, and he is also director of the experiment station. Any mail addressed to Director Hunt at Berkeley

$1150 F. o. b. Racine
Mitchell Junior—a 40-h. p. Six
120-inch Wheelbase

Mitchell SIXES

$1460 F. o. b. Racine
7-Passenger—48 Horsepower
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Twice as Strong
To Give You a Lifetime Car

Here is a new reason for getting a Mitchell to drive on country roads.

In the past three years, John W. Bate has doubled our margins of safety. Now every important part—by test—has 100 per cent over-strength.

Over 440 parts are built of toughened steel. All safety parts are oversize. Parts which get a major strain are built of Chrome-Vanadium.

Gears are tested for 50,000 pounds per tooth. The springs we use—Bate cantilevers—have never yet been broken.

Several Bate-built Mitchells have already run over 200,000 miles. So it is quite unlikely that a man will live to wear a Mitchell out.

Extra Features

That over-strength, in our opinion, is the chief Mitchell extra. But there are many others.

There are 31 features in the Mitchell which nearly all cars omit. Things like a power tire pump, a dashboard engine primer, ball-bearing steering gear, etc.

And this year's cars have 24 per cent added luxury—all paid for by savings in our new body plant. The Mitchell is now the luxury car of its class.

All Extras Free

All these extras come free in Mitchell cars. They are paid for by factory savings.

John W. Bate has spent millions of dollars in building and equipping this model plant. It covers 45 acres. The one aim has been to build this one type of car economically.

His methods save us on this year's output at least $4,000,000. And all that saving goes into extra values.

The result is extra features, extra beauty, extra strength. Cars built in other ways can't give them.

One Size—$1150

Note that Mitchell Junior, with 120-inch wheelbase, sells for $1150, f. o. b. Racine. You never saw such value in a fine car. Even this smaller car has nearly all our extras.

Go see these new models. See what these extras mean. You will not then want a car without them. If you don't know the nearest Mitchell dealer, ask us for his name.

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Mitchell—a roomy, 7-passenger Six, with 127-inch wheelbase and a highly developed 48-horsepower motor.
Price $1460, f. o. b. Racine

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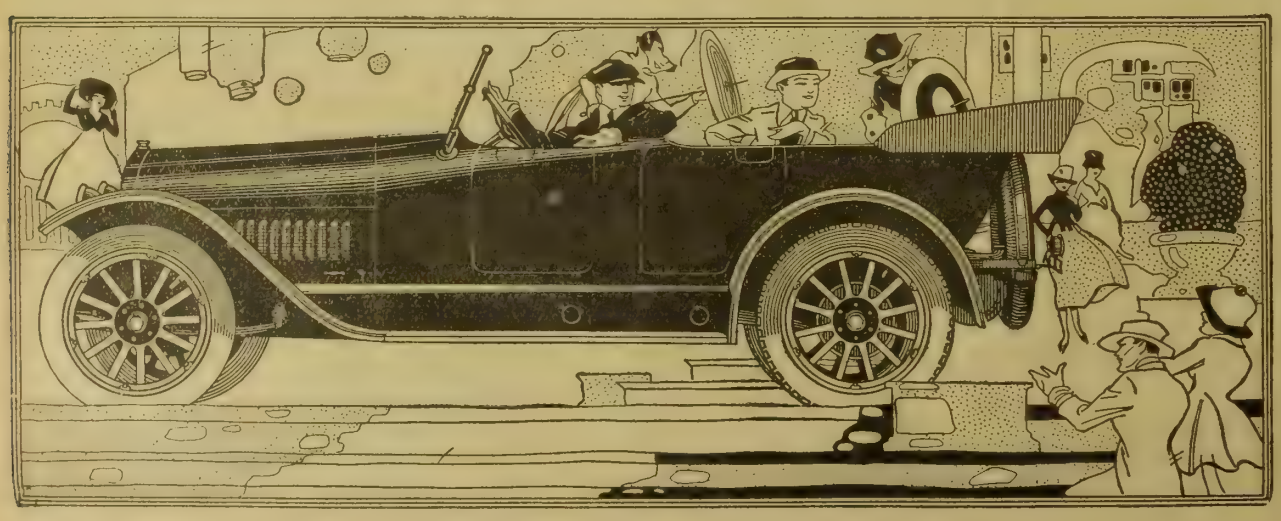
Also six styles of enclosed and convertible bodies. Also new Club Roadster.



will reach any one of the various phases of the station work, or the agricultural college or the university.

Corn Ear Worm

In a recent issue, answering an inquiry as to corn ear worm, we referred to fuller treatment having been given in the issue of October 7, 1915. This has resulted in so many requests for that number that the edition is exhausted. For the benefit of these we are repeating on Page 485 the principal points given in that article. This treatment has proved exceptionally successful.

Using Nitrate of Soda

Inquiry having come as to the quantity of nitrate of soda to use with different crops, especially with beans, the matter was referred to Mr. W. F. Sparr of the Nitrate Agencies. Mr. Sparr writes: "For pumpkins use about 230 pounds of nitrate per acre in divided applications, beginning with one-third of the quantity as soon as the plants are up and repeat at intervals of three weeks. For Egyptian corn use 100 pounds per acre divided into thirds, applying the first as soon as up but with intervals of a month between the applications. For beans and peas apply 50 pounds per acre as soon as up. This will be enough to give the plants a vigorous start and they will then get from the air all the nitrogen they further need provided the soil is supplied with lime and the other plant nutrients."

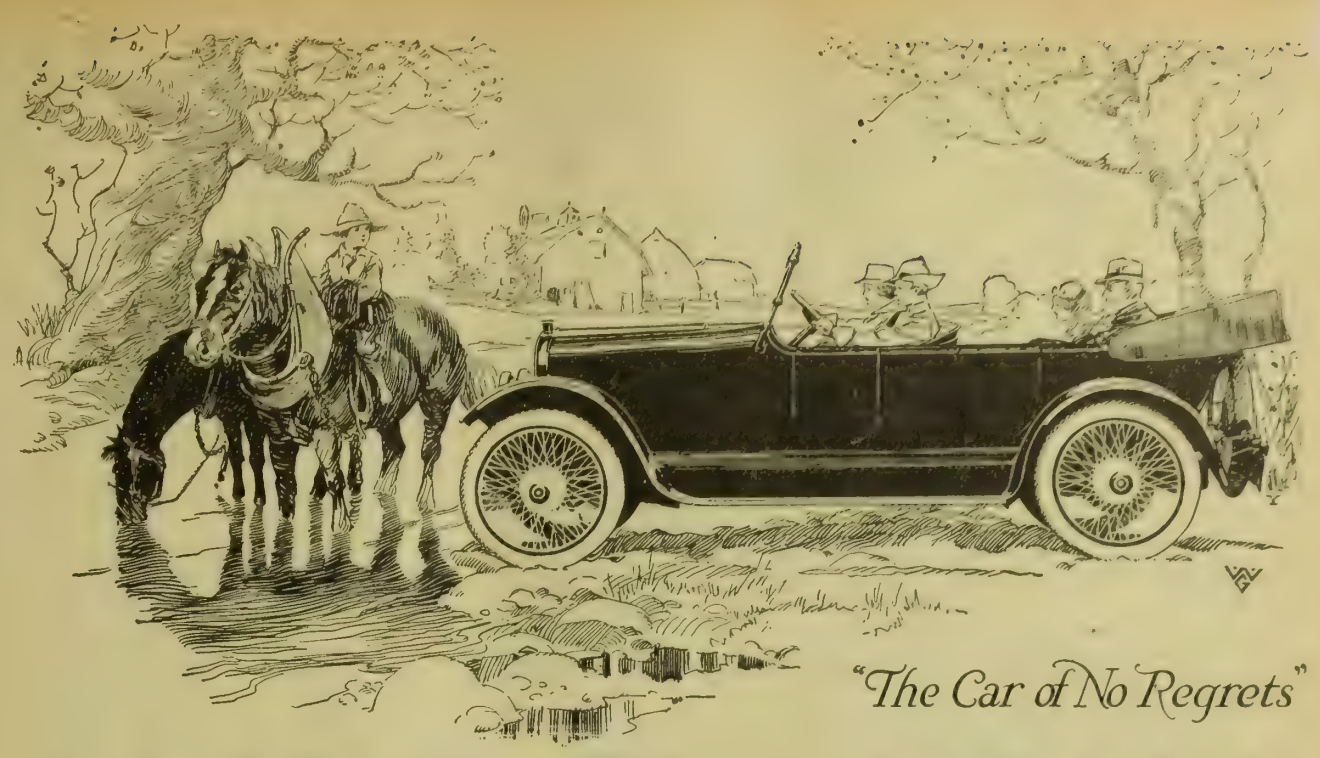
Mating of Pheasants

Have two pair of pheasants, but as the roosters fought was obliged to separate them and would like to know if one rooster will mate with the two hens?—Subscriber, Pozo.

"Pheasant Raising in the United States," Farmers' Bulletin No. 390, issued in 1910, under the subject of "Mating" says: "Most pheasants are polygamous, and each pen should usually contain one cock to from three to five hens, though the number of hens with one versicolor cock may range up to 30, while silver, Swinhoe, and Soemmerring pheasants breed in pairs. An extra number of cocks should be kept to replace any that die or are killed. In some pheasantries all the pheasants of one species are placed in one large pen, the proper proportion of cocks and hens being maintained, on the theory that while a smaller number of eggs results from this method, the chicks are stronger. But during the breeding season pheasant cocks are very pugnacious, and if not kept separate are apt to injure one another. Hence it is customary to have a small pen, not less than 9 x 18 feet or more than 30 by 30 feet, for each cock and his hens." Pheasant breeders will find much valuable information in the bulletin mentioned, which is written by Henry Oldys, also in "Pheasant Raising", Bulletin No. 1 of the California State Fish and Game Commission, written by Chas. A. Vogelsang. We presume this is still in print and may be had by writing State Fish and Game Commission, New Call Bldg., San Francisco.

THE POMEGRANATE

The agricultural experiment station of the college of agriculture, Berkeley, is issuing Bulletin 276, "The Pomegranate," by Robert W. Hodgson. The bulletin, which contains 30 pages, was prepared under the direction of Prof. Coit. It touches upon history, botany, different varieties, climate and soil requirements, method of propagation and general cultural directions.



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FOURSOME—$1585—(*Shown above*)—Designed for those who desire the sport type of car, with long, low, rakish lines yet in perfect taste. Narrow and "racy," this car seats four in comfort, has lengthy leg-room and is provided with four doors. A locked compartment just behind the rear seat gives generous and convenient storage space. The two front seats are of the "bucket" type. At their back is a combination tonneau and handy lamp which may be removed from its socket and carried about the car. Color: deep maroon.

TOURING—$1585—With all the advantages of a 120-inch wheel-base, this car has the roominess of a Six of 126 to 128 inches due to compactness of King V-type motor. Has many novel conveniences, and upholstery and finish are of the highest grade. The ideal large-family car. Seats seven. Color: dark green.

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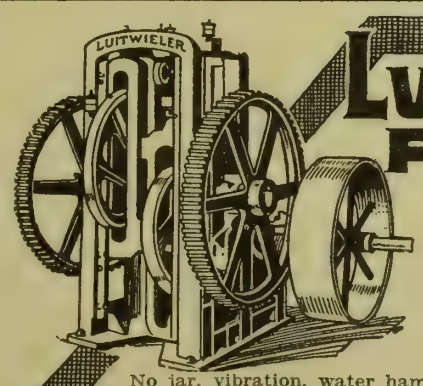

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Great Capacity Low Upkeep—

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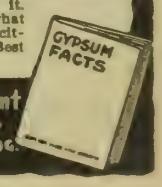

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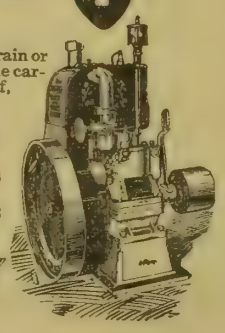

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Thinning Sugar Beets

A CALIFORNIA writer in "Sugar" gives the following excellent article on the vital importance of proper thinning of sugar beets:

The cultivation of the sugar beet in Europe has been developed into one of the most important of all agricultural industries. In America the industry is in its infancy. If we compare the average yield with those obtained in this country we notice the undesirable fact that our yield is far below the European. The average yield of 1914 in the United States (according to Truman G. Palmer) was 10.6 tons per acre as compared with 14.17 tons per acre in Germany; 12.52 tons per acre in France.

These discrepancies cannot be entirely caused by the difference in soil and climate, but are caused by appreciable differences in the stand. If we closely examine many of the poor stands we notice the small number of beets left to the acre and the large gaps between beets in the row.

"Thinning" is one of the most important operations of sugar beet culture. When a beet crop is planted in 18-inch rows, which is the most common planting distance, and if 15 pounds of an 80 per cent germinating power seed is used, under favorable conditions the total good stand will be 500,000 to 600,000. In most cases from this entire amount only 40,000 to 60,000 are desired; the remainder must be destroyed, as they will interfere with the normal growth of the selected ones. Thinning is done in two different ways: Bunching and thinning in two operations; thinning and spacing in one.

Methods in Europe

The blocking and thinning are done simultaneously in California; in Europe all the beets are bunched first and thinned afterwards, generally by a different crew. The bunching is mostly done by men, who with a long-handled hoe destroy all the beets and weeds for a distance of five inches, e. g., they leave a bunch of beets of approximately one and a half to three inches; these bunches are generally left four to five days before they are thinned out; this work (which is more delicate) is mostly performed by women and children.

The advantages of the bunching and thinning separately are: It is easier to select the strongest beets in a limited area; the average distance between the beets in the row is generally more even.

These laborers are paid by the day, working from sunrise to sunset, under the close supervision of a foreman who walks backward in front of at least 24 of these thinners. These thinners select the healthiest beets of the bunches, and, while holding with the left hand, pull up with the right the remaining beets which are placed in windrows, gathered by children and used as fodder. These thinners also destroy all the weeds not killed by the horse cultivators or hand hoes. They must perform all this work with their hands; no tools of any kind are permitted.

Thinning Contract Here

In this country this delicate work is not performed in the same careful manner, but in most cases this important work (in fact the one upon which the results of the entire crop largely depends) is left in the hands of disinterested laborers. The thinning contractor is paid by the acre, and in most cases pays his men also by the acre and deducts ten per cent for commission. These men are not interested in good work and, not being watched by the farmers, they try to go over as much ground as possible, to the detriment of the crop. There is no selection of the healthiest beets by the thinners, and if the strongest beets are left, it is merely by accident.

Purpose of Thinning

We must keep in mind that there is a triple object in view in thinning: Selection of the strongest beets; even distribution of a certain number of beets per acre; destruction of all weeds between the beets in the rows, and two inches on each side of the beets.

As a rule, under average conditions, the earlier the beets are thinned the better for the growth and yield of the crop, but not before all the sprouting seed in the ground is up, nor all the weeds have a reasonable start.

All beet fields should be rolled with a wooden roller, disk roller, or Cross kill, according to the mechanical conditions of the soil, and also cultivated before the thinning starts. Of course under exceptionally wet conditions when the ground is still too miry to hold a team, thinning should not be delayed too long and, if necessary, performed without the field being either rolled or cultivated, but under these circumstances special allowance should be made to the contractor.

The Proper Time

The larger the beets when thinned the more the roots of those to be left will be disturbed and the harder the condemned ones will come out, and sometimes if not cut off low enough the roots will add new foliage and double beets are the result.

Beets should be thinned when their four leaves are fully grown (not counting the two cotyledons or seed leaves) and sufficient thinners should be in the field to complete the thinning before the third pair of leaves are fully grown. If the undertaking is large and there is a shortage of thinners, it is advisable to start the thinning when most of the beets have four leaves.

Under normal conditions—when the weather is warm and there is sufficient moisture on hand — thinning should start about the fortieth day after planting when the largest diameter of the root is three mm. (about one-ninth of an inch) and weight, root and leaves, about four grams (or one fifth to one-fourth oz), the total length of the plantlet will be about four inches.

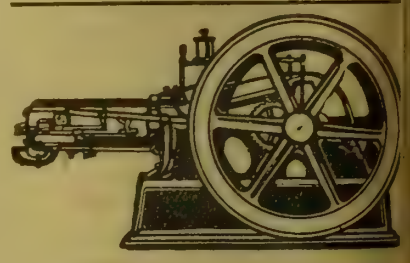
Beets should not be thinned when they have only two true leaves, because for practical reasons, at this stage of growth, the strongest developed could not be distinguished.

Thinning should also be delayed if the young beets are exposed to insect pests; if the soil is infested with wire worms, or cutworms, multipedes, flea beetles, or cucumber beetles. And under unfavorable conditions very small beets are more susceptible to the black root damping off (Phoma betae) and to the beet and garden nematode.

The most favorable weather is the cloudy, foggy days when the atmosphere is moist; discontinue during hot days.

How Many to the Acre

The next important problem in thi



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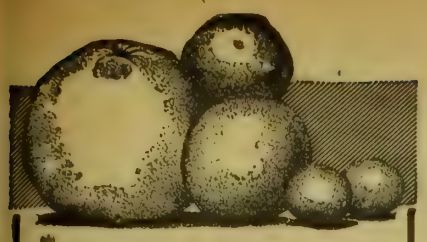

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"ROUGH ON RATS" ends RATS, MICE, Bugs. Don't Die in the House. Unbeatable Exterminator. *Ends* Prairie Dogs, Gophers, Ground Hogs, Chipmunks, Weasels, Squirrels, Crows, Hawks, etc. The Recognized Standard Exterminator at Drug & Country Stores. *Economy* Sizes 25c. 60c. Small 15c. Used the World Over. Used by U. S. Gov't. Rough on Rats Never Fails. *Refuse ALL Substitutes.*

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ning is how many beets should we leave to the acre?

The following fundamental rules must be observed in deciding: The number of beets per acre should increase with the fertility of soil; with the quantity of moisture; the sugar content, coefficient of purity, saline coefficient, also will increase with the number of beets per acre.

The proper distance for a given field must be decided from the knowledge of the history of the field. If the size and weight of beets have been (for several years) exceptionally large with a relatively low sugar, low purity, etc., it is advisable not only to reduce the distance between the rows, but also the distance of beets in the row; in other words, increase the number of beets and reduce the average weight of beets.

What actually should be taken into consideration is the volume of pulverized soil at the disposal of each plant. Assuming that all beet land is plowed at least 12 inches deep, a very favorable distribution which has given, in good fertile soil with good drainage and sufficient available moisure, very good results, is one beet per cubic foot, or one beet per square foot. A perfect stand in this case would be represented by 43,560 beets to the acre. This very favorable distribution of the beets in the field is obtained when beets are planted in 18-inch rows by having the beets thinned eight inches apart, or, if planted in 16-inch rows by leaving them nine inches apart; in either case making a stand of 43,560 beets to the acre. The experienced beet raisers in Europe endeavor to raise 100,000 beets per hectare (2.45 acres), one beet per square foot.

TEST YOUR SEED CORN

GERMINATION test of seed corn is a form of insurance which it is mere recklessness to neglect, say specialists in the United States department of agriculture. Weak seed make weak stalks and poor corn crops, and to plant it is to throw away labor and land. It is the weak seed rather than the dead seed that causes loss. Most farmers plant a superabundance of seed and consequently their corn fields contain a superabundance of plants which are unproductive because seed was weak.

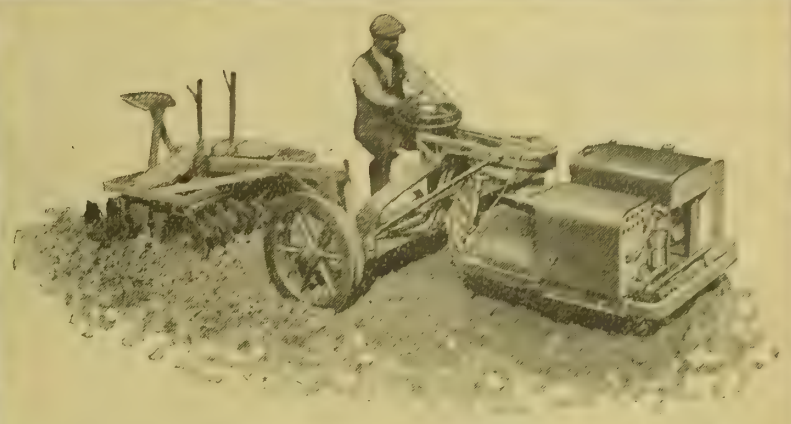
The process of obtaining good seed corn really should begin in the fall with the selection of the best ears from the field. If these are properly cared for through the winter the farmer should have a satisfactory supply for planting in the spring. Whether or not this has been done, however, it will pay him to test his seed corn ear by ear.

A simple method of testing single ears is to select two kernels from the opposite sides of the ear on the top, two from the middle, and two from the butt. These are put in numbered squares or portions of germinating boxes, or other testers. If the kernels are kept moist in a room where the temperature is not above 90 degrees Fahrenheit nor below 50 degrees Fahrenheit, the seeds should begin to sprout after a lapse of from six to seven days. If any of the kernels fail to give strong sprouts, the ear from which they are taken should be rejected for planting. If after testing a large number of typical ears the farmer finds that the results of the tests show a germination as high as 97 per cent of complete, he may be justified in considering that his seed supply is satisfactory and in omitting any further tests. Where there is any doubt, however, about the matter, it is much safer to test each ear the kernels of which it is proposed to plant.

If, as a result of these tests, the farmer finds that the corn he has intended to plant is unsatisfactory, he should take steps immediately to provide himself with a supply of good seed. This can best be obtained in the majority of cases from the immediate neighborhood. It is a great mistake for a farmer to obtain his seed from some section where conditions may be quite different from those under which he must grow his crop. Varieties which do well in a section where the growing season is long may not necessarily be at all suited to regions where the season is short. In buying seed corn, therefore, it is of the utmost importance to ascertain where the corn was grown.

Continued on Page 499

Save Money Cultivating with a Bean TrackPULL SIX HORSE Tractor



For pulling a cultivating tool, the Bean TrackPULL SIX HORSE Tractor hasn't an equal. This little machine also excels at plowing, discing, harrowing, spreading and other farm, orchard or vineyard work.

THIS IS WHY

The Bean TrackPULL Six-Horse Tractor is superior because its weight is only 2875 lbs.; does not sink in or pack the softest soil. Efficiency: It is the Tracklaying type, traveling on its own track, giving long traction, and responds quickly when a turn is to be made. Power: It does the work all day long that six hard working horses can do working continually, and it never wants to loaf when the hot days come. Superior Construction: It is equipped with Le Roi 4-cylinder vertical type—4-cycle motor, Donaldson air clarifier, Bosch ignition, Famous Hyatt Roller Bearings and New Departure ball bearings throughout, Perfex radiator, water cooled with centrifugal pump and fan, combination splash and pump lubrication, and is so simple a boy can operate it.

Completely circling a lemon tree with a 6-ft. Double Disc.

Pulling 12-ft. Forkner Cultivator making difficult turn. Distance between tree and fence 12½ ft.

Write us for the name of nearest TrackPULL agent and other information.

Prompt Deliveries in April

Although we have just finished a big addition to our plant to supply the ever increasing demand for Bean Tractors, every indication points to a demand very much in excess of the possible production, and we urge you to get in your order early.

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Mail the Coupon today.

Mail this coupon today and get our big folder describing the Bean TrackPULL Six-Horse Tractor.

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Please send me prices and the big folder with the complete story of the Bean TrackPULL. If I decide to purchase I will need my tractor about

Date ..... 191..

I work ..... acres

I grow .....
(Name fruits or vegetables you produce)

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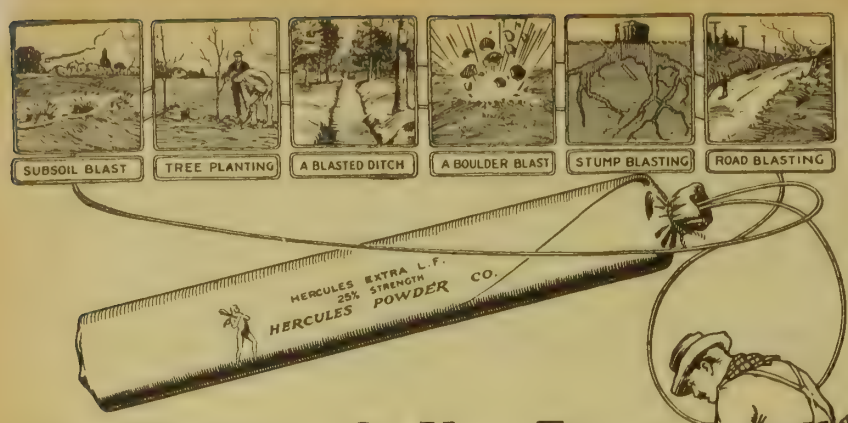

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If you have never used Hercules Dynamite on your farm you have no idea of the many tasks it may be made to perform—and perform more quickly, more thoroughly, and much more cheaply than can the methods usually employed.

In irrigation and drainage work especially does Hercules Dynamite prove its superiority. To run an irrigation ditch or a drain by its use is child's play when you consider the effort and time necessary to accomplish the same work with pick and shovel.

You simply plant the charges along the prescribed course. Connect with the blasting machine. Fire. There is the ditch. If you want to dress it up a bit, well and good. But usually it's ready for use just as the dynamite leaves it.

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is also most valuable for the work it does in tree planting—an operation which, by the way, can be performed as well by no other means.

Every progressive farmer is familiar with the almost phenomenal crop results that have been obtained in this way. Many, however, have not tried it on their own land. How about you?

In your own interest, in the interest of your farm, you should write us for a book which we have prepared on the subject of the use of dynamite on the farm. It is called, "Progressive Cultivation", and is sent free on request.

In it the subjects already mentioned, also many others, such as tree planting, road building, land clearing, etc., are fully discussed and the best methods to follow carefully explained.

You will find the book well worth having. Write for your copy today. Please use the coupon below.

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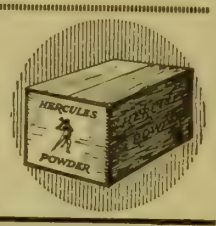

The surface of any spindle shows rough through the microscope. This causes friction. But the powdered mica in Mica Axle Grease fills up this roughness—makes a smoother bearing. The grease works better and lasts twice as long.

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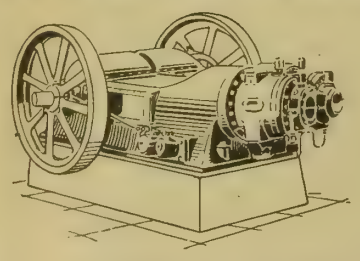

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Just as good for irrigation service.

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LOS ANGELES

"Layering" Old Thompsons Tried for Quick Renovation

LAYERING to preserve the productivity of Thompson Seedless vines is an expedient being tried on the old Mason-Osborne vineyard west of Fresno. A. E. Way of the University of California viticultural department is to do the work on one row in the vineyard to demonstrate the advantages and disadvantages of the plan.

"Layering" is simply bending down one of the long canes and covering it well with earth to let it take root. Mr. Way will bend a long cane over to the middle of the space between vines, burying it in the soil, and will leave the last bud exposed to grow and form a new top. When the layer is two years old and thoroughly rooted, it will be cut loose from the parent vine, and will be trained as a new vine to take the place of the old one, which will be gradually pruned back and finally removed altogether.

The advantage of the plan is expected to be that the owner will get returns while the new vines are coming on.

Crops will be borne by the old vine until the new is ready in some measure to replace it.

The condition of some of the older Thompsons is found to be unsatisfactory in the Fresno area. The vines are practically all living, but the vitality and fruitfulness of many have been impaired. Careless pruning is largely responsible. Some of the Thompsons are almost as rotten as some of the old Muscat vines. Vines that might have lived a century are failing to keep up their production in some cases at 30 years. Arching the canes outward is one of the methods of making the crop heavier, as more sunlight is let into the vine. This also increases the vitality.

While layering will probably prove of benefit, it seems more than probable, according to Mr. Way, that the better way to renew an old vineyard is to dig it out altogether and plant the ground to alfalfa for a year or two, then replanting to vines.

Proposed Quarantine on Citrus Fruits

A public hearing on the proposed quarantine on imported citrus fruit will be held at the department of agriculture Washington on May 8. The proposed quarantine is due to the fact that citrus canker is known to exist in eastern and southeastern Asia, the Philippine Islands, Oceania, Malayan Archipelago, Japan, and South Africa, and that fruit infected with the disease is being imported into the United States from these regions. If adopted, the quarantine will prohibit the further importation from these sections of such fruit as oranges, lemons and grapefruit.

The commercial importations from the countries affected by the proposed quarantine are so small at the present time that the chief danger is believed to consist in small lots of fruit brought in for personal use by returning travelers. As a precaution against the introduction of citrus canker into this country, the importation of citrus plants has been probibited since December of 1914. The disease however, can be brought in on fruits as well as on plants.

Citrus canker has already made its way into the gulf regions of the United States, presumably in 1911, from the Orient. The federal and state authorities are now fighting the disease, and a vigorous attempt to exterminate it by the burning of citrus trees is being made, with prospects of success in several of the infected states. The campaign is expensive, however, as it involves the burning of between $5,000,000 and $10,000,000 worth of citrus trees. Moreover, the western fruit districts of California, New Mexico and Arizona are still free from the infection and every effort is being made to keep them so.

Raisin Day

All California, and we hope all that portion of the world which is able to eat, will observe next Monday with songs, dancing and eating of raisins. It is Raisin Day at Fresno, the raisin center. Miss Madison, daughter of the former manager of the California Associated Raisin Company, will direct processions, games and control generally the festivities. In California the day will be largely one of joyous holiday but the greater observation of the day will be in the dining rooms all over the land, for it is sure that everybody will eat and drink raisins.

Page advertisements are being carried in nearly all Eastern newspapers. Here are a very few of the arguments used in some of these advertisements:

Eat More Raisins.—Eat cluster raisins with nuts after dinner. Eat raisins with your beakfast foods—with shredded wheat, corn flakes, puffed wheat and rice, etc. Serve raisins in fruit salads. Garnish dishes of ice cream with raisins. Let the children have them as sweetmeats. Raisins are nature's healthful candy.

Cook More Raisins.—Cook raisins with your apple sauce, oatmeal and boiled rice. Cook them in your Indian pudding, rice pudding and bread pudding. Stew raisins and prunes together, or alternate stewed raisins and stewed prunes. Raisins cooked with peaches and other fruits add both variety in flavor and food value.

Bake More Raisins.—Bake breads, cakes, muffins, gems, biscuits, cookies, pies, etc., with Sun-Maid Raisins. A California Raisin Pie made with Sun-Maid Raisins is delicious. Raisins and cranberries in a pie make a luscious combination. Try good old-fashioned corn bread filled with raisins. Try famous California Raisin Bread, made with Sun-Maid Raisins—the national raisin bread—it's good and good for you. Your dealer has it. Send for free recipe book which describes scores of ways to serve Sun-Maid Raisins.

State Fruit Growers Convention

State Comissioner Hecke and a live wire committete at Riverside are making every preparation possible for a great State Fruit Growers' Convention to be held at Riverside June 4-8. Riverside is a beautiful place and ample accommodations are assured. The program is not yet announced. We assume it will be largely tinged with discussions as to the state's fruit culture. However, many of the graver questions of today will have place on the program. Riverside is saying "Come, a genuine Riverside welcome is here for you."

Greater Production

The California Development Board is holding its annual convention at Stockton, April 27 and 28. Representatives of chambers of commerce, boards of supervisors and prominent men from throughout the state are in attendance. For several years the development board has been gathering scientific agricultural information of the state and the subject of this convention is devoted entirely to a discussion of ways and means of devolping the intensive agricultural resources of California and conserving the product.

Two Great Beef Cattle Sales

Written for the California Cultivator By M. C. Holman, Manager of the Northern Office at San Francisco

CALIFORNIA is in line for two of the biggest live stock events since the Panama-Pacific Exposition show of celebrated live stock of all classes. Two live stock auctions are to take place next week and they are coming right together as to time and place. They are to be held at Mayfield. Mr. Carruthers' sale of registered Scotch Shorthorns will take place on Wednesday, May 2, and the sale at the D. O. Lively stock farm of registered Herefords will be held on the following day, Thursday, May 3.

Bringing into line for these sales of two popular beef breeds of cattle is a declaration of the fact that American, and particularly California, live stock men are recognizing that what is of greatest value in live stock circles is breeding for beef. It is one thing to breed for milk, and that is commendable. We couldn't get along without the milker. But it is quite another thing to breed cattle that will not only be good milkers, but will, at the same time, be loaded down with good chunks of delicious meat, which, at this time, is bringing exceptionally good prices over the counter.

The Shorthorns and Herefords have many similar characteristics. They are stockily built, are set low and rest on four chunky legs. The broad foreheads are characteristic of the two classes, the necks are short and heavy set, the hair is curled over the bodies, the backs are straight and there is a masculinity about both breeds that is particularly pleasing and suggestive of great strength. The greater the masculine features predominate the better calves they will have.

One of the main features which characterize these two great breeds is that when used on any herd they will greatly improve the quality of the calves and eventually will round the herd out as a good beef maker. They are also good feeders and will turn their food into beef quicker than any other breeds. They are good rustlers and will find their feed on the range with great ease, whereas other breeds need to be handled with great care in this particular.

Breeders have their own particular favorites, and the breeders of Shorthorns and Herefords are no exception. A Shorthorn cow will lose weight when suckling her calf, but this is a commendable fault in that she will give of herself that the little one may have plenty of nourishment and round out for a good start on the road to utility. The Shorthorn is quiet and gentle on the range and in the corral. The Shorthorn is ideal in conformation. It is the type of animal that breeders are striving for and they are taking him as the model. The Shorthorn possesses the size, bone and heavy hind quarters which are desirable features in beef breeds. It is claimed that the Shorthorn will put on more meat for the amount fed than any other breed.

Our Hereford friends claim that the Hereford makes the cheapest beef and that they are the best grazers. It is also claimed that the Herefords mature the quickest and become ready for market with the least possible care; that they are the best mothers and the most prolific, each herd having a crop of calves with the greatest regularity. They will utilize feed that other breeds cannot utilize and will fatten in good shape where others would be unpresentable. The Herefords are said to bring better prices as beef and to be freer from tuberculosis.

In color the Shorthorns are roan, white and red, with the roan predominating and being considered a particular favorite. The Hereford is characterized by the white face, with a white strip extending from the mouth, down the neck, under the belly and terminating at the tip of the tail, with the feet also white.

Whatever may be the claims of and for these two great breeds it remains that their primal qualities are such as to commend them to any breeder who is desirous of improving his herd for beef production. As individual breeds they stand without rivals in the beef class.

These two sales should be record breakers in attendance. Those interested in Shorthorns only will have a chance to see what a Hereford is like by waiting over one day and attending the Lively sale, and those who can see only the Hereford should make a point of being at Mayfield on the second to attend the big Carruthers sale of Shorthorns.

Full detailed reports of the sales will appear in the Cultivator.

Holstein-Friesian Association Reorganization Meeting

Written for California Cultivator By C. A. Briggs

A LARGE number of Holstein breeders attended the meeting called for adoption of new by-laws and election of directors for the California Holstein-Friesian Association held in the ball room of the Hotel Hughson at Modesto the evening of April 18. J. W. Kiesel, the president, called the meeting to order and stated the objects for which the meeting had been called.

The report of the by-laws committee was read by Secretary K. W. Abbott. A witty welcoming address was made by J. W. Davison, president of the Stanislaus County board of trade. This was followed by a number of addresses. Notable among them were those by Dr. Chas. Keane, state veterinarian, on the "Work of the State Veterinarian in Relation to the State Dairy Laws"; Peter J. Shields on "Ideals in Breeding by Breeders with Ideals"; J. M. Henderson on "How the Breeders Can Help the Dairy Interests of the State"; Frank Morris on "The Development of Breed Families." F. F. Stonerod in behalf of the Los Angeles Live Stock Show presented its claims for support of the breeders of the state.

Directors chosen were De Lancy Lewis, San Jose; K. W. Abbott, Milltas; Owen Duffy, Napa; K. V. Ridgeford, Knightsen; Glon Gibson, Williams; F. W. Kiesel, J. M. Henderson Jr., Sacramento; F. M. Helm, Fresno; W. J. Higdon, Tulare; H. L. Morris, Woodland; A. R. Magruder, Ripon; A. J. Stalder, Riverside; Jas. J. Jeffries, Burbank; J. W. McAlister, Chino; W. H. Taylor, Santa Anita.

A. R. Magruder was appointed to represent the association at the next meeting of the national association.

The next meeting of the state organization will be held in Napa on May 5, and all Holstein breeders, their wives, sweethearts and friends, whether they belong to the association or not, are urged to attend. The meet will be at the state hospital near Napa City, and Owen Duffy promises a good time for all. Holstein men, don't fail to attend.

DUROC-JERSEY RECORD

The National Duroc-Jersey Association reports recording during January of 5132 pedigrees and receipt of 96 new members. The association is taking on a larger program this year and will promote three different kinds of futurity shows; the National at Omaha, state futurities and district futurities. Any breeder is eligible for the National, one state futurity and one district futurity.

The National futurity carries a classification of $1000 and there must be 30 herds nominated; this show will be in connection with the National Swine Show. State futurities carrying classifications of $400 each, will be promoted at the California state fair.

DON'T FAIL TO ATTEND THE

Great Shorthorn Sale

AT THE

CARRUTHERS FARM, Mayfield,

next WEDNESDAY, MAY SECOND

46 Registered Red and Roan SHORTHORNS
9 Bulls and 37 Cows

The bulls, cows and heifers offered at this sale will mean a big improvement to any herd they enter. They are the CHOICE STOCK of the CARRUTHERS FARM, and their breeding has been the result of scientific selection. They will perpetuate their good qualities.

ON POINTS THEY SCORE AS TOP NOTCHERS FOR BEEF PRODUCTION AND SHOW RING CHAMPIONS.

CHARACTERISTICS: Well set horns, broad forehead, body set low on stocky legs, a good tufted coat, well rounded loins and great meat bearers.

THE SALE WILL START PROMPTLY AT ONE O'CLOCK. Come early and make your comparisons and selections. SPEND THE DAY AT THE HOME OF CALIFORNIA'S GREATEST SHORTHORN HERD.

AUTOS MEET ALL TRAINS

COL. C. M. JONES, Auctioneer — Mayfield, California

W. M. CARRUTHERS, Owner — Wednesday, May 2nd, 1917

The Quality Holstein Sale

It will be a day of real opportunity for Holstein buyers when we sell

100 Registered Holsteins 100
STATE FAIR GROUNDS
Sacramento, California, THURSDAY, MAY 31, 1917

This splendid offering will be made up of drafts from such high class herds as

A. W. Morris & Sons Corporation, Wodland.
Henderson Company, Sacramento.
Bridgford Company, Knightsen.
Toyon Farm, Los Altos.
Palo Alto Stock Farm, Palo Alto.

Among the females offered will be

A DAUGHTER OF KING KORNDYKE SADIE VALE!
A DAUGHTER OF SPRING FARM PONTIAC CORNUCOPIA and out of a 31-pound dam.
A 31-POUND COW!
HEIFERS AND COWS BRED TO SOME OF THE GREATEST SIRES IN CALIFORNIA!

These are only a few of the good ones. Watch for future announcements on this sale. Catalog on application.

CALIFORNIA BREEDERS' SALES AND PEDIGREE COMPANY
C. L. HUGHES, Sales Manager
SACRAMENTO, CALIFORNIA
Auctioneer: COL. BEN A. RHOADES

WE MAKE LOANS

on beef breeds of cattle in amounts from $5000 up, and invite you to correspond with us.

Southwest Cattle Loan Company
JNO. L. KNORPP, Pres. and Gen. Mgr.
915 Citizens Nat. Bank Bldg. LOS ANGELES, CAL.

Berkshires

AT

PUBLIC SALE

Wednesday, May 9, 1917

RIVERSIDE, CALIFORNIA

60 Bred Sows and Gilts

10 Boars - 50 Weanling Pigs

DISSOLUTION OF PARTNERSHIP

An Opportunity for the breeder who is after the best in type, quality and breeding for his foundation herd. An Opportunity for the man who wants young stock. An Opportunity for the man who wants animals for his 1917 show herd. An Opportunity for the man who is after the right kind of pure-bred Berkshires in his herd for profitable pork production. There isn't a breeder on the Coast who will not find something in our offering that will attract him, that will add strength to his herd, and that he can afford to buy. Come and bring your friends with you. Remember the time and place. May 9th, at Riverside. Write for catalogue.

Thatcher, Ennis & Williamson

D. O. Lively Stock Farm's

FIRST ANNUAL SALE OF

REGISTERED HEREFORD CATTLE

Will be held under the auspices of the American Hereford Cattle Breeders' Association at

Mayfield, California, Thursday, May 3, 1917

The offering will be made up of sixty-five head—twenty bulls and forty-five females. A splendid opportunity to start a pure bred herd. Write for catalog.

D. O. LIVELY STOCK FARM, 215 Hobart Bldg., San Francisco

FOREST GROVE LAUREL 8TH
First and Reserve Grand Champion
California State Fair 1916

The Type We Are Breeding For

Hardy, prolific sows of best blood lines and breeding. Strong, upstanding, prepotent boars. In short the best possible specimens of the Berkshire breed. We plan to do this by breeding large numbers and from them making a rigid selection.

James Mills Orchard Corporation

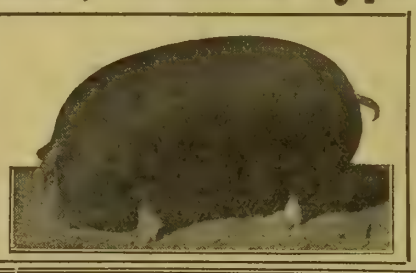
Hamilton City, California

Poland Chinas, Medium Type

Choice breeding stock, both sexes, from Panama-Pacific International Exposition prize winning strain. 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to

M. Bassett

Hanford, Kings County, Cal.



Use Tuberculin Tested Sires in Your Herd

WE HAVE A NICE LOT OF SHORTHORN BULLS and HEIFERS THAT WILL SELL FAST WHEN THE SPRING FEED COMES. SELECT YOURS NOW FROM THE BRIGHTON FARM HERD.

H. L. & E. H. Murphy, Perkins, Cal.

B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K

Awarded Gold Medal Pan.-Pac. Exposition.

Save the Little Pigs!

Clean, healthy little pigs grow into profitable hogs. With B-K the POWERFUL disinfectant (NOT A POISON) you can easily keep the little pigs clean and bright, prevent face scab, lung fever, cholera and bowel trouble by disinfecting pens, animals, feed and drinking water. ALL authorities agree that disinfecting is absolutely necessary, to protect hogs against cholera, and the records show that hundreds of breeders have safely protected all their hogs by using B-K when the hogs of neighbors were dying from Cholera. B-K disinfecting does not interfere with the use of serum but more than doules the protection. Germ diseases are more easily prevented than cured. Our powerful non-poisonous germicide will save you hundreds of dollars per year if you are raising hogs. If your dealer does not have B-K, send us his name.

Dealers Wanted in Every Town

FREE BULLETINS—Send for complete information—"trial offer" and bulletins on Hog Sanitation and Farm Disinfecting.

General Laboratories,
3105 Washington Bldg.,
Madison, Wis., U. S. A.

B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K B-K

Northern California Live Stock Notes

Written for California Cultivator By W. S. Guilford

FARMER-PATRIOTS

IN the present crisis any one is a patriot who does anything to help to bring victory to the United States and the Allies. The food supply of this country and the world will undoubtedly be the biggest factor in bringing about the desired result. It can therefore be truthfully said that at this time the one who can do most to conserve and increase the food supply of the nation is the greatest patriot.

Let us do a lot of figuring on this. Is there a corner of a field that is now unproductive that can be made to grow some corn or grass or potatoes, or anything that will be feed for man or beast? Could a few sheep be matured on weeds or along roadsides or on feed that would otherwise go to waste?

The extra care or the hours of sleep lost in giving the sow attention that will result in saving the life of pigs is patriotic service.

There are many ways in which energy can be expended along this line—let us all be busy.

It is stated that during the Civil War many farmers left the plow standing in the furrow to enlist in the war, and that the plow stood where it was left until after the war was over. Thousands of acres were unproductive during the entire period of the war.

The present food supply of the world demands that such things as this be not done now. Instead of leaving the plow the patriot is the one who will plow 14 hours a day instead of nine and who will do everything in his power to grow the largest possible crop in 1917.

A GOOD KIND OF SOW

I visited one of the great hog breeding farms of the East a short time ago. In going the rounds we came to one lot in which there was a long thin sow with a litter of splendid pigs.

"That sow is a good mother, but isn't much to look at," said the owner, as he started to pass hurriedly by the pen. Then in an undertone to the herdsman he said; "We should put this sow in a back lot somewhere."

But she looked good to me and I wanted to know more about her. I found that she was a young sow, this her third litter, that she was sired by one of the best boars now living, that she had never been shown, had been bred young and regularly, raised 12 pigs in her last litter, had never had time to "grow out", but some of the best pigs on the farm were hers, and some are likely candidates for the fall show herd.

I said "What is the price of this sow?"

"Oh, we don't want to sell her," was the reply.

"But if you did want to sell her what would you probably ask?"

"You would think we were joking if we told you, for she don't look the price we would have to ask."

"Well, anyway, what would it be?"

"Five hundred dollars would be the price, but she is not for sale."

Now at that price she might have been the cheapest thing on the place. The neighbors might make fun of the man who had the nerve to buy her—but what a foundation animal for a herd she would be.

A LAMB CREEP

The Cultivator has had a lot to say during the past two or three years about small flocks of sheep for small diversified farms. And I have yet to learn of any who have started these little flocks who have regretted it. On the other hand there are many who wish they had started such flocks and who will buy a few ewes at the first opportunity.

As soon as the lambs are big enough to eat a little grain and hay it is a good idea to fix a little pen into which they can creep and the ewes cannot. In this pen, or creep, put some alfalfa hay and a little grain, corn or rolled barley, and a big increase in their weight will be noted. This is when the lambs are to be made ready for market at the earliest possible time.

WORMY HORSES

Horses may have so many worms that they cannot digest enough food to keep both the horse and the worms thriving. Then the worms get the best of it. Dr. Backus of Missouri suggests the following worm remedy. Powdered nux vomica 2 ounces, powdered gentian root 4 ounces, powdered areca nut 6 ounces, sodium chloride 8 ounces, arsenious acid 2 drams. Mix. Give one heaping teaspoon to every 250 pounds weight night and morning for ten days. Mix the medicine in the grain.

While the treatment is in progress feed the horse lightly so the medicine will have a chance to work on the worms. And give loose feed—like bran—to keep the animal's bowels open.

With the extremely high price of feed no parasites of any kind should be fed. Make war on worms, lice, ticks and all sorts of vermin that live on the blood of domestic animals.

WATER FOR 36 HOURS

More pigs are killed by overfeeding the sow immediately following the birth of the pigs than any one has an idea. And this practice is of the greatest danger to the best heavy milking sows that should raise the top pigs.

If every hog raiser would see to it that the sow gets nothing but warm water for 36 hours after farrowing the total number of pigs raised would be greatly increased.

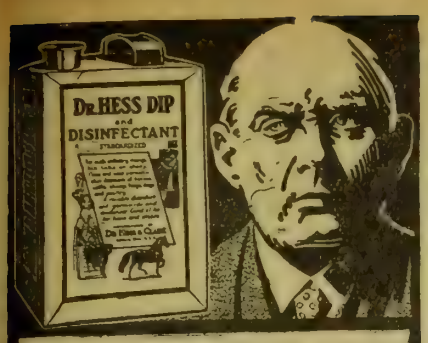
THE MATURE YOUNGSTER

"What a pretty colt," is an expression sometimes heard in the show ring or on the farm. The same applies to the young of other classes of live stock.

And, too frequently the animal so praised is not as good from the standpoint of future development and perfection at maturity as the ungainly long legged, but vigorous and growthy youngster that does not look so good while young and in the growing period. It is the same with animals as with children. Sound judgment of imma-

Coloma Johanna Hartog 148031

Milk 579 pounds, butter, on 80 per cent basis, 28.63 pounds in seven days. Property of Alex Whaley.



Guard Against Disease!

Keep the air pure, keep animal skins clean and free from lice, give your animals healthy living quarters, and you'll have little to fear from contagious diseases.

Dr. Hess Dip and Disinfectant

Establishes Health Conditions

A standard dip for sheep scab and ticks, kills lice on all animals. Use regularly—all the year round. Spray and sprinkle freely about stables, pens, yards and use about the house in garbage cans, sinks, cesspools, etc., to keep down bad smells and destroy disease germs.

Pint bottles, quarts, half-gallon and gallon cans and barrels.

Dr. Hess Fly Chaser protects animals from flies. Makes cows quiet and restful. Does not discolor hair or blister.

If not found at your dealer's, address

DR. HESS & CLARK
Ashland, Ohio

Gertie's Son's Victor No. 123159
Dam, Victor's Lady Kate, (R.O.M.) of 537 lbs. Butter in 303 Days as a 4-year-old.
135 Registered Jerseys in my herd, including 18 Register of Merit Cows.
Blue Ribbon winners at 1916 Kings, Kern and Tulare County Fairs.

Invest in Jerseys and Start Right

Visitors Welcome Correspondence Solicited

A. A. Jenkins

Tulare - - Cal.

ABSORBINE *STOPS LAMENESS*

from a Bone Spavin, Ring Bone, Splint, Curb, Side Bone, or similar trouble and gets horse going sound. It acts mildly but quickly and good results are lasting. Does not blister or remove the hair and horse can be worked. Page 17 in pamphlet with each bottle tells how. $2.00 a bottle delivered. Horse Book 9 M Free.

W. F. Young, P.D.F., 244 Temple St., Springfield, Mass.

Retained Afterbirth

When the membranes remain in the uterus of a cow and decompose, inflammation of the lining of the womb may be caused, and this, with the absorption into the blood of the products of putrefaction, lead to ill-health, emaciation, diminished milk supply, failure to breed, and often blood poisoning and death.

HOOD FARM BREEDING POWDER causes the afterbirth to come away naturally in a few days, and thoroughly cleanses and disinfects the parts, leaving the cow in normal condition for breeding. Write for full information and prices, mentioning this paper.

C. I. HOOD CO., Lowell, Mass.

Finely Bred Holstein Bulls

from dams of the best blood lines. They are well developed, of splendid individuality and type. Our place is within one mile of the city, so they are easy to see.

H. B. Cowan

Modesto, - - California

Rossmead Farm

POLAND-CHINAS

Won second on boar and sow P.P.I.E. 1915. Champion sow at Fresno and Hanford 1916. Young stock of this breeding for sale.

F. D. ROSS Hanford, Cal.

When writing advertisers, mention the Cultivator.

WORM REMEDIES FOR HOGS

A cheap and effective remedy for worms in hogs is in demand by many growers. Santonin and calomel are almost prohibited because of war time prices. Now comes the Nebraska station with the information that one to three teaspoons of kerosene per pig is an effective worm destroyer. This is worthy trying.

LOOK OUT FOR BLACKLEG

There are reports of blackleg in some of the bottom land pastures in the Sacramento and San Joaquin Valleys. Blackleg is a germ disease; the germs thrive in moist pasture soils. It is easily prevented by vaccination. All young cattle, from three months to two years old, should be treated. Good vaccines are advertised in the Cultivator.

AMADOR-EL DORADO ANNUAL

THE annual meeting of the Amador-El Dorado Livestock Association was held in Placerville on Saturday, April 7. It was one of the largest and most successful meetings ever held by the association. Thirty new members joined, thus bringing the membership up to a majority of the permitees of the national forest, and entitling the association to an advisory board which will be recognized by the forest service. There was a day and evening session, followed by a banquet.

Election of officers resulted in the selection of R. E. Granlees as president; George Waechter, vice president; B. C. Celio, secretary; E. T. Bamert, J. D. Granlees, C. E. Froelich, executive committee.

There was much discussion of legislation now before the senate and assembly in Sacramento affecting range cattle.

The association went on record as protesting against the "Motor Vehicle Act," which would restrict passage of cattle over the state highways to groups of 25, unless granted a permit. A committee appointed to consider the Rigdon Bill and the Ream Bill reported against the Rigdon Bill, endorsing the Ream Bill.

A SUCCESSFUL SALE

Written for California Cultivator
By C. A. Briggs

On April 19 the California Breeders Sales and Pedigree Company conducted a very satisfactory sale of the H. E. Cornwell Holstein herd at Modesto. The day was perfect; the attendance of both professional breeders from all parts of the state and local dairymen, large. Bidding was brisk from start to finish, not a drag in the entire program.

A regular regiment of Colonel's did the honors and kept things humming There was Colonel Rhoades and Colonel Rhoades' father and son and Colonel Clark of Modesto, and their high explosive and rapid fire oratory kept the buyers going strong.

Twenty-eight head sold for $10,740, an average of $383. The top of the sale, Prince Hiske Walker, a splendid bull, went to Walter J. Mitchell of Visalia. He will make himself added reputation in the hands of this practical breeder. Eight hundred and ten dollars gave A. M. Bibens of Modesto possession of the top cow, Abbie De Kol of East Bank 2nd, a fine animal with a good record backing strong individuality.

A feature of the sale was the large number of buyers and the fact that many animals stayed in Stanislaus County. They know good things in Stanislaus. The buyers were W. F. Mitchell, Visalia; H. R. Leek, Alpaugh; A. M. Bibens, W. E. Oakes, G. W. Shirk, J. E. Vann, J. R. Pearson, H. T. Johnson, Wm. Breazeal, R. L. Holmes, L. Schmitz, Geo. N. Pfarr, W. F. Lathrop, G. E. Kunias, H. J. Noland, Geo. A. Caster, Sanitary Dairy of Modesto; Wm. T. Miller, C. C. Hitchcock, Gotchall & Magruder, J. H. Miller, Gotchall Cattle Loan Company of Ripon; H. E. Vogel, Fresno; J. C. Haine, Kaiser Bros. of Ceres; W. J. Higdon, Tulare; Glenn Harter, Escalon.

The Remco Redwood SILO

will enable you to furnish your cows with SWEET, GREEN FEED during the LONG, DRY SEASON.

To have desirable feed means more and better milk with higher prices and a larger income. It is not only economy but sensible business judgment to provide your ranch with a REMCO REDWOOD SILO.

It will more than pay for itself every year and will last a life time.

CONSTRUCTION

The REMCO REDWOOD SILO is made from clear air dried redwood. It is built according to scientific specifications by skilled mechanics using the most approved wood working machinery.

TANKS and PIPE

We also manufacture REMCO IRRIGATION PIPE in all dimensions from two inches to twelve feet in diameter. Water tanks from 500 to 500,000 gallons.

Write us for our instructive booklets on any of the above subjects.

Redwood Manufacturers Company

1604 Hobart Building -:- -:- SAN FRANCISCO

Santa Anita Rancho

Anoakia Breeding Farm

ARABIAN-THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned Imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three-year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars, Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Geische Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent Santa Anita, Cal.

EMPRESS LASS 218446
Grand Champion Washington, Oregon California and A. Y. P. Exposition

2.95 Pounds Butter Daily for 158 Days

has been produced by Empress Lass under dairy conditions. Still working. Her sons and grandsons are from big producers of show type. Prices right.

LOCKEFORD STOCK FARM

N. H. Locke Co., Props.

Breeders of Jersey Cattle and Chester White (O. I. C.) Swine.

LOCKEFORD, San Joaquin County, CAL.

INNISFAIL DAIRY SHORTHORNS

GLENSIDE ROYAL 408155.

Our herd of registered Shorthorns has been carefully selected from the leading milk producing strains of the breed and is being developed along the same lines in our hands.
The herd is headed by

GLENSIDE ROYAL

a prize winner at the 1913 International and grand champion at Panama-Pacific Exposition.
Sired by him and out of large cows of good milk production we offer for sale a few choice young bulls.
Our entire herd is tuberculin tested.

Alexander & Kellogg, Suisun, Cal.

Farm on Grisly Island.

In our every issue there are new advertisers. Are you keeping in touch with them?

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.
Unsigned communications receive no attention.

Bruise on Breast

Four-year-old mare has large swelling low down on the breast and in front of the breast bone. It developed inside of two or three days. The swelling hangs rather loosely and there are no indications of any injury. I opened it with a knife and it discharged about a pint of thin bloody liquid, which reduced the swelling some. Can you suggest a cause and treatment for the trouble?—Subscriber, El Monte.

It is not uncommon to see just such swellings as you describe on the breast of horses, caused by leaning heavily against the manger. The manger being just the right height, horses will often lean on it while eating, and a slip with the front feet while in that position will throw the whole weight on the breast bone and cause a deep bruise. Raise or lower the manger, or better, remove it entirely. Open the abscess by cutting up and down in the middle of the swelling, and cut deep enough to allow all the serum to escape. Wash out the cavity once a day with warm water containing a dram of permanganate of potash to the gallon.

Holstein Men at H. E. Cornwell Sale

Unusual Case

I have a cow about eight years old that has failed to get with calf after three servings. A week ago she began to bleed at the mouth and next day the end of her tongue was all black. I cut it off and since then she can only eat gruel made from bran and some fresh alfalfa. She has a thick frothy discharge from the nose like mucous and stringy slobbers from the mouth when trying to eat. Gave her a laxative about a week ago and she seems all right except falling off a little. What was wrong with her and will she recover?—Subscriber, Fullerton.

This is rather unusual and would be difficult to diagnose without a visit to see the cow. Better call in the nearest veterinarian and take his advice.

CALIFORNIA BREEDERS' SALES AND PEDIGREE COMPANY — PUBLIC SALES OF SOUND HEALTHY LIVESTOCK

Production Popular Breeding

Popularity follows production records as a matter of common sense in the breeding of registered dairy cattle, and discriminating buyers will find a wealth of the most popular and productive blood in the

ROSAMOND FARM SALE

Stalder Bros.

Riverside, California

TUESDAY, MAY 22, 1917

when we will sell to the highest bidder, absolutely without reserve or limit,

60 Registered Holstein-Friesian Cows, Heifers and Bulls

It is rare, in the West at least, for such a high class offering to be made from one herd. The sale will include

13 A. R. O. COWS AND HEIFERS WITH RECORDS UP TO 28.07 POUNDS BUTTER IN 7 DAYS.

15 DAUGHTERS OF A 28-POUND SON OF PRINCE GELSCHE WALKER, sire of the California champion jr. 4-year-old Lady Hiske Walker, 34.24 pounds butter in 7 days.

20 SPLENDIDLY BRED HEIFERS AND COWS IN CALF TO A 34-POUND GRANDSON OF KING OF THE PONTIACS.

Bulls

The feature of the bull offering will be a son of the great 34-pound cow Gerben Abbekerk Maid. This young fellow is sired by Prince Aralia Walker, son of Prince Gelsche Walker, and out of a 28-pound daughter of the former world's record cow, Aralia De Kol. The three nearest dams of this fellow average over 31 pounds butter in 7 days, and he is a first class individual.

There will also be sold a choice young son of a 28.91-pound cow. His sire, Prince Aralia Walker.

FIVE SONS OF A 34-POUND SIRE WILL BE SOLD, and they are all out of good dams, and are a fine lot individually.
EVERYTHING OVER 6 MONTHS OF AGE TUBERCULIN TESTED.

Registered Percheron Horses

On the same date we will also sell for Stalder Bros., 16 high class registered Percheron mares, stallions, and colts.

This is a rare opportunity for breeders to obtain high class breeding animals of the very best blood lines.

At the conclusion of the sale of registered stock we will also sell for Stalder Bros.

60 Grade Holstein and Jersey Heifers

a desirable lot of dairy stock that dairymen who are looking for good young stock will find satisfactory.

Sale will be held on Stalder Bros.' ROSAMOND FARM, 12 miles west of Riverside, 3½ miles south of Wineville, California, beginning promptly at 9 a. m., Tuesday, May 22, 1917. Parties arriving at Riverside by train will find free conveyance to the sale at Mission Inn Garage.

Write for catalog.

Sale under management of

California Breeders' Sales and Pedigree Company

C. L. HUGHES, Sales Manager
Sacramento, California

Auctioneer: COL. BEN A. RHOADES, Los Angeles

CALIFORNIA BREEDERS' SALES AND PEDIGREE COMPANY — PUBLIC SALES OF SOUND HEALTHY LIVESTOCK

Field Notes From the Live Stock Men

The offering of gilts in the Thatcher, Ennis & Williamson Berkshire sale at Riverside, May 9, should not be overlooked by hog men who are after young stock for their breeding herds. They are right in type, quality and breeding, and will appeal to any man who knows good hogs. There are some mighty good prospects in the lot.

Notable Ayrshire Records.—Two cows from the herd of J. W. Clise, Redmond, Washington, five-year-old twins, Willowmoor Blush and Willowmoor Bloom, have just finished a year's test with official records averaging 14,509 pounds of milk, 671.95 pounds of fat and 4.63 per cent of fat, which seems a creditable record for twin heifers and shows a high standard of dairy production of the Ayrshire breed. Another record finished at the same time is that of Stonehouse Minnie from Strathglass Farm, which some years ago would have been considered phenomenal, with 16,209 pounds of milk, 615.09 pounds of fat and 3.80 per cent of fat; but new and higher records have in the past few years appeared so frequently that nothing surprises us.

Inquiries from all parts of the United States are being made regarding the determination of the board of trustees of Leland Stanford Jr. University to dispose of the entire herd of more than 300 registered purebred Holsteins on the Stanford ranch at Vina, California. M. H. Tichenor of Palo Alto, who has been commissioned to sell the herd, is replying to all requests for information with the announcement that the entire herd will be sold at auction at Vina on June 5, 6 and 7.

Without doubt the Holstein herd at Vina is one of the best known in the world. Since it was established by the late Governor Stanford a third of a century ago, it has been steadily improved by the introduction of the most notable blood strains. As a result exceptional opportunities will be afforded the advanced breeder and the dairyman to improve his herd at the dispersal of this grand herd. Many of the cows are now making fine records.

During each of the three days of the sale it is expected that fully 500 persons will be in attendance. Because of the limited accommodations at Vina, arrangements have been made for a special train from Chico to Vina each morning of the sale. The return run will be made at the close of the day.

LIVE STOCK SALES

Wm. M. Carruthers, 45 head registered Shorthorns, Mayfield, May 2.

D. O. Lively Stock Farm Sale, Hereford Cattle, Mayfield, May 3.

Lake Mills Holstein Breeders' Consignment Sale Co., Lake Mills, Wisconsin, May 8 and 9. 1917.

Thatcher, Ennis & Williamson—Dissolution of partnership Berkshire Sale. Riverside, May 9, 1917.

California Breeders Sales and Pedigree Co.—Willowwood herd registered Jerseys of C. G. McFarland, Tulare, May 17.

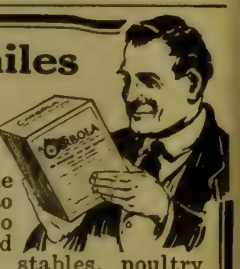
California Breeders Sales and Pedigree Co.—Holsteins, Jerseys, Percherons. Rosamond Farms, Stalder Bros., Riverside May 22.

California Breeders Sales and Pedigree Co.—20 registered Holstein bulls, Chico. May 24, 1917

California Breeders Sales and Pedigree Co.—180 registered Holsteins from University Farm, Davis, State Fair Grounds, Sacramento, May 31, June 1.

Stanford University Sale of Pure Bred Holsteins, entire herd, 400 registered Holsteins, Vina, June 5, 6, 7.

He Smiles



because he got better results with half the labor and in half the time it used to take him to whitewash and disinfect his stables, poultry houses, dairy, etc. He used

CARBOLA The Disinfecting White Paint

A finely powdered mineral pigment combined with a germicide 20 times stronger than pure carbolic acid, but absolutely non-poisonous.

Disinfects and paints at one operation.

Will not harm man, beast or fowl, or blister, flake or peel off. Is ready to apply as soon as mixed with cold water—no waiting, straining or bother as with whitewash. No disagreeable odor. Put on with brush or sprayer. Endorsed by experiment stations and poultry, dairy and breeding farms.

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not dark or colorless like others. Get some from your dealer today, or if he has none in stock, send your order and his name to us.

10 lbs. (10 gals.), $1.00 and postage.
20 lbs. (20 gals.), $2.00 delivered.
50 lbs. (50 gals.), $4.00 delivered.

Trial package, enough to cover 250 sq. ft. and descriptive booklet, 25c postpaid.

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Los Angeles, Cal.

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Cottonseed Meal

45% Protein and Fat

IT TAKES FIVE BAGS OF CORN TO EQUAL NUTRIMENT IN ONE BAG OF COTTONSEED MEAL.

Feed Dairy Cows, Horses, Poultry
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Blatchford's Calf Meal
and Sell the Milk

More calves have been raised on Blatchford's Calf Meal than on all other milk substitutes combined.

100 lbs. makes 100 gallons of milk substitute, costing only one-third as much as milk.

Prevents scouring and insures the early maturity of sleek, handsome calves.

It is steam-cooked and no trouble to prepare or use.

Write for Pamphlet "How to Raise Calves Cheaply and Successfully with Little or No Milk." At dealers, or Blatchford Calf Meal Factory, Dept. 3 Waukegan, Ill.

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Blatchford's Calf Meal

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LOS ANGELES. CALIFORNIA

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Highest authorities on animal feeding in both America and Europe recommend plenty of salt for stock.

We sell MORTON'S SALT BLOCKS, pure salt compressed into hard blocks under great hydraulic pressure. No waste, cheap, easy to handle, no mineral particles. Cattle and horses like it. We also sell Pure Lump Rock Salt and bulk commercial salt for mixing with hay.

If your dealer cannot supply you, write for prices. To anyone interested in salt for stock we will send free of cost a neat instructive booklet on THE RELATION OF SALT TO STOCK FEEDING, written by a well known Western authority.

Try a sample shipment.

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WHOLESALE SALT
615-617 E. 3rd St., Los Angeles, Calif.

HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families. Some of serviceable age.

REGISTERED BERKSHIRE PIGS

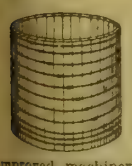
Masterpiece, Longfellow and Robin Hood Strains. Fine individuals of both sexes—we pay registration fee.

Careful attention given to mail orders.

Whittier State School
Whittier, Calif.

SANDYACRE FARM, Home of
Marsh's Big Type Poland-China Hogs

"MODEL MAJOR" winner of three firsts and two Grand Championships is at the head of my herd of prize winning sows. My sows are the easy feeding, big litter kind that have quality. Now booking orders for June delivery of spring pigs. Satisfaction guaranteed or money refunded. **H. I. MARSH, Modesto, Cal.**



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Thirty-five years in this Business in Stockton — 1000-gallon tank, $18.00; 500-gallon tank, $14.00. A tank 6 ft.x2½ ft. $10.00. Other tanks equally cheap. I deal direct with the consumer, saving 10% to 25%. All sizes in stock. Clear dry redwood direct from the mill. Write for price today. Latest improved machinery.

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Will conduct sales anywhere in California. Pure bred live stock sales given special attention. For dates and terms address

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Berkshire Hogs—Milking Shorthorns
Breeding Stock For Sale
G. A. Murphy - Perkins, Cal.

COTTONSEED FOR HORSES

"In the cotton states," says Lehman Johnson in Breeders Gazette, "corn in some form or other, as cornbread, corn cakes, grits, hominy, or ash cake, appears daily on our tables, one of the most wholesome and one of the cheapest foods we can buy. This is not true the country over, and in Europe the use made of Indian corn for human food is comparatively meager. No better time ever existed than during this war to extend the consumption of corn, to the benefit not only of consumers but of corn growers.

"There appears to be a large stock of corn in the country which could be drawn on if the feeding of work animals and the production of meat would permit. All the wheat except some ten to 15 per cent has already left the farms, while some 50 to 60 per cent of the corn crop remains. If there was anything to take the place even in part of this corn held back for feeds and so release a considerable proportion of it for human food, the gain to both the public and the corn-grower would be very great. The cotton plant offers just this solution. Cottonseed meal contains rather more fat than corn, a fair proportion of carbohydrates, though considerably less than corn, and three times as much of the most valuable component of a feed, protein. The most careful and elaborate feeding tests have proved conclusively that the protein of cottonseed meal can take the place of the protein of corn to the extent of at least half the ration for feeding horses and mules. Brood mares have been fed cottonseed meal with marked benefit and at a greatly reduced cost.

"What is needed is a simple rule for the exchange of the protein of the one feed for the protein of the other which can be followed by any feeder. For horses and mules use half of the usual amount of shelled corn and substitute half of this half with cottonseed meal, one pound of meal for two pounds of corn. This makes a rough-and-ready 'balanced ration,' quite near enough for the average man to use in his feeding.

"The price of cottonseed meal per unit of protein is so low, governed as it is more by its fertilizer than its feed value in the cotton states, that there is no farm so remote from the cotton states to which the cottonseed meal cannot be delivered to make the exchange profitable to the farmer. A bushel of cottonseed meal weighs the same as a bushel of shelled corn, 56 pounds, contains about twice as much feeding value, but it never has sold and probably never will sell at twice the same price per bushel. Until it does reach that point, the exchange will be profitable to the corn grower."

DEMAND REGISTRY CERTIFICATE

The following communication has been received from the American Shorthorn Breeders Association:

"We are advised that frequent injustice has been done to western ranchmen who have accepted the word of dealers and shippers of bulls from the Middle West, as to their eligibility for registration. The only safeguard is to require of the seller the registry certificate. It happens that a great many grade bulls are assembled and shipped west and the sellers find it to their advantage to pass them on as "full blood" bulls or "eligible to registry." This assurance on the part of the seller naturally encourages a little higher bid from the purchaser, but such practice is a gross injustice. In short, it is a fraud. If the western buyers will always require the evidence in the form of a registry certificate, they will be able to protect themselves and insure a better investment.

In certain western states legislation has been enacted which makes it unlawful to run a grade or non-registered bull on the open range. This is a positive step in the right direction but can only be effective when there is satisfactory assurance that the bulls purchased as purebred bulls are what they are represented to be—in other words, when the certificate of registry is transferred with the animal.

At the annual spring sale of the Northwest Shorthorn Breeders' Association at Portland last week 86 head were sold at a general average of $277, the heifers bringing an average of $322.

Great Deep-Bodied **Jerseys**

Possessing the pleasing type that makes them at home in the show ring. Willowwood Jerseys are particularly strong in the great depth of body, large, well shaped udders and roominess that makes for large production and regular breeding in the dairy cow.

We will sell at public auction to the highest bidder, absolutely without reserve or limit, this entire

WILLOWWOOD HERD
OF
60 Registered Jerseys 60
Owned by
C. G. McFARLAND, Tulare, Cal.
on THURSDAY, May 17, 1917

on Mr. McFarland's new farm, 12 miles from Tulare, 3 miles from Waukena.

This is without question of doubt the greatest herd of registered Jerseys ever offered at public sale in the West, and one of the greatest ever offered in the United States. The offering will include

13 REGISTER OF MERIT COWS WITH RECORDS AVERAGING 516 POUNDS OF 85% BUTTER IN ONE YEAR.

16 DAUGHTERS OF REGISTER OF MERIT COWS, the average Register of Merit records of the dams being 502 pounds 1 ounce 85 per cent butter in one year, including the records of several 2-year-olds.

16 COWS AND HEIFERS IN CALF TO A BULL BY THE SAME SIRE AS ROSAIRE'S OLGA LAD, who has 19 Register of Merit daughters averaging 526 pounds 3 ounces 85 per cent butter in one year, ages from yearlings up.

4 HEIFERS AND COWS IN CALF TO A SON OF A COW WITH A REGISTER OF MERIT RECORD OF 592 POUNDS 3 OUNCES 85 PER CENT BUTTER IN ONE YEAR.

BULLS

A HALF BROTHER TO ROSAIRE'S OLGA LAD (mentioned above) and out of a dam that is 50 per cent the same blood as Gertie of Glynllyn 2nd, the former world's record 3-year-old, Register of Merit 744 pounds 4 ounces 85 per cent butter in one year.

6 Grand Herd Bulls

All out of Register of Merit dams, and the dams of the eight average 526 pounds 1 ounce 85 per cent butter in one year. These are nice typey young fellows, most of them good enough to go to the head of a good registered herd.

DAIRYMEN! There are mighty few Jersey bulls bred like these fellows in California and if you want a real bull, backed up by higher production than the average of your grade cows, here is the place to buy him.

Every Animal over Six Months of Age Tuberculin Tested

WRITE FOR CATALOG

Sale Under Management of
CALIFORNIA BREEDERS' SALES AND PEDIGREE CO.
C. L. HUGHES, Sales Manager
SACRAMENTO, CALIFORNIA
Auctioneer: COL. BEN A. RHOADES

Lake Mills Holstein Sale
AT
LAKE MILLS, WISCONSIN
May 8 and 9

This sale company, known from coast to coast as one of the oldest and most reliable organizations of its kind, has taken great pains in selecting the cattle for this spring's sale.

They offer 175 head of healthy, desirable Holsteins of the most popular breeding, and from first class breeders' herds.

They have a fine lot of A. R. O. cows, heifers bred to 33 and 34½-lb. bulls, and an exceptional lot of choice bulls,—sons and grandsons of King Segis Pontiac.

WRITE FOR CATALOG TO
F. H. EVERSON, Mgr.
Lake Mills, Wisconsin

Auctioneers: HAEGER, KELLEY and MACK
S. T. WOOD in the box

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TREES

For Sale — Washington and Thomson Navels, Valencias, Seedless Grapefruit, Eureka, Lisbon, Villa Franca and Seedless Lemon, Harman Avocados. Buds were selected from the best bearing trees and will yield bumper crops. Also 40,000 Mission and Manzanillo Olives. The above stock is growing in Rialto, Whittier, Glendora and Fallbrook. Budding cloth 30c yard, post paid. No frost damage. We solicit your patronage. Prompt replies to inquiries. Cyrus W. Wilhite, P. O. Box 154, Glendora, Cal. Phone 303.

FOR SALE
2000 Valencia trees, 1 year old.
8000 Villa Franca trees, 2 years old.
3000 Washington Navel trees, 2 years old.
1000 Eureka lemon trees, 2 years old.
All carefully selected fruit buds on sour stock roots.
John Shingler, Upland, Cal.

Citrus Trees, 7 kinds, at "live and let live" prices. Stock that will bear fruit. No high priced reputation charged for. Why pay a dollar for something you don't get? A few thousand left. No culls. Come or write B. C. Dodson, Glendora, Cal.

Citrus Trees—All leading varieties. Large line, Lisbon & Villa Franca Lemon and Washington Navel trees. All first class and clean. Special prices to dealers or in carload lots to growers. Randall Bros.' Nurseries Co., Whittier, Cal.

For Sale—1000 Washington Navels, 2 years old, 500 Valencias, 2 years old, 500 Eureka Lemons, 2 years old, 200 seedling Avocados, 2 years old, 4-6 ft.; 75 Italian Cypress 6-8 ft. Enterprise Nursery, R. F. D. No. 2, Box 305, Pasadena, Cal.

By Far the Lowest Priced means of reaching a buyer for what you have to sell is through classified advertisements in California Cultivator. The cost is only 3 cents per word per issue, with a minimum of 35 cents.

Orange, Lemon and Grapefruit Trees. Fine strong, sturdy trees. Best root system. Grown at San Dimas. No frosted trees. Get our prices. Smith Citrus Nurseries, F2729, 315 Marsh-Strong Bldg., Los Angeles.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

20,000 Valencia and Washington Navel orange trees, some lemons, 3 years old, at a bargain. Inquire No. 2116 Cedar St., West Alhambra, Cal. Telephone Alhambra 332-R.

For Sale—6000 fine thrifty two-year-old Lisbon lemon trees. Bud selection the best. Address Chas. Story, Rivera, Cal. Phone Whittier 4721.

Avocado Budding—Trees budded to the Bartley, Lyon, Sharpless, Fuerte and other varieties. Will bud trees anywhere, any size, any time. A. R. Rideout, Rideout Heights, Whittier.

For Sale—All kinds citrus nursery stock. 1-year buds, fine roots. Y. Yamaguchi, Box 574, Phone Sunset 470R Upland, 10th St. and Cucamonga Ave., Upland.

Olive Trees—Mission, Manzanillo, Ascolano. Propogated by me from trees of known bearing qualities. Guaranteed. L. T. Schwacofer, Hemet, Cal.

Valencias, one and three years old. Eureka lemons, three years old. Selected stock. May A. Miller, Glendora, Cal.

Will Trade budded avocado trees of choicest varieties for Pueblo, Fuerte or Sharpless buds. W. K. Fanderson, 424 North Pickering Ave., Whittier.

Budded Avocados—All leading varieties. Address Mather's Avorado Nursery, 137 N. Fair Oaks Ave., Pasadena, Cal.

Citrus Trees—All kinds, any quantity. Butler's Morning Side Nursery, Lamanda Park, Cal.

For Sale—1600 very choice Valencia trees on sour stock. A. O. Hayes, San Dimas, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Olives—Large stock of Mission, Manzanillo and Ascolano olives. No scale, no defoliation. C. E. Moyer, Hemet, Cal.

Quality Trees—Prune trees 10c each. Cash Nurseries, Sebastopol, Cal.

WANTED

Wanted—Man in each California county to represent established California company. Should have rig or auto to get around. Good pay and several weeks' work to right parties. Address J. H. Yetter, Sales Department, 810 Santa Marina Building, 112 Market St., San Francisco, Cal.

One of the Most perplexing problems to farmers and ranchers is that of help. A small liner ad in California Cultivator is the quickest and easiest means of securing farm help.

Wanted—By steady man, pruning, citrus or deciduous trees of all kinds; also budding or grafting. Satisfaction guaranteed. Address Mike Detore, 127 North Main St., Los Angeles.

Wanted at Once—Best prices on grapefruit and lemon culls, unfrosted, in quantities. Hugh A. Griffin, 3767 Illinois Ave., Fresno, Cal.

Wanted—Sweet potato plants in quantity. State varieties and price per 1000. Park Hill Nursery, Hemet, Cal.

RABBITS

New Zealand Rabbits are money makers. Send 25c for our new book on their culture—also catalogs. Gilmore Rabbit Farm, Dept. C, Santa Barbara, Cal.

HOGS

Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

Make Big Money with our famous Whitten Ranch Big Type Poland-China. Prolific breeders and profitable feeders. Grow rapidly, fatten quickly. Top the market at 225 lbs. in six months. Make greatest profit for feed consumed. Prices reasonable; satisfaction guaranteed. Send for free illustrated book, "Hogs for Profit". Finest ever issued. Packed with valuable information; tells how to become successful. Ranch in Tulare County, but address owner, R. H. Whitten, 610B Security Building, Los Angeles.

The Billiken Herd of Chester Whites. The type that is ready for the market in 7 months or less. Sold out of bred gilts and service boars. Three open gilts, show prospects to offer. Some young stock of last October farrow, as follows: 18 sow pigs and 8 boar pigs. These are from 6 different litters and 3 different sires. Write for description and prices. C. B. Cunningham, Mills, Cal.

Large Number of excellent young boars ready for immediate service. Weanlings of either sex. Sired by Joker, first prize boar at Wisconsin State Fair 1915. Sows and gilts, sired by Iowa Wonder and bred to Joker and Sunnydale's Chief. For prices and further information write to Geo. A. Smith, Corcoran, Cal.

Cholera Immune Berkshires — A few choice gilts large enough to breed for fall litters, also fall boars at attractive prices. Several have strong line of best imported blood. Young pigs $15 and $20 each. All registered. Quality stock at utility prices. W. H. WAUGH, Riverside, Cal.

Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P.P.I.E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

Superba, World's Grand Champion Poland-China boar and one of the greatest sires of the breed. Spring boars ready for service, also few sows bred to this noted sire, reasonably cheap. Rough's Greenfields, Arlington Sta., Riverside, Cal.

Duroc-Jersey Sows, sired by or bred to Pathfinder, Cherry Chief, Educator, Col. King the Col, Col the King, Grand Model, Great Wonder, Grand Golden Model, P. & L's Defender, Peters, Lamson & Walker, Devore and Fontana, Cal.

Registered Poland-Chinas, prolific, fabulous, profitable, porkers. Choice young boars now ready for service, $25 each, weanlings $15 each. Dr. J. A. Crawshaw, Hanford, Cal.

Poland-China Swine Recorded. Stock for sale at all times. We please you or refund your money. W. A. Young, Lodi, Cal.

Choice Boar Pigs for Sale. Sired by Superba 220620, champion Poland boar at San Francisco. Prices right. C. R. Hanna, Riverside, Cal.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, Cal.

Cholera Immune Duroc-Jerseys of the large type. Bred for show and utility. Derryfield Farm, I.O.O.F. Temple, Sacramento.

Rancho Rubius Durocs all sold except a few extra good July and September gilts. Write for prices. Elmer Lamb, Ceres, Cal.

One Large and two medium type boars, extra choice, 9 and 10 months old. W. Bernstein Ranch, L. C. Trewhitt, Mgr., Hanford, Cal.

Carruthers' Farm Berkshire Hogs. Our herd won Premier Exhibitor prize at the P. P. I. E. Exposition. Mayfield, Cal.

Duroc-Jersey—Sow and boar pigs from registered stock. Low prices. Delta Farm and Livestock Co., Colton, Cal.

Berkshires—Two hundred pounds at six months. Ray C. Hannan, Corning, Cal.

Durocs—A few gilts of exceptional quality. H. E. Boudier, Napa, Cal.

Poland-Chinas—A few good breeding boars. S. F. Williams, Orland, Cal.

Big Type Durocs—Quick maturing, easy keeping. F. M. Johnson, Napa, Cal.

ESSEX

Little Black Essex—New crop nearly ripe. Supply very limited. L. W. Millsap, Yolo, Cal.

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Large Assortment slightly used and agents' sample plows, harrows, cultivators, wagons. Call and see them before buying. Save 50 per cent on some. Four floors. Largest stock. Arnott & Company, Ranchers' Supply House, 112 to 118 South Los Angeles St., Los Angeles.

LIVE STOCK

Butte City Shorthorns, Shropshires, Berkshires and Ponies. Stock of all ages for sale. Can supply one or a carload. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., Cal.

At Last the Perfect Silo—the Stay Round. No hoops, no bolts. No experiments. Any one can erect. Close price. Address D. O. Lively, 125 Hobart Bldg., San Francisco.

Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco, manufacturers of Calf Meal, Balanced Dairy Feed, Balanced Hog Feed. Write for samples.

Seven Fresh Milch Goats, part Toggenburg, two grade Toggenburgs coming fresh; two grade kids 14 months. A. N. Carter, Sierra Madre. Tel. Black 20.

Registered Shires — Blackhawk Stock Ranch. Importers and Breeders. Easton & Ward, Burlingame, Cal.

CATTLE

For Sale—From 1 to 70 extra fine, straight, well marked, light colored, registered Holstein heifers, from 8 to 20 months old. Those old enough are being bred to a first prize son of Prince Gelsche Walker, whose dam has a high yearly record. Some of these heifers are sired by bulls whose dams have from 35 to 37-pound records. They carry the very best blood of the breed and are good enough for any herd, anywhere. Prices to fit any pocketbook. Geo. A. Smith, Corcoran, Cal.

D. O. Lively Stock Farm, Inc., 215 Hobart Bldg., San Francisco. Breeders of Hereford cattle. A few choice heifers for sale. We buy and sell live stock on commission. Farm at Mayfield, Cal.

Have a Nice Registered Holstein bull calf from dam with 18.025 lbs. record. Is 3 years old. J. W. Benoit, Route C, Modesto, Cal.

For Sale—Ayrshire Bull, 4 years old February, Santa Maria Prince No. 16266 Ayrshire Breeders' Association. Bred by Brown & Brandon. Santa Maria Ranch Company, Watsonville, Cal.

Venadera Jerseys, the herd with official yearly records. Calves of both sexes for sale. Guy H. Miller, Route 1, Modesto, Cal.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

FARM LANDS FOR SALE

BIG MONEY IN COTTON THIS YEAR FOR EXCHANGE OR SALE BY OWNER 157 acres best cotton land in Imperial Valley. Well located on main cross valley road, only ½ mile from proposed new railroad and townsite. Fenced in 5 fields hog tight. Good house, 35 acres alfalfa, some barley. 90 acres cotton now planting. Horses, cow, chickens, new farm tools. Cash price $28,000, mtg. $5000. Want smaller improved farm, fruit or nut ranch in either southern, central or northern California. No inflated values considered. Address "Owner", Route 2, Box 38, Brawley, Cal.

160 Acres, nearly level, part sub-irrigated, first water right from stream; main country road through land, all fenced and cross fenced, ½ hog tight, 7-room house, large barn, family orchard, daily mail, near school and church, good neighborhood, fine climate, in Mariposa County. $4000 cash, no trades. 320 acres adjoining, all fenced and cross fenced, large house, barn, orchard, lots of good springs, 280 acres of plow land, partly cleared. $6500, half cash, balance on time. No trades. W. W. Baldy, Raymond, Madera County, Cal.

ORCHARDISTS AND DAIRYMEN
Before you invest, investigate Mountain View, in the center of Santa Clara County's fruit and dairy section, 6 miles from Stanford University, 35 miles from San Francisco. Rich soils, abundance of water. Ideal climate. Write for catalogue "California's Choicest Acres." William P. Wright, Mountain View, Santa Clara Co., Cal. The oldest real estate office in Northern Santa Clara County, established 1901.

For Sale—Orange County ranch, 167 acres with good improvements and in good state of cultivation. Water conditions excellent. Artesian wells and pumping plant both. Located ¾ mile from village of Westminster and ¼ mile from Orange County's fine highway running from Long Beach to Santa Ana. Property clear and title perfect, but on account of peculiar circumstances of ownership this land is for sale under value just now. W. F. Marks, 226 S. Main St. Phone Main 1499, Los Angeles.

Oregon & California Railroad Co. grant lands. Title to same revested in United States by act of congress dated June 9, 1916. Two million three hundred thousand acres to be opened for settlement and sale. Power site, timber and agricultural lands. Containing some of best lands left in United States. Large sectional maps showing lands and description. Price $1.00. GRANT LANDS LOCATING CO., P. O. Box 610, Portland, Oregon.

FRESNO COUNTY
100 Acres Unimproved. In 10 and 20-acre lots, in rising fig district, 4 miles from town, $110 to $125 per acre, easy terms. John Waddell, Route B, 333, Reedley, Cal.

For Sale—280 acres level watered alfalfa land in tracts to suit. Near school, store and station at Hinkley. $60 to $100 per acre on long time. Send for description. Owner, Box 106, Arlington, Riverside, Cal.

Finely Improved 20 acres of almonds and alfalfa. For prices and description write George Arbuthnot, Manteca, Cal.

State, Government and Indian Lands. Bargains overlooked. Free New Blue Booklet, Joseph Clark, Sacramento.

PATENT ATTORNEYS

Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS".

POULTRY

Roofden Ranch Chicks are well hatched from first class utility breeding stock; money making egg producers our aim, and the prices are right. 7 to 14c, depending on breed, month, quantity (dozen to thousands). White, Buff, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks. For Dollars and Sense. Send card for circular. Roofden Poultry Ranch and Hatchery, Campbell, Cal.

Your Opportunity! 200-290 Egg Early Maturing, Winter laying Leghorns, Reds, Anconas; White, Buff Wyandottes; White, Barred Rocks; Buff Orpingtons, $3-$10 yearly profit every breeder. During May-June, EGGS HALF, CHICKS FOURTH OFF. Few pens, all breeds bargain make room. Guaranteed profit feed high. C. Beeson, Pasadena, Cal.

White Leghorn Baby Chicks—We have an interest in and get our eggs from two flocks of 1500 each carefully Hoganized hens that lay 190 eggs per year. These hens are fed to produce a strong, vigorous chick that will live. We guarantee satisfaction. $9 per 100. 1000 same rate. Lyon Hatchery, Gardena, Cal.

Baby Chicks, reasonable prices—White Leghorns, R. I. Reds, settings, 100's-1000's. Hatched right in our $60,000.00 brick and concrete hatchery from our quality heavy layers. Stock, hatching eggs. Pebbleside Poultry Farm & Hatchery, Sunnyvale, Cal.

East Side Poultry Yards, Established 1904. Our object, egg type and size for ideal utility stock. Thoroughly Hoganized, correctly hatched baby chicks, dozen or 1000. White Leghorn 8c, R. I. Reds 12c after April 1. Satisfaction guaranteed. 255 S. 18th St., San Jose.

Baby White Leghorns—Hatched from high producing utility and ribbon winning matings. Booking orders for baby chicks, pullets, cockerels and hatching eggs. A. D. Roberts Poultry Yards, Box 566, Ceres, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

Free—How to Mate and Breed Rhode Island Reds. Just what you want to know, but could not get correct information. Send stamp. Trap-nested stock, both combs, big dark velvety red strain for sale. Ava Poultry Yards, Ava, Mo.

Eggs—Closely Hoganized Single Comb White Leghorns that averaged 186 eggs in pullet year, mated to 200-egg cockerels, $5.00 per hundred. Remit with order. 806 Acacia Street, corner West Road, Inglewood, Cal.

Model Poultry Farm, White Leghorn specialists. Baby chix and hatching eggs from heavy laying stock, bred by us for thirteen years. Our prices are right. W. C. Smith, Prop., Corning, Cal.

Baby Chicks from S. C. White Leghorns from trapnested hens with records of 192 to 297 eggs. Also S. C. Black Minorca chicks and eggs. J. W. Benoit, Route C, Modesto, Cal.

"Blue Orpingtons", "Blue Andalusian" and "Anconas". Sheppard's strain. Stock and eggs for sale. Write for circulars. J. R. Huddleston, 342 Edgeware Road, Los Angeles, Cal.

Petaluma Hatchery, Established 1902, Capacity 16,000 chicks a week—the kind the hen hatches. Five varieties. Send for free circular. L. W. Clark, Petaluma, Cal.

Hatched Chicks For Sale—Barred Rocks, R. I. Reds and White Leghorns. Strong, vigorous chicks. Send for circular. G. L. Hawley, Madera, Cal.

Rhode Island Reds—Dark red, vigorous, heavy layers. Eggs by setting or hundred. John Reed, Route C, San Jose, Cal.

Baby Chicks—White Minorcas and Golden Buff Leghorn. Two popular breeds. Cockerels for sale. Sandridge Hatchery, Kerman, Cal.

Earl E. Sanders, Modesto, Cal., breeder of M. B. Turkeys, S. C. White Minorcas, S. C. Black Minorcas and S. C. Barred Plymouth Rocks. Nothing but the best.

Incubators—Essex Model Incubators at factory prices. Write Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco. Poultry supplies.

For Sale—Anconas—Smallest of eaters and heavy layers of large eggs. Fine strain. Eggs of guaranteed fertility $1 per 15, $5 per 100. A. E. Nelson, El Monte, Cal.

"Eastman's Bred-to-Lay" Barred Plymouth Rocks. Chicks, eggs, cockerels. We Hoganize and trapnest. Fairmead Poultry Farm, Fairmead, Cal.

Baby Chicks—White Leghorns, Brown Leghorns, Reds, Barred Rocks, Black Minorcas, Anconas. Prices on application. Orland Hatchery, Orland, Glenn Co., Cal.

Rainescourt Reds—Eggs from prolific laying strain and exhibition winners from $1.50 up. Day old chicks $15 per 100. Rainescourt Poultry Ranch, Zelzah, Cal.

Day Old Chix—Barred Rock, R. I. Reds, White Leghorns, Black Minorcas, Light Brahmas, Buff and White Orpingtons. Enoch Crews, Seabright, Cal.

Baby Chicks (White Leghorns) shipped on approval before remitting. No weak ones charged for. Schellville Hatchery, Rural 1, Sonoma, Cal.

Baby Chix — White Leghorns, White Rocks, "quackless" White Muscovy ducklings. White Star Hatchery, Kerman, Cal.

For Sale—Rhode Island Red Baby Chicks from our carefully selected matings. $12.00 per hundred. Williams Poultry Place, 236 No. Gage, Los Angeles.

For Sale—Chinese Pheasant eggs $1.00 per doz. A. R. Rideout, Rideout Heights, Whittier.

Turlock Hatchery—Baby chicks. A chick that will live. Turlock Hatchery, Turlock, Cal.

Aldrich Strain White Orpington Cockerels, bred from prize winning stock. Wellman, Box 113, Los Altos, Cal.

POULTRY

Extra Quality White Leghorn Chicks 12c each until March 1, then 10c. Carefully line bred from MacFarlane, Young, Cyphers and Martin strains of foundation stock. Eggs $1.50 per 15, $2.50 per 30, $5.00 per 100, $50 per 1000. Acres of free range connected with our breeding pens. 20,000 feet under roof. Only Jubilee incubators used, disinfected every hatch. Don't save 2c per chick in buying and lose a dollar per pullet in raising, get the best and succeed. Newton Poultry Farm, Dept. 3, Los Gatos, Cal. Catalogue free.

Baby Chicks and Eggs for Hatching from pure bred McFarland strain of carefully culled and Hoganized stock; bred-to-lay S. C. White Leghorns, $8.50 per 100 and $80.00 1000, shipped on approval. Sonoma Valley Hatchery and Poultry Ranch R. F. D. 2, Sonoma, Cal. Box 48.

Guinea Eggs $1.00 per setting, postpaid. E. A. McKinley, Ukiah, Cal. R. D.

SEEDS AND PLANTS

• • ALFALFA SEED • •
As has been our custom in the past, we are offering alfalfa seed both retail and wholesale. This is tested stock and up to our usual high standards. Samples, prices, etc., on application. Wire, write or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.
• ALFALFA SEED OUR SPECIALTY •

• • SEEDS • •
Don't You Want pure home grown seeds? Of course you do. Ours are all tested and are good enough for anybody. Prices, information, samples, etc., upon application. Write, wire or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.
• • MAKE OUR SEED YOUR SEED • •

Giant Winter Rhubarb Plants. Big profits. From ⅝ acre first season after planting I sold 675 boxes rhubarb, receiving $673.70. Grand prize San Diego Exposition. Big discount on plants for prompt orders. Booklet Free. W. A. Lee, Covina, Cal.

Seed Beans—We sell direct to the grower. Buy now before the advance. Our stock is carefully selected. Satisfaction guaranteed. Tell us the nature of your soil and we will suggest the best variety. Modesto Farmers' Union, Modesto.

ALFALFA SEED
Leo Turner, Yuma, Arizona

Plant a Few Acres of Dwarf Milo Maize for seed. Good seed requires about 2 pounds per acre. Choice pedigreed Dwarf Milo 10c per lb. delivered your station. Fred M. Mahoney, Box 420, Tulare, Cal.

Seed Corn—Egyptian white, large, pure white kernels. High germination test. None better offered. Also milo maize, feterita and Egyptian wheat. MODESTO FARMERS' UNION, Modesto, Cal.

For Sale—The very best seed corn, white or yellow. Selected for years. Makes large uniform ears. Chas. McNeely, Alpaugh, Cal.

Dwarf Milo Maize, grown from seed personally selected yearly from field. Samples and prices on application. Chas. N. Tufts, Brawley, Box 46A.

New Varieties sweet potato plants, Nancy Hall, Early Triumph, Porto Rico Yam, $5 per 1000, 75c per 100, May delivery. J. Braswell, Lindsay, Cal.

Alfalfa Seed—The very best, guaranteed 16c. Wm. Stuthman, 1239 West Pico St., Los Angeles, Cal.

Nurserymen—Pox grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

Sudan Grass Seed—100 per cent pure, state analysis. Kelly's Nursery, El Centro

MACHINERY

FOR SALE—USED RANCH TOOLS
Material guaranteed. Save half. Why buy new? It's second-hand after used few times, but not necessarily worn out.
WINDMILLS TANKS WINDMILLS
8-ft. windmills, $21.50; 10-ft., $29.50; 12-ft., $45 to $55; 16-ft., cost $250, for $95; 1000-gal. new galv. tanks, $32.50; 2000, $44.00. Big stock used galv. and redwood tanks, all sizes; 25 used 1500-gal. galv. tanks with covers $22.50; 50 used redwood tanks. Special: 20,000-gal. corrugated galv. tank, cost $560, for $235; fine for oil or water storage, 15,000-gal $125.
ENGINES PUMPS PIPE
Most all sizes—in good shape.
CENTRIFUGAL PUMPS—2-in. $24; 3-in., $35; 4-in., $45; 5-in., double runner, $95; all size plunger pumps, $5 up; new pump jacks, $12.50; double-acting No. 2 Ames deep well pump, $125; No. 3 Ames pumps, 30-in., $175 cost $660; Means double-acting deep well pump, $350, pumps 50 inches; 12 H. Lambert engine $165; 9 H. Foos $125; 6 H. Stearns, $89.
BRASS CYLINDERS—ALL SIZES
Plunger rods, pipe, pipe fittings.
RANCH MACHINERY SUNDRIES
Walking, riding plows, $15 to $22.50; fine 2-gang mouldboard plow, $45; 3 or 4-gang disc tractor plow, $55; alfalfa renovator, $28; 24-disc 4-horse harrow, $38; 2-sec. spring tooth, $13.50; fine BULL TRACTOR, $295; cement mixer, $35; sprayer, $19.50; mowers; buck rake, power hay baler, $25; 250 feet 7-in. irrigating pipe, 16½c; bone grinders, $5 to $12; corn sheller.
Want to buy first class material. No junk wanted. Pioneers in our line. DEMMITT CO., UPSTAIRS, 120 N. MAIN. YARD 816 YALE, LOS ANGELES.

New Bull Tractor—10-20 horsepower, guaranteed perfect condition, only $575 cash. Has plowed only five acres. Ranch leased. This affords unusual chance to secure good money-saving tractor cheap. Walters, 1547 Manhattan Place, Los Angeles.

Several new and slightly used engines at a bargain. Best makes. 1 to 35 h.p. Arnott & Company, Wholesale Machinery and Implements, 112 South Los Angeles St., Los Angeles, Cal.

For Sale—38 H.P. "Otto" gas engine in good shape, at a bargain. E. A. Hayes, El Monte Cal. Phone 48 R

LUMBER

AAA—Lumber, New and Second-Hand; rough, $10 M; finished, $15 •A•R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St., San Francisco, Cal.

MONEY TO LOAN

Money on Hand at all times, for good loans, on Improved Farms, Land, City Property, Business Blocks, Bungalows, to pay off mortgages, or for building loans. I deal with the largest mortgage companies in the United States, who have loans from San Diego to Seattle, and as far east as New York, also with the best companies on the Pacific Coast. Loans made on cattle in California and Arizona in amounts from $20,000 to $100,000; 8 per cent interest. Also some money to loan on cotton crops. Inventions financed. Send full information and legal description. C. G. Paul, 407 Chamber of Commerce Bldg., Los Angeles, Cal.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit". It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

Budding Successfully Done. Can change your old citrus grove to any variety. Will guarantee all work. Have had 25 years' experience changing old trees successfully in one year. I introduced the idea of budding into old wood, thereby putting on a good top of buds the first year. Can furnish best references from any section of Southern California. O. D. Wilhite, El Cajon, Cal. Home phone El Cajon 451-2 bells.

Second Hand Pipe For Sale—All sizes standard water pipe and screw casing, half inch to ten inches. Also valve and fittings. Guaranteed good as new. Cheap for cash. Write for our prices. Weissbaum Pipe Works, 169 Eleventh Street, San Francisco.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St. San Francisco.

TURKEYS

White Holland Turkeys—Eggs $3.00 per dozen. Baby Turks 50c each. Alice Merriam, Grand and Reservoir, Pomona, Cal.

Bronze Turkey Eggs—$3.50 per dozen. Immediate delivery. Brehm Bros., St. Helena, Cal.

BEE SUPPLIES

For Sale—Bee hives, 10-frame, finely equipped, 150. James McKee, Riverside, Cal.

Beekeepers' Supplies — Descriptive catalogue free. Aliso Apiary Co., Glendale, Cal.

FARMS WANTED

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

DUCKS

Baby Ducks—Mammoth Pekin, Rouen and Fawn Runners, $2.25 to $3.00 dozen. Eggs 75c to $1.50 dozen. Ship anywhere. R. N. Murchison, 6264 S. Vermont Ave., Los Angeles, Cal.

IRRIGATION ENGINEERS

Contour Tree Staking, pumping plants, pipe lines, flood control and conservation. Bennett & Duling, Engineers, 1125 Central Bldg Los Angeles, Cal.

PLANT YOUR POTATO LAND WHEN CROP IS OFF TO

Rhubarb

If planted then you can expect BIG PROFITS by fall or early winter.
OTHERS MAKING $1,000 PER ACRE ANNUALLY — SO CAN YOU. Don't put it off any longer. April, May, June positively best months to plant. Write

J. B. WAGNER
"Rhubarb Specialist"
PASADENA - CALIFORNIA

Kill the Bugs

Now is the time when plant lice and other pests breed most rapidly. As soon as they appear spray or dust with the proper insecticide. We carry a full line and shall be glad to advise what to use and we also have **Spray Pumps** for all purposes.

Morris & Snow Seed Co.
439 S. Main St. Los Angeles, Cal.
Broadway 1495 - F5300

THREE BIG SHOWS AT COALINGA

Written for California Cultivator
By C. A. Wilkins

Although having been organized only four years, the Coalinga Poultry Association has shown what can be done by cooperation in the way of promoting one of the state's greatest industries. This spirit of cooperation between the association and the community in which it lives is best shown in their efforts to secure the annual state poultry show this year and the manner in which the members have labored to make the show a success.

More than $1000 has been pledged the association by the merchants and citizens of Coalinga who realize the importance of promoting the poultry industry in the Coalinga and surrounding section of the state. This amount is to be used, $500 or more for gold special premiums and the balance for other expenses of the show. Regular cash prizes will be paid in all varieties of poultry, pigeons and pet stock.

Not only will this be the official show of California State Poultry Breeders' Association; it will be the fifth annual show of the Coalinga Poultry Association; official winter show of the California Pet Stock Association; the official show of the Fresno Poultry, Pigeon and Pet Stock Association and of many specialty breed clubs.

The dates for the show are December 28, 29, 30, 31, 1917, and January 1, 1918.

TEST YOUR SEED CORN

Continued from Page 491

As it may not always be possible to purchase seed corn from just the right section, it is by far the best agricultural practice for the farmer to select his own. Moreover, it happens not infrequently that conditions are such in one year that they interfere seriously with the production of good seed corn. For this reason it is the part of prudence for the farmer to save a supply of seed corn that will not only be sufficient for his planting the next spring, but will carry him through another year if the need arises.

SQUASH

Summer squashes are to many an attractive addition to the home garden. Two or three hills will furnish enough for an average-sized family.

These squashes are not fastidious as to soils, though they, like most garden plants, prefer a warm, sandy loam. The most important requirements for success are abundance of manure and good cultivation. The hills may be spaced five or six feet apart. The plants will occupy the ground all summer if the fruits are harvested at usable stage.

In preparing a "hill" for the planting of summer squashes, a hole 2½ feet square and 12 inches deep should be dug; a bushel basketful of manure should then be thoroughly mixed with the excavated soil, which is then replaced in the hole. It is better to use well-rotted manure, but if the mixing with soil is properly done there will be little danger of heating from fresh strawy manure. With chicken manure, use only one-half of this quantity.

Acids are formed in the soil by the decay of organic matter and by the decomposition of soil-forming rocks that are deficient in lime. For this reason some soils are more apt to be sour than others. The formation of acids in soils is favored by the lack of drainage, poor cultivation, continuous cropping and applying fertilizers to soils deficient in humus.

The Public Employment Bureau of California, with bureaus located in San Francisco, Oakland, Sacramento

Home Economy and Satisfaction

Cultivator Housekeepers Tell of Successful Methods of Preserving Vegetables and Meats

CANNING MEATS

Written for California Cultivator
By Mrs. W. E. Borden, Oceanside

I THINK that all housewives like a variety of meat. To get this we can our own.

We butchered a six-months-old calf. This age we preferred because it is cheaper than regular veal and not so rich. Also there is more meat to can. The hide will bring a good price at present also.

Canned Veal

We first roasted a large portion of the meat, then sliced and packed it in jars, covered with gravy and sealed. Second we cut strips about an inch square of all the suitable meat left and placed it in a strong salt water over night. Next morning we hung it on the line in the open air and covered it with cheesecloth to keep the flies off. It will take from two to four weeks to dry thoroughly. It should then be placed in an unwashed flour sack to prevent mold. This is what the Mexicans call jerky, and there is no meat any sweeter than roasted jerky.

Third. All bones and meat left were boiled in fireless cooker with onion and salt. When done some of the meat was packed in jars and covered with stock. The rest we ground up and made into minced meat by adding salt and pepper to taste. This was also packed, covered with stock and sealed. The surplus stock was placed in jars and sealed, to be used for soups and gravies. All of this meat and stock I canned in Economy jars, as they are self sealing and the only jar that I have had absolute satisfaction with in canning meats.

After the jars are prepared as above

For the Orchardist

ORCHARD BRAND ARSENATE OF LEAD PASTE is put up in practicable form, easy to handle and mix with water. It is manufactured so as to prevent settling in a hard mass to the bottom of the containers. It is a soft, fluffy paste which, after diluting in water, maintains the best possible suspension. It insures an even coating of poison, closely adhering to the surface of the fruit and foliage. It gives lasting and effective results. The chemical ingredients are guaranteed.

Some prefer the dry form of lead. For them **ORCHARD BRAND LEAD POWDER** is convenient to use—and effective.

ATOMIC SULPHUR PASTE, a non-caustic fungicide, is safe to use and gives effective and lasting results without injury to trees, foliage or fruit when properly applied. It can be safely combined with **ORCHARD BRAND ARSENATE OF LEAD** when spraying for codling moth control and it is important that it be first added at the time of the calyx spray in order to start the stimulation, which results in increased vigor to the trees, the setting of more uniform crop of fruit and a proper control of mildew.

When thoroughly applied after blooming time at proper intervals, it is also effective in preventing any further growth of scab fungus and will control red spiders and mites on fruit trees.

Atomic Sulphur is the best material known for the control of mildew on all classes of fruit trees, grape vines and ornamental plants.

This is the time of year to use **LIME SULPHUR SOLUTION**—when the buds begin swelling.

ORCHARD BRAND BORDEAUX MIXTURE should be used for the prevention and control of various diseases on apple and stone fruits.

Write for pamphlets on whatever subject in which you are interested—tell us your troubles—we can and will be glad to help you.

General Chemical Co.
SAN FRANCISCO, CALIFORNIA
and
LOS ANGELES

there's
Health
in this Can

Chocolate is an appealing food—perhaps the most delicious of all foods. It is likewise *nutritious* food—perhaps the most nutritious.

When you buy Ghirardelli's Ground Chocolate you get the grand prize winner, a chocolate of finest quality packed in a hermetically sealed can that holds all the Ghirardelli goodness in and keeps all outside evils out.

You buy Health when you order

Ghirardelli's
Ground Chocolate

Since 1852 D. GHIRARDELLI CO. San Francisco

All Kinds of Irrigation Appliances

In these days of high prices and shortage of all manufacturing materials, it gives us pleasure to announce that we have a full supply of Irrigation Appliances on hand at convenient distributing points all over the Pacific States, and are prepared to make prompt deliveries throughout the season.

We are the pioneers in this business, and the largest manufacturers of Irrigation Appliances in the world. Years of experience have taught us how to make the best possible goods at a fair price.

Write today for booklet on "Irrigation"—or for any specific information you may require.

KELLAR-THOMASON COMPANY
"Originators of the Valve System of Irrigating"
1226 East 28th Street Los Angeles, Cal.

The Pure Fuel Label
RED CROWN GASOLINE

I place them in a false bottomed boiler (wash boiler will hold 14 or 15 jars) with water to necks of jars and boil for three hours. This insures their keeping.

Canned Chicken

It is very nice to have chickens to draw upon to supply your table with meat, but I found that it cost considerable to feed the mature chickens that we expected to use for eating, especially at the present price of grain. My solution of the problem is to raise the chicks until mature enough to use and then can them up in several ways.

First, roast several chickens. When done pack legs, thighs, and breasts in jars, cover with gravy and seal.

Second, boil some chickens, with onion, salt and bay leaf until tender. Pack legs, thighs and breasts in jars and cover with stock. Seal.

Third, backs, necks and wings of roasted and boiled chickens I boned and ground up with giblets, seasoned and packed in jars as minced chicken, covered with broth and sealed. Can balance of broth.

These jars are placed in boiler with false bottom and boiled under pressure for three hours as the meat in first recipe.

I am sure that anyone trying this method will feel amply repaid.

The minced meat in either case combined with mayonnaise dressing makes delicious sandwiches or it can be made into croquettes.

The unground meat should be heated up in the jars before opening to serve if served hot.

Poisoned Beans for Squirrels

Perhaps the following will help some of the famers also.

One of the greatest pests in this country is the squirrel. We have poisoned with poisoned barley—often with little effect. Last year a neighbor told us that the squirrels bothering barley would eat poisoned barley, but squirrels eating beans would have to be given poisoned beans. This is true, for squirrels will leave barley to eat beans.

The price of beans would bring the price of poison high this year.. We solved this difficulty by picking out the broken and wormy beans, using them for the bulk to be poisoned with the government formula of: One tablespoon starch, one tablespoon sugar, one pint boiling water, one ounce strychnine, five gallons barley or beans. Spread out to dry. Poison only when the mornings and evenings are dry, as moisture spoils the poison.

HOME CANNING

Written for California Cultivator
By A. B. C.

THE Cultivator's invitation for a symposium on "Home Canning" is a most welcome one and I expect to receive many useful ideas.

We are right in looking to the garden as a large factor in keeping down the family expenses. In this favored climate we may supply our table with something gathered fresh daily. To add to the variety we enjoy so much and to conserve the surplus in an economical manner, experience has proven we have satisfactory and profitable results in resorting to canning and other processes.

The essential principles involved in canning vegetables are few and simple: First. They will keep if sterilized against molds, yeasts and bacteria; second, molds and yeasts are destroyed by heating to 212 degrees Fahrenheit; third, acid prevents the growth of bacteria. Success is measured by the faithfulness in applying these principles.

The use of acid is the fundamental in the new process of sterilizing vegetables evolved in the labratory of our state college of agriculture, Berkeley. The report is given in "Circular No. 158". Send for it, study it, follow it and this time next year we might compare notes with profit.

Practice has taught that canned vegetables are harder to keep than fruit; that tomatoes keep readily, that chance combinations of tomatoes with corn, beans, peppers, etc., keep nicely. The circular explains the reason for our experience as the action of the acid, and now we may proceeed with assurance using the acid of tomato or lemon.

Have jars, rubbers and all necessary supplies in readiness first. The "Ball Sure-Seal" (glass top and wire clamp) is my preferred type of jar. Rubbers boiled one hour or more in solution of one teaspoon baking soda and one quart water, rinsed, boiled again in water with little lemon juice or vinegar, then in plain water insures against the unpleasant rubber taste being imparted to the food.

Quoting from the circular are these two recipes for sweet corn and peas.

Sweet Corn

Cover corn cut from cob with syrup made from eight ounces sugar, one and one-half ounces salt, six ounces lemon juice per gallon of water. Heat to boiling, fill into jars hot, seal and sterilize in boiling water bath for one and one-half hours.

Peas

Tender, shelled peas are blanched in boiling water one to four minutes, long enough to wrinkle skin slightly. Fill into jars, cover with hot brine of two and one-third ounces salt, three and one-half ounces sugar, seven ounces lemon juice per gallon water. Seal and sterilize one hour.

A favorite tomato product with us is:

Condensed Tomato Sauce

Peeled ripe tomatoes are cooked tender and strained, evaporated to a thick consistency and sealed. It keeps well and is so rich a little goes a long way and is handy in making tomato bisque soup or adding flavor to other soups and sauces. It may be varied with addition of a little onion juice or celery tops, sweet peppers, etc., also to be strained out.

A "near" canning old time favorite is:

They wear like iron—
Mayer
HONORBILT
SCHOOL SHOES

Ask your dealer for Mayer Shoes. Look for the trade-mark on sole.

F. Mayer Boot & Shoe Co.
Milwaukee, Wis.

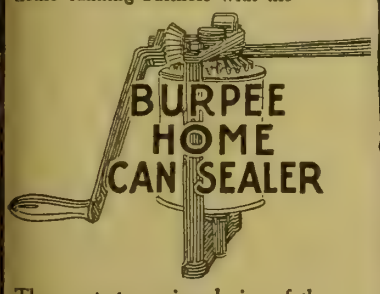
PREPARE
For the
ANNUAL INVASION

KELLOGG'S ANT PASTE
MAKES ANTS DISAPPEAR
25¢ AT ALL DRUGGISTS

MAKE MONEY CANNING

FRUITS, MEATS AND VEGETABLES

Send for this free fully illustrated folder showing just how to can your fruits, vegetables and meats easily, cheaply and perfectly, and start a profitable home canning business with the



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The Lehigh Valley railroad is running a potato special through New York and Pennsylvania.

Uncooked Relish

One peck ripe tomatoes, peeled, chopped and drained; two cups each chopped onion, celery and sugar; one cup white mustard seed; one cup salt; two teaspoons each ground cloves, mace and black pepper; four teaspoons cinnamon; four sweet red peppers seeded and chopped; three pints good vinegar. This requires no cooking and keeps without sealing. Wide-mouthed bottles may be used, a small piece of horseradish placed on top or a sprinkle of cinnamon. Sheet cotton with oiled paper makes a good cover tied on. This relish is nice served over baked beans, Lima beans, or on lettuce makes a quick salad. May also be used as Worcestershire sauce flavoring soup, etc.

Ripe Olives

Ripe olives cured are canned by sterilizing in weak brine at about 176 degrees Fahrenheit for 20 minutes filled into jars and sealed. Keep well and flavor unchanged.

Shelled Walnuts

Walnuts shelled, put through food chopper, seasoned lightly with salt are pressed into jelly glasses and covered with a paraffin. Good sweet nuts keep well for months, and nice to have at hand for sandwiches, salads, etc. Halved tomatoes sprinkled with nuts are attractive and tasty served on lettuce leaves.

Dried Vegetables

Our dried products give excellent satisfaction, save jars, etc., and keep well.

Tender sweet corn boiled on ear not more than eight minutes, cut from cob and dried in solar drier or on plates in oven not hot enough to color and stirred.

Green peas or green Lima beans are boiled one to four minutes according to size and dried like corn.

Sweet peppers and okra are "natural driers".

Celery tops, mint, sage and other herbs are useful dried. Parsley dipped in boiling water and dried quickly retains its fresh color.

The green Limas dried are delicious and different from the mature Limas. Fine to take on camping trips, as they soak and cook much quicker than the mature ones and more portable than canned goods.

Cooking Hints

Try cooking green Limas till tender in plenty of water, thicken with shredded wheat biscuit ground in food chopper, season lightly with salt, adding a little good quality cottonseed oil and you have a treat.

Cottonseed oil gives a meaty flavor to vegetables and vegetable soups, gravies, etc., costs much less than olive oil and compares well in analysis.

In the Hubbard squash, good Mother Nature presents us with a product of her canning. The shell rind protects the sweet pulp so perfectly that if handled with a little care from field to storing place we may enjoy them all winter into very late spring.

In serving our mature legumes; Limas, small beans, etc., do not think of them as "just vegetables." They are so rich in proteins (in a form so clean and sweet) let us consider them as vegetable meat, lean meat, and add a little cottonseed oil. Serve in small portions as a sauce or gravy, mashed and thickened with pulverized rolled oats or shredded wheat crumbs, sometimes adding a little onion. This with well cooked rice (or oatmeal), Hubbard squash, mustard greens (or beet tops), and dessert of baked apples or fruit sauce and home baked bread and butter rounds out a meal that not only tastes good but meets every dietetic requirement. Count the cost for even a large family and it makes me smile about the menus based on the "cheap cuts of meat". Try it and you will smile, too. In fact the less meat and more vegetables used tends to smiles all around for more than one reason.

Whatever our preferences, let each of us bring to the table two sauces to accompany the cook's efforts. One, the sauce of an appetite gained from happy, useful work; the other—the sauce of thankfulness.

PRIZE WINNERS

Winners of prizes in this month's contest are: First A. B. C.; second, Mrs. W. E. Borden, Oceanside.

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The nation over!

The same price the nation over—never more, never less! $17! And the same Guarantee, the same perfect Fit, the same careful Workmanship, the same splendid Wear! Styleplus are more than ever a great hit. Don't buy clothes you haven't seen and tried on. Buy your clothes direct from the nearest Styleplus dealer where you get personal attention, just what you want, the right style and the right fit.

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Styleplus Clothes $17

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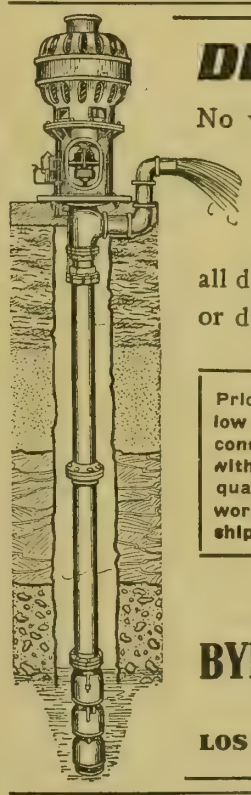

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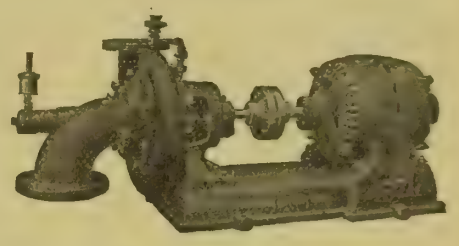
No valves to pack or plunger rods to get out of order. For use in any well ten inches in diameter or over.

A complete line of irrigating pumps of all descriptions, horizontal and vertical for belt drive or direct connection to electric motor.

Prices as low as are consistent with good quality and workmanship.



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Makes a Perfect Seed Bed—Stops Evaporation—Preserves Moisture—The Best Clod Crusher ever made for Farmer, Orchardist, Vineyardist, Nurseryman and Seedsman—

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Milkoline

The most wonderful feed-stuff preparation. Its basic element "Buttermilk" is not new—but long endorsed by Feed Experts, U. S. Gov., and State Authorities as greatest Poultry Feeding ingredient known. **MILKOLINE** is just as different from buttermilk as a diet for Poultry as Corn Bread is from Corn Meal as human diet. **It's Condensed**—One Gallon **MILKOLINE** equals 50 Gallons ordinary buttermilk. **It's Medicated**—Oil of Sassafras and other beneficial tonics add Health and Vim. **It's Modified**—making it keep indefinitely and perfectly Summer and Winter.

The LIFE LINE IN THE CHICK LINE

MILKOLINE

PURE CONDENSED MEDICATED MODIFIED BUTTERMILK

THE MILKOLINE MFG. CO.

MILKOLINE — PURE CONDENSED BUTTERMILK FEED ⇔ HEALTH — WILL POSITIVELY PREVENT and STOP WHITE DIARRHOEA

Stops dreadful disease which kills half chicks you hatch. Prevents awful bowel trouble which takes so much of Poultry Profits. The Bowels of little chicks are just as sensitive as those of the human infant. Modified sweet milk is the best known preventative for infants—and modified buttermilk—**MILKOLINE**—is the only absolutely safe preventative for chicks.

MILKOLINE — PURE CONDENSED BUTTERMILK FEED ⇔ HEALTH — ABSOLUTELY MAKES CHICKS GROW FASTER

You can feed it alone—but recommend that you mix little in all your chick feed. 20 to 25% of **MILKOLINE** will positively double feed in value—measured by increased vigor and health, or added growth. **MILKOLINE** will prove happiest feeding experience you ever had—one trial and you'll never be without again. Just as fine for growing and fattening broilers and old fowls. All the large Poultry Packers and Feeding Stations feed **MILKOLINE** extensively.

SEND NAME FOR DESCRIPTIVE BOOKLET AND PRICES— it's **FREE**

Remember—you take no chance, you can't pay for **MILKOLENE** if you don't like it. You're missing something worth while—Write now.

Globe Mills, Western Distributors, **Dept. G-4, Los Angeles, Calif.**

PEERLESS CHICK FEED

Feed a Clean Chick Feed

One that will raise your chicks. Peerless is free from cheap filler commonly found in chick feeds to increase profit for manufacturer and dealer. Peerless contains the largest percentage of Hard Red Cracked Wheat; the wheat which has the highest protein content. Insist on your dealer supplying you with Peerless Chick Feed.

Globe Mills, 913 E. Third St. LOS ANGELES

Baby Chicks Many Varieties

Ten, 12 and 15 cents. We ship everywhere. Free 66-page illustrated catalog.

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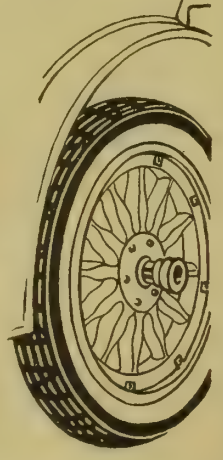
NORWALK TIRES



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Free Books on Poultry

Lee's Poultry Book.
Secrets of Success with Chickens.
Common Sense Chicken Talks.
Pointers to Amateurs.
How to Treat Poultry Diseases.

Globe Mills, Los Angeles, Cal.

The Tulare Cooperative Poultry Association will join with the Dairymen's Creamery Association in annual picnic at Mooney Park, May 5.

Red Comb Chick Mash With Buttermilk

RED COMB CHICK MASH with Buttermilk

The greatest Chick Grower ever produced. Prevents White Diarrhoea—Authority for this statement found in Bulletin No. 162, University of California, Berkeley, California. Write to Berkeley for this bulletin. Hale & Edwards Co., Chicago, who manufacture the RED COMB and RED HORN FEEDS are the only people who have succeeded in drying buttermilk—without killing the Lactic Acid Bacilli or materially reducing digestibility. Tests made after this Dry Buttermilk has been manufactured SIX MONTHS shows 10,000 Live Active Lactic Acid Bacilli to the centimeter. Send for a small sample of this Dry Buttermilk and convince yourself of its merit.

Globe Mills Western Distributors
Los Angeles, Cal.

DRY MASH — GLOBE A-1

The food with the punch. Gets the eggs. Highest analysis, cheapest price—$2.75 per 90-lb. bag. Special price on quantities. Write for free feeding sample and descriptive circular. At your dealers or

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BARGAINS - BARGAINS

Mandy Lee Incubators

We are selling out our line of Mandy Lee Incubators. While they last we will offer 140-egg Mandy Lee Incubator for $15.00 f.o.b., Los Angeles. This is less than we paid for them. Absolutely guaranteed. Other sizes for sale. Send for catalog.

GLOBE MILLS Los Angeles, Cal.

Right Now use DEVIL'S DUST and Kill Lice and Mites

Sold Everywhere

Devil's Dust is a deadly poison to all insect life; harmless to poultry, stock, plants

Globe Mills Los Angeles, Cal

Tells why chicks die

E. J. Reefer, the poultry expert, 426 Reefer Bldg., Kansas City, Mo., is giving away free a valuable book entitled, "White Diarrhoea and How to Cure it." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every batch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

The Key to Economy

Written for California Cultivator By Jean A. Koethen

HERE is a problem for the first class in poultry culture: If it takes six hens six days to produce a dozen eggs, how much will each egg cost? Give it up? The answer is dead easy: It will cost more than it is worth. won't it, with eggs bringing less than five cents apiece and feed nobody knows how high.

We are all talking about the prohibitive price of feed nowadays and wondering how poultry keeping can be made to pay. I'm not saying that I know, but here is one thing I am very sure of, and that is that the poultryman who raises his feed is going to find it a lot easier to break even than the one who buys it all. I don't know that it is necessary for him to raise all his feed, either, but the more he can raise the better for him and for everyone.

Economy is a two-sided thing. On one side is the production of the things needed. On the other is the reduction of the need. More feed raised, fewer hens to eat it up. That is, fewer unproductive hens. Eliminate the drones and you are increasing the average production of the flock and diminishing the cost of every egg. Increase the production of the hens you keep and you diminish the cost of eggs still more.

This brings us back to the problem we started with. Which is better, to own six hens which lay a dozen eggs in six days or to have the same production from two hens? There is just that difference in hens. In every flock that has not been carefully culled you will find that three-fourths, perhaps, of the hens do all the laying, and that half of them do nearly all. Commercial poultrymen are more careful about culling and trapnesting, but I don't think I am exaggerating when I say that most farm and back-lot flocks could be cut down one-half without much loss in actual egg production.

Now culling is not a thing to be done in a minute. One cannot say, "Go to, now, let us get rid of the drones," and cut their heads off without more ado. Eliminating drones begins in the brooder. Farther back than that, maybe. T. E. Quisenberry has recently put himself on record with the statement that the first half of the hatch that comes out of the shell contains just about all the chicks that will ever be profitable layers. In other words if you should open up the incubator at the end of the first day's hatching and throw away all the rest of the eggs, you would be better off than if you let them hatch. I think Mr. Quisenberry is putting it pretty strong, but there isn't any doubt many a chick is allowed to live that ought to be put out of the way at once. The chicks that are helped out of the shell, for instance, are probably always a dead loss. The reason they have to be helped out is that they haven't strength enough to get themselves out. These weaklings may die during the first week in the brooder. Many of them do. If they are mothered by a hen she may keep the life in their miserable bodies a little longer. Sometimes they struggle along for weeks, hunched-up, crow-headed creatures. Sometimes they manage to reach broiler size, but if they do, the price they bring never equals what it costs to raise them.

Then there are the cripples. They always die sooner or later, but the kindest thing is to dispose of them at once. And there are chicks that are injured, and sometimes chicks that because of a later start find themselves unable to cope with existence, and develop diarrhoea. These chicks often recover but are always runts. I wonder how much feed we waste every year, feeding these chicks that we know cannot grow up to a normal maturity. There is such a thing as maudlin sentimentalism that is too tender to put a chick out of its misery but suffers it to live on with no pleasure to itself and absolute harm to the rest of the flock.

As the flocks grow from babyhood up toward broiler size there are always some birds that are larger and more active than others. These should be banded as possible breeders. Others lag behind. Sometimes this is because of constitutional weakness; sometimes because of injury or chill, or becau in the struggle for existence the chicks have somehow failed to ho their own. Perhaps there has not be sufficient mothering for them. Son chicks can get along without mu mothering. Some can manage with modicum of feed ,if only they ha change of forage. The chicks we mu keep for layers and breeders are t chicks that can only be killed by club or some equally unescapable ac dent. The delicate ones will do f broilers, but get them by themselv and on a fattening ration as soon they can be segregated. The soon they are out of the way the more roo and the more feed there will be f the rest.

It is hard sometimes to put a bi of good color and shape among t culls just because it lacks vigor, b now is no time for shillyshallyin Either put the plant on a paying bas by the elimination of the unfit or l it go into the discard without whinir

Reduction and Production

Reduce the flock by eliminating a but the fittest. Produce the feed th consume. Even then it costs som thing, costs a good deal, in fact. Y may need more land for this, but the is plenty of vacant land near yo Rent it. You may not be able to rai much barley, but you can raise ka and milo, both excellent poultry feed and all sorts of vegetables, which w help out amazingly. Sugar beets, ha sugar beets, mangel beets, cabbag kale, rape, Sudan grass, are all va able for green feed, and all conta considerable protein and more or le carbohydrates, which means that th take the place to some extent of grai

It is a problem we all have to wo on, the problem of cheaper feed f poultry. It may be we shall find th hens can subsist and produce on gre feed and vegetables balanced wi beef scrap or fish scrap with a ve meager addition of grain. We ha already found that they can mana with a far smaller quantity of ha grain than we had supposed. Perha we may in time eliminate most of t ground grain as well. I only ho we shall not be as unfortunate or short-sighted as the man who reduc the feed of his horse to a single str a day. If the horse had not happen to die just then a new era in sto feeding might have begun.

Here is your slogan then for t spring work: "Cull and plant." C every possible drone out of the floc Plant every available foot of land something. Prices of eggs and poult are going to be high. There is a gre opportunity ahead for the poultrym who can keep down cost of productio The poultry industry is going to l hereafter on a footing it has nev reached before. But we must by a and all means keep down the cost production. That is the sine qua no

YUBA BALL TREAD TRACTORS

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when machines
less thoroughly
well made
are worn out

Write for Particulars

Yuba Manufacturing C

Department B12

433 California Street San Francisco

Los Angeles Market

LOS ANGELES, April 25, 1917.

BUTTER

Wholesale prices:

Rcts. wk. ending Apr. 24, 360,010 lbs.

California extra creamery 33
Prime first 31

Extr. Cr'y Exch. past week.						
Apr.	18	19	20	21	23	24
'17	.39	39	39	36	33	33

CHEESE

Brokers' prices:

California flats, lb. 24
Tillamook Triplets 27½

EGGS

Exchange quotations:

Rcts. wk. ending April 24, 3467 cases.

Fresh extras 32
Case count 30
Pullet 28½

Fresh Ranch Exch. past wk.						
Apr.	18	19	20	21	23	24
'17	.33½	34½	34	33	30	32

POULTRY

We quote from growers:

Broilers .....18@25
Fryers 28
Hens .....16@22
Roasters 28
Geese, Young 18
Ducklings, lb. 20
Roosters, old 9
Turkeys .....22@27

LIVE STOCK

CATTLE—We quote cwt. f.o.b. L. A.

Beef steers, av. 1000 to 1100 lbs.....10.00
Heifers, good 8.00
Cows, good .....7.00@7.50
Fair .....6.50@7.00

HOGS—

Av. 125 lbs. 11.75
Av. 150 lbs. 12.50
Av. 175-225 lbs. 13.00

Rough, docked 20 lbs.; piggy sows, 40 lbs.; stags, 40%.

We quote per cwt. f.o.b. L. A.

Prime wethers .....9.50@10.00
Ewes .....9.00@9.50
Lambs 13.00
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:

Northern .....6.25@6.50
Oregon 6.00
Sweet, lb. 6½
New, lb. 9

ONIONS

Wholesale selling price:

Onions, Brown 10
Crystal Wax, cr. .....3.25@3.50
Bermuda .....3.50@3.75
Garlic, lb. 8

VEGETABLES

Wholesale prices:

Artichokes, doz. .....75@85
Asparagus, lb. .....7@8½
Beets, doz. bunches 45
Cabbage, lb. 6
Red, lb. 6
Carrots, doz. 40
Chicory, doz. .....40@50
Cauliflower, doz. 1.25
Celery, cr. 6.00
Cucumbers, Hothouse, doz.....1.00@1.75
Horseradish, rt. lb. 15
Lettuce, doz. 30
Leeks, doz. 30
Mint 40
Onions, green, doz. 25
Oyster Plant, doz. 45
Peas, lb. .....5@5½
Peppers, Chili, lb. 20; Bell.....55
Parsnips, doz. 50
Radishes, doz. 25
Rhubarb—Crimson Winter.....90@1.00
Strawberry 1.25
Romaine, doz. 45
Spinach, doz. 25
Squash, summer, cr.....1.65
Turnips, doz. 50
Tomatoes, cr. 2.25

FRUITS

Wholesale prices:

Apples—
W. W. Pearmain .....2.10@2.50
Newtown Pippin, Yellow.....2.00@2.35
Avocados, doz. .....8.00@12.00
Bananas, lb. .....5¼@5½
Loquats, lb. 12
Strawberrise, basket .....5@7

CITRUS

Lemons .....1.75@2.90
Juice 1.25
Grapefruit .....3.00@3.50
Limes, basket 1.00
Navels .....2.50@3.00
Tangerines, lug 1.50

HONEY

Wholesale prices:

Extr. lb. White 8½@9½c; A. 8½@9c; Lt. W. .....10@11
Comb, lb. W. 12½c; Lt.A.....12½@14c
Dk. W. 14½
Beeswax, lb. 32

BEANS

Wholesale Prices:

Lady Washington 17.00
Limas 16.50
Pinks 14.00
Manchurian Reds 11.00
Baby Mex. 8.50
Garbanzos 9.00
Small White 17.00
Blackeyes 9.50
Tepary 12.00
Lentils 22.00

HAY

We quote ton f.o.b. L. A. to producers:

Barley .....19.00@23.00
Alt, tame .....21.00@24.00
Alfalfa, local, new 18.00
Stock .....16.00@19.00
Straw .....10.00@12.00

GRAIN

Wholesale selling price f.o.b. L. A.

Wheat—No. 1 .....4.70@4.75
Corn—No. 2 yellow, 3.75; white.....3.85
Oats—California red 2.75
White 3.25
Texas Red 2.90
Gal. Seed Oats 2.60
Barley—Recleaned 3.35
Milo 4.00
Egyptian Corn 4.00
Rye 4.35

FEED STUFF

Wholesale, cwt. f.o.b. L. A.

Alfalfa Meal 1.75
Bran, Heavy 2.65
Shorts and Middlings 3.25
Alfalfa Molasses 1.80
Meat Scraps 3.60
Beet Pulp 1.80
Cracked Corn 3.80
Cracked Wheat 5.10
Cotton Seed Meal 2.60
Oat, C. L. 3.10
Bone Meal 2.45
Feed Meal 3.85
Green Bone 2.25
Fish Meal .....3.60@3.70
Rolled Barley 3.30
Rolled Oats 3.35
Hulled Barley 3.80
Hulled Oats 4.60
Scratch Feed, 10-sk. lots $4.45; 5-sk. $4.50; 1-sk. 4.55

Scratch Feed with grit, 20c less.

Oat Chop 2.10
Oil Cake Meal 3.20
Pigeon Feed .....4.55@4.65
Chick Feed 4.65, 5.00, 5.25
Blood Meal 4.20
Cocoa Meal 2.05
Rice Paddy 3.70

San Francisco Markets

SAN FRANCISCO, April 24, 1917.

BUTTER

Dairy Exchange quotations, lb.:

Rcts. wk. ending April 23, 730,400 lbs.

Fresh extras 33½
Prime firsts 32½

Extr. Cr'y. Prod. Exch. past wk.						
Apr.	17	18	19	20	21	23
'17	.33	32½	33	34½	33	30
'16	.20	22	..	22	22	..

CHEESE

Dairy Exchange quotations:

Cal. Flats....19@19½ Y. Am.....23½@25
Ore. Triplets.....24 Y. Am.....23½

EGGS

Rcts. wk. ending April 23, 18,844 cs.

Dairy Exchange quotations:

Fresh extras 30
Firsts 29½
Select Pullets 27½
Firsts 27

Fresh Extr. Prod. Exch. past wk.						
Apr.	17	18	19	20	21	23
'17	40	39	39	38½	36½	33½
'16	.....25½	25½	25½	25½	25	..

POULTRY

We quote from producers, lb.

Hens, large 24@26; Leghorns.....20@22
Fryers, lb. .....35@40
Broilers .....25@35
Roosters, old..13@15; young .....30@35
Squabs, doz. .....2.25@2.75
Ducks .....20@22
Geese .....19@20
Turkeys, live .....22@24
Belgian Hares, live 14@15; dr.....17@18

LIVE STOCK

Prices gross weight:

Cattle:

Steers, lb., 8@10, cows and heifers, 5¾@8¼; calves, 7@9.

Sheep.

Wethers, 11@11½; shorn, 1½@2c less; ewes, 10@10½; lamb, lb., 13@13½.

Hogs:

Hard grain fed, wt. 100 to 150 lbs., 12@12¼; 150 to 300 lbs., 14¼@14½; 300 to 400 lbs., 13¾@14, undesirable, 6@8.

POTATOES

Wholesale selling prices at wharf:

Delta Burbanks .....5.00@5.50
Oregon Burbanks .....5.00@5.25
New Potatoes, lb. .....6.00@8.00

ONIONS

Wholesale selling price on wharf:

Australian, cwt. .....7.50@8.00
New Green, box .....1.00@1.25
Garlic, lb. .....1@3

VEGETABLES

Wholesale selling price:

Asparagus, lb. .....3@5
Artichokes, doz., large 50; small...25@35
Beans String, lb. .....15@20
Wax .....12½@15
Crystal Wax .....3.25@3.50
Celery, cr. .....1.00@1.50
Cucumbers, bx., hothouse.....1.25@2.50
Eggplant, lb. .....15@20
Lettuce, cr. .....50@75
Peas, lb. .....4@5
Rhubarb, box .....50@75
Squash, Summer, cr. .....1.75@2.00

FRESH FRUIT

Wholesale selling price:

Apples—Newtown Pippins .....1.15@1.75
Bananas, bunch .....1.50@2.50
Pineapples, doz. .....2.25@2.50
Strawberries—
Southern, cr. .....1.50@1.75
Fresno 3.00

CITRUS FRUIT

Wholesale selling price:

Lemonettes .....1.25@2.25
Lemons .....1.75@3.50
Limes, Mex., cs. .....6.50@7.00
Grapefruit .....2.00@3.00
Navels .....1.50@2.90
Tangerines, half orange box.....1.75@2.00

PEACH PRICES

Please note the following advance in prices, effective Saturday, April 14, 1917, at 6 p. m. All prices are f.o.b. factories, California common shipping points. We reserve the right to refuse confirmation, at the following prices, unless f.o.b. factories where grades and varieties desired are available. All quotations are subject to our approval of variety and assortment, subject to our confirmation and subject to advance without notice; April-May shipment.

Price list No. 7 is hereby withdrawn and ineffective at 6 p. m. Saturday, April 14, after which time prices herein quoted shall apply.

	Yellows.	Muirs.
Standard Peaches	.06⅝	.06⅝
Choice Peaches	.07	.07
Fancy Peaches	.07½	.08½
Extra Fancy Peaches....	.08	.08⅞
Slab Peaches		.06¼
Choice Peeled Peaches.....		.10
Fancy Peeled Peaches		.11½..

Above prices, bulk basis.

For 50-lb. bxs., unfaced, add ..... ½c
For 50-lb. bxs., faced, add..... ⅝c
For 25-lb. bxs., unfaced, add ..... ⅝c
For 25-lb. bxs., faced, add ..... ⅞c
For 10-lb. bxs., unfaced, add 1¼c
For 10-lb. bxs., faced, add 1½c

For prices on Graded Peaches, Original, in bags, add 1c to the bulk basis prices above quoted.

Ungraded, Original, bags, nothing to offer.

	Per Lb.
Choice peeled, 2-lb. cartons.....	.12
Choice unpeeled, 1-lb. cart....	.08½ .08⅝
Choice unpeeled, 5-lb. cart....	.08¼ .08⅜
Fancy unpeeled, 1-lb. cart....	.09¼ .09⅞
Fancy unpeeled, 5-lb. cart....	.09 .09¾
	Per Lb.
Choice peeled, 5-lb. cartons.....	.11¾
Fancy Peeled, 2-lb. cartons.....	.13¾
Fancy peeled, 5-lb. cartons.....	.13¼

The above prices are guaranteed against our own decline to June 30, 1917, and apply only to sales and shipments made direct to the recognized jobbing trade. No goods will be confirmed at above prices to coast or eastern brokers, or to speculators, it being our desire to eliminate speculation in dried peaches, we preferring to carry our stock in storage here on the coast until actually required by the jobbing trade.

DRIED FRUITS

Wholesale quotations:

PRUNES—Bulk basis, per lb: 30s, 7½c; 40s, 7¾c; 50s, 7⅞c; 60s, 8⅛c; 70s, 8¼c; 80s, 8½c.

Other fruits, 50-lb. bxs:

	Stand-ard.	Extra Choice	Extra Choice	Extra Fncy.	Extra Fncy.
Apples ...	...	9¾c	10 c	10½c	....
Peaches .	7⅛c	7½c	....	8 c	8¼c
Pears ...	6½c	8½c	9½c	11¾c	....

We quote new 1917 crop layer and cluster raisins for October, November and December shipment, as follows:

Sun-Maid Layers, 20-lb. box, $1.50 per box.

low), 20-lb. box, $1.50 per box.

3 Crown London Layers, 20-lb. box, $1.50 per box.

4 Crown Clusters, 20-lb. box, $1.75 per box.

6 Crown Imperial Clusters, 20-lb. box, $2.60 per box.

(5-lb. box, 50c additional; 10-lb. box, 25c additional.)

Bulk Vineyard Run Layers, 50-lb. box, $3.25 per box.

Bulk Vineyard Run Layers, 100-lb. box, $6.25 per box.

Sun-Maid Brand Clusters

Fancy Cluster, 1-lb. cartons, 20 to case, $1.85 per case.

Fancy Clusters, 1-lb. cartons, 24 to case, $2.20 per case.

Fancy Clusters, 2-lb. cartons, 12 to case, $2.20 per case.

Fancy Clusters, 5-lb. cartons, 4 to case, $2.60 per case.

All f.o.b. California common shipping points. Regular California dried fruit terms. Prices guaranteed against decline to January 1, 1918.

Our prices on 48-16s package Sun-Maid Seedless and 50-lb. boxes bulk unbleached standard Thompson Seedless, suitable for cartons, as referred to in our Bulletin No. 63 under date of January 26, 1917, are guaranteed against decline to August 1, 1917.

NUTS

Jobbers' Prices:

Almonds.—Exchange opening prices: Nonpareil, 19c; Ne Plus Ultra, 17c; IXL, 17½c; Drake, 16c.

Peanuts, Jap, 7@7½c; Eastern...7½@7¾

BEANS

Jobbers' prices, cwt. recleaned:

Limas .....15.00@15.50
Bayous .....11.00@11.50
Garbanzos .....6.25@6.50
Small White .....15.00@16.00
Mexican Red .....10.00@10.50
Large White .....14.00@15.00
Pinks .....12.25@12.75
Horse Beans 6.50
Black Eyes .....9.00@9.50
Red Kidneys .....13.00@13.50

HONEY

Jobbers' prices:

Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. .....11@12
Ex. Fy. W. lb.....10c; Lt. A.....8
Beeswax .....30@32

HOPS

Prices to growers at shipping points:

Sacramento .....7@8½
Sonoma .....7½@8½
Mendocino .....7@9
Oregon and Wash., lb. .....6½@8½

RICE

Price to growers:

Cal. Rough cwt. .....3.40@3.75
Lower Grades .....2.75@3.25

HAY

Under date of April 21 Scott, Magner & Miller say:

Receipts past week 1378 tons, last week 1589 tons. Most of this from Oregon and Washington from purchases made by dealers during the last 30 or 40 days. Were it not for the hay from Oregon the amount of hay coming into this market would be practically nominal. Consumers are backward in taking to this Oregon and Washington hay as it has not the appearance of our California product although it is claimed that it is of equally good feeding quality. However, it is only a matter of a short time before it will be necessary for consumers to feed this hay or go without. New crops are backward, from two weeks to a month later than usual. New first cutting alfalfa will probably be available about the 15th to 20th of May for the first arrivals, but this will not be used in any quantity for horse feed owing to the danger from colic; old hay will have to be fed, therefore, into July at least.

We note an advance in all grades during the past week, fancy wheat having sold at $35.00 per ton.

We quote the average wholesale price of hay in carload lots on today's market as follows, viz:

Wheat, Fy., lt. bales.....33.00@35.00
Wheat or Wh. and Oats, No. 1.31.00@33.00
Wheat, or Wh. and Oat, No. 2.28.00@30.00
Oats, Choice Tame .....31.00@33.00
Other Tame .....28.00@30.00
Wild .....24.00@29.00
Barley .....27.00@30.00
Alfalfa .....24.00@27.00
Stock Hay .....15.00@16.00
No. 1 Barley Straw .....1.00@1.25
Oregon Hay .....25.00@29.00

GRAIN

Grain Exchange prices, ctl.

Wheat—No. Bluestem .....4.00@4.10
Corn, California .....3.35@3.50
Corn, Egyptian White .....3.65@3.75
Oats, White Feed .....2.75@2.80
Barley, Feed .....2.95@3.00

FEEDSTUFFS

Wholesale prices per ton:

Bran .....42.00@44.00
Cornmeal .....71.00@72.00
Cracked Corn .....71.00@72.00
Middlings .....56.00@57.00
Alfalfa Meal, carlots .....33.00@34.00
Shorts .....46.00@47.00
Rolled Barley .....57.00@58.00

SEEDS

Prices in round lots, lb.:

Millet, recleaned .....3¼@4
Alfalfa .....20@21
Flax .....5@6

Citrus Fruit Market

Los Angeles, April 25, 1917.

Shipments are very heavy but market is holding fairly steady. Lemon prices somewhat lower.

Shipments

Shipments of oranges from Southern California since November 1, 1916, 2233 cars, lemons 3478, total 23,711; to same date last year, oranges 17,419, lemons 2802, total 20,221. From Central California to date this season, oranges 4063, lemons 164, total 4227; to same date last season, oranges 4411, lemons 146, total 4557. From Northern California to date this season, oranges 844 cars; to same date last year, oranges 610, lemons 1.

FROM THE AUCTION

April 24

New York: 36 cars. Nav., $1.50@2.60; lemons, $1.10@2.65; grapefruit, $3.00; Navelencias, $2.05@2.60; Jaffas, $1.55@2.65; bloods, $1.60@2.20; St. Mikes, $1.65@2.90; tang., $1.15@2.05.

Philadelphia: 19 cars. Nav., $1.90@2.45; lemons, $1.35@2.70; Seedlings, $1.45@2.10.

Boston: 24 cars. Nav., $1.80@3.45; lemons, $1.50@3.45; bloods, $2.35@2.45; St. Mikes, $1.05@1.15.

WEATHER CONDITIONS

For the Week Ending April 21, 1917

	Rainfall Wk.	Season	Norm.	Temp. Max.	Min
Eureka	.65	29.73	41.45	58	34
Red Bluff	.00	16.80	22.75	68	34
Sacramento	.00	12.39	18.50	78	38
San Francisco	.00	15.69	20.93	72	42
San Jose	.10	12.39	15.76	80	34
Fresno	.03	6.90	8.60	82	38
San Luis Obispo	.10	22.54	18.84	76	34
Los Angeles	.12	14.97	14.90	78	42
San Diego	.96	9.74	9.38	66	46

ECONOMICAL WORK

Regarding successful farming operations with Samson Sieve-Grip tractors. Mr. Oscar Hewitt of Yuba City writes:

"I have had my Model R-12 just a year and I presume you will be interested in it. I have done much work with it. I have 15 acres of my own and work some on the outside with it.

"I also pulled a five foot double disc harrow about six inches deep and it works the ground up fine. I can disc an acre an hour. I also pulled an eight foot roller with 800 pounds of dirt on it and it was no load at all for the Samson Sieve-Grip."

Alfalfa Land

For Dairying

Also First Class Orchard Land
10 Acres and Up

BRENTWOOD IRRIGATED FARMS

in Contra Costa County

(63 miles from San Francisco)

Easy terms of payment. For prices, etc. address

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Land Department
350 California St. -:- San Francisco

HIDES SKINS

Send us your cow hides, sheep pelts, goat skins, mohair, wool and raw furs.

Green salt hides, over 30 pounds, 22 and 21c. Dry, over 15 pounds, 37c.

Highest prices paid for wool. Don't sell your wool before getting our quotation.

Write us for full particulars.

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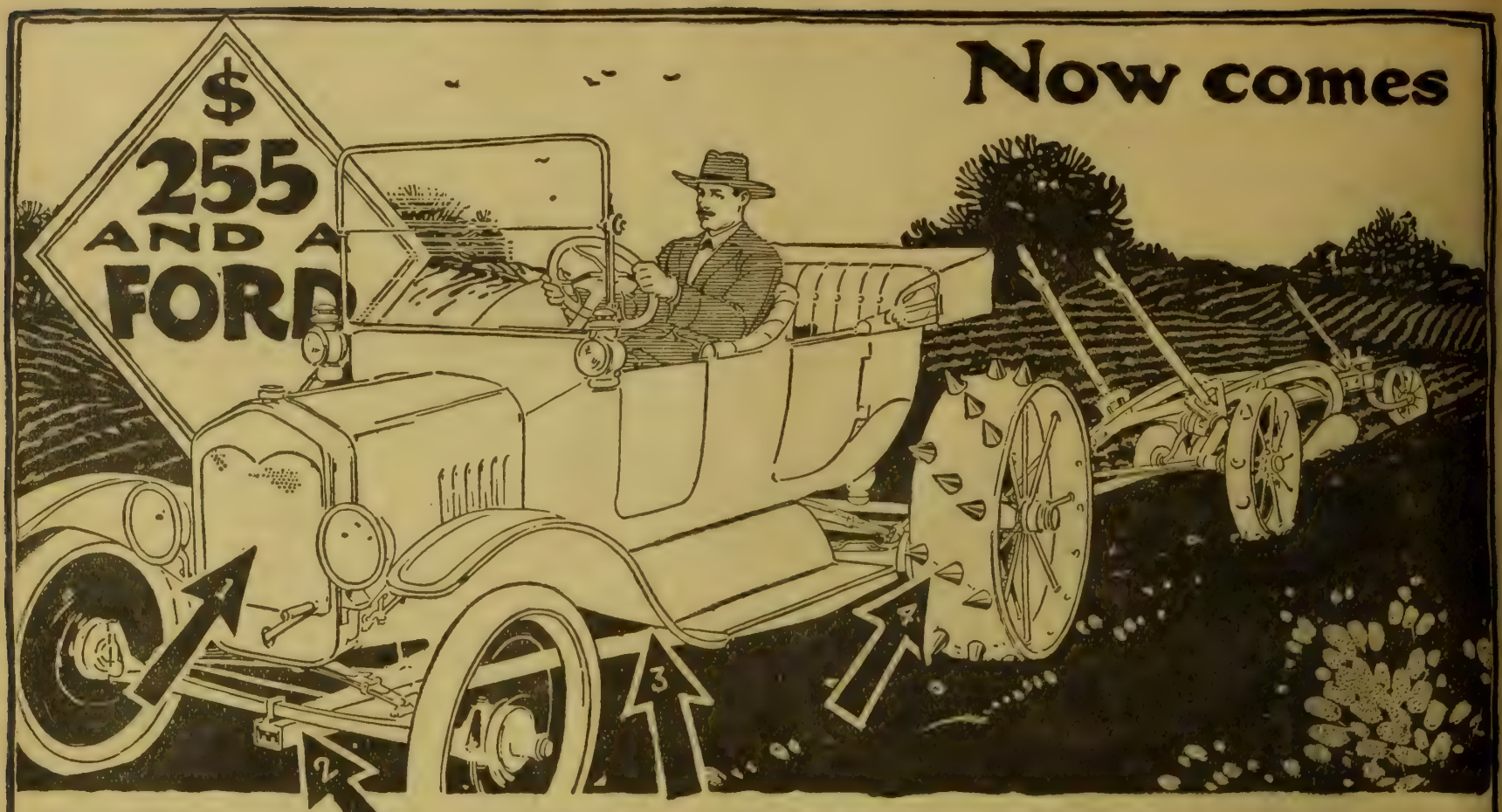


1 This special radiator—ten times more efficient than the radiator of the Ford—guarantees perfect cooling—without this installation no automobile motor can work satisfactorily as a tractor.

2 Front end of Smith Form-a-Tractor frame fastens to front axle of Ford—a feature of strength and convenience not duplicated in any other construction.

3 Smith Form-a-Tractor frame extends full length of Ford frame, reinforcing it and leaving no part of the tractor attached to the Ford when used as a pleasure car.

4 Three rows of conical lugs—twenty-seven to each wheel—give unusual efficiency in soft soil—distinctive Smith Form-a-Tractor construction.

Smith Form-a-Tractor

Guaranteed To Do the Work of Four Big Horses

COMBINES with any Ford touring car or roadster to make a fully guaranteed tractor, duplicating, in amount of work it will do, the highest priced, biggest tractors you can buy, and giving you the most efficient tractor construction that you can get.

Fifteen minutes will change your Ford to tractor, and it takes only fifteen minutes to make the change back again. The tractor construction is complete and leaves nothing attached to the Ford with the exception of the new special Smith Form-a-Tractor Radiator and the patented Force Feed Oiling System.

Back your Ford over the Smith Form-a-Tractor frame—jack up the rear axle—pull off the Ford rear wheels—replace them with the Smith Form-a-Tractor roller driving pinions—connect up the Smith Form-a-Tractor axle to the Ford axle with special clamps—clamp the front end of the Smith Form-a-Tractor frame to the front axle of the Ford frame, and the conversion is complete. All the work is done by the Smith Form-a-Tractor attachment. The tractor wheels push the Ford ahead and pull the farm implements from the rear. You do not deface your Ford in any way. You do not injure its wonderful ability, but merely utilize its low cost of operation to give the cheapest form of doing farm work.

Use Smith Form-a-Tractor now for

Plowing	Spreading Manure	Cultivating	Grubbing	Crushing Clods
Mowing	Pulling Trees	Smoothing	Packing	Pulling Binders
Listing	Hoisting Hay	Drilling	Rolling	Pulling Stones
Disking	Hay loading	Irrigating	Spraying	Ditch Digging
Dragging	Stretching Wire	Loading Logs	Grading	Hauling Crops
Leveling	Pulling Diggers	Pulling Stumps		

and any other farm work that you have been doing with horses.

Smith Form-a-Tractor drilling—four horse work

50,000 This Year

20,000 Smith Form-a-Tractors are now being built, even before this announcement.

50,000 will be sold this year.

Smith Form-a-Tractors will cut the cost of doing farm work from 40% to 70% on any farm in the country, large or small.

Use Smith Form-a-Tractor for your farm work—Smith Form-a-Truck for your farm hauling, and all the wasteful expense of horses is eliminated.

Wonderful Design

In quality—workmanship—design—materials—Smith Form-a-Tractor gives you tremendous value.

The special cellular type radiator, ten times as efficient as the regular Ford radiator, guarantees perfect cooling in all kinds of work, under all weather conditions. Even on the hottest days you can plow at the rate of seven acres a day with absolute certainty, where horses can only plow 4 acres, with the constant fear that they will drop dead in the harness from excessive heat.

The patented Force Feed Oiling System guarantees perfect lubrication—freedom from burned out bearings, scored pistons. These two features are absolutely essential to proper tractor operation.

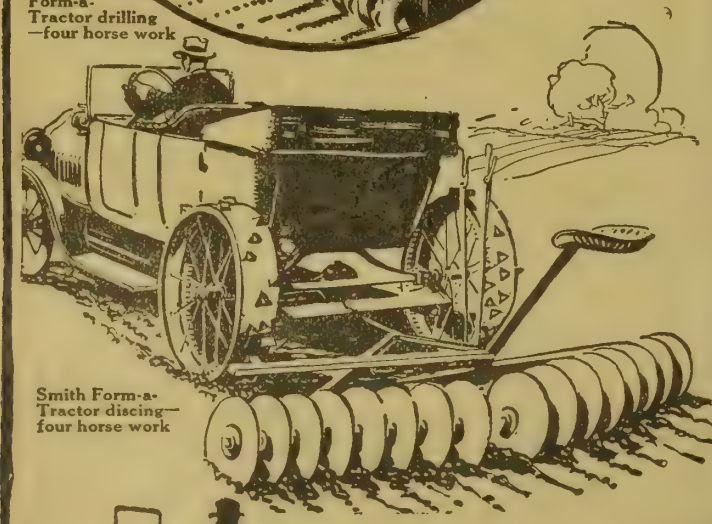
The tractor wheels are exceptionally wide, equipped with strong, durable lugs for service in soft soil, the roller pinions meshing with the bull ring gear of the tractor wheels, are made of nickel steel, heat treated.

The tractor axle is back of the Ford axle. The driving power of the pinions is exerted downward, keeping strain away from the Ford and giving utmost efficiency.

Remarkable Power

Eleven-to-one gear reduction through the use of the Smith Form-a-Tractor roller driving pinion gives wonderful working power. Two and one-half miles an hour in plowing, binding, drilling and all other farm work—eleven times the pulling power of the Ford.

Smith Form-a-Tractor will start and work continuously, hauling a 28-inch gang plow or doing any other four-horse work, and do it all on high gear. We absolutely guarantee this amazing feature of performance.



Smith Form-a-Tractor discing—four horse work

Deliveries Now

You need your Smith Form-a-Tractor now, when you are busiest in the field, doing your hardest work. We can take care of your demands. Our big, complete dealer organization covering every section of the farming territory is ready to supply your demands immediately.

You can order from our dealer in the morning and have your Smith Form-a-Tractor at work, radiator installed, oiling system in, and the tractor itself ready for work in the afternoon of the same day. The first 12 hours you work Smith Form-a-Tractor will show you just what a tremendous saving it will make for you in your farm work.

If you cannot get in touch with a dealer quickly enough, send us the coupon. Accompany it with a deposit of $10 and we will ship your Smith Form-a-Tractor immediately, subject to payment of sight draft attached to bill of lading. Whatever you do, get Smith Form-a-Tractor working in your fields just as quickly as possible.

Smith Form-a-Tractor hauling largest size manure spreader

SMITH FORM-A-TRACTOR
Michigan Avenue and 16th St., Chicago

DEALERS WIRE!
Get full details of the Smith Form-a-Tractor dealership. Make application by wire. One day now is worth ten days a month from now. This is the big selling season. Get in line on the sales.

C.C.
4-28-17

SMITH FORM-A-TRACTOR
Chicago, Ill.

Gentlemen: Please send me full information regarding the Smith Form-a-Tractor and its application to my work.

I am operating a farm of.....
acres: my principal crops are.....
.....I am at present using
.....horses for my farm work.

Name.....

P. O. Address.....

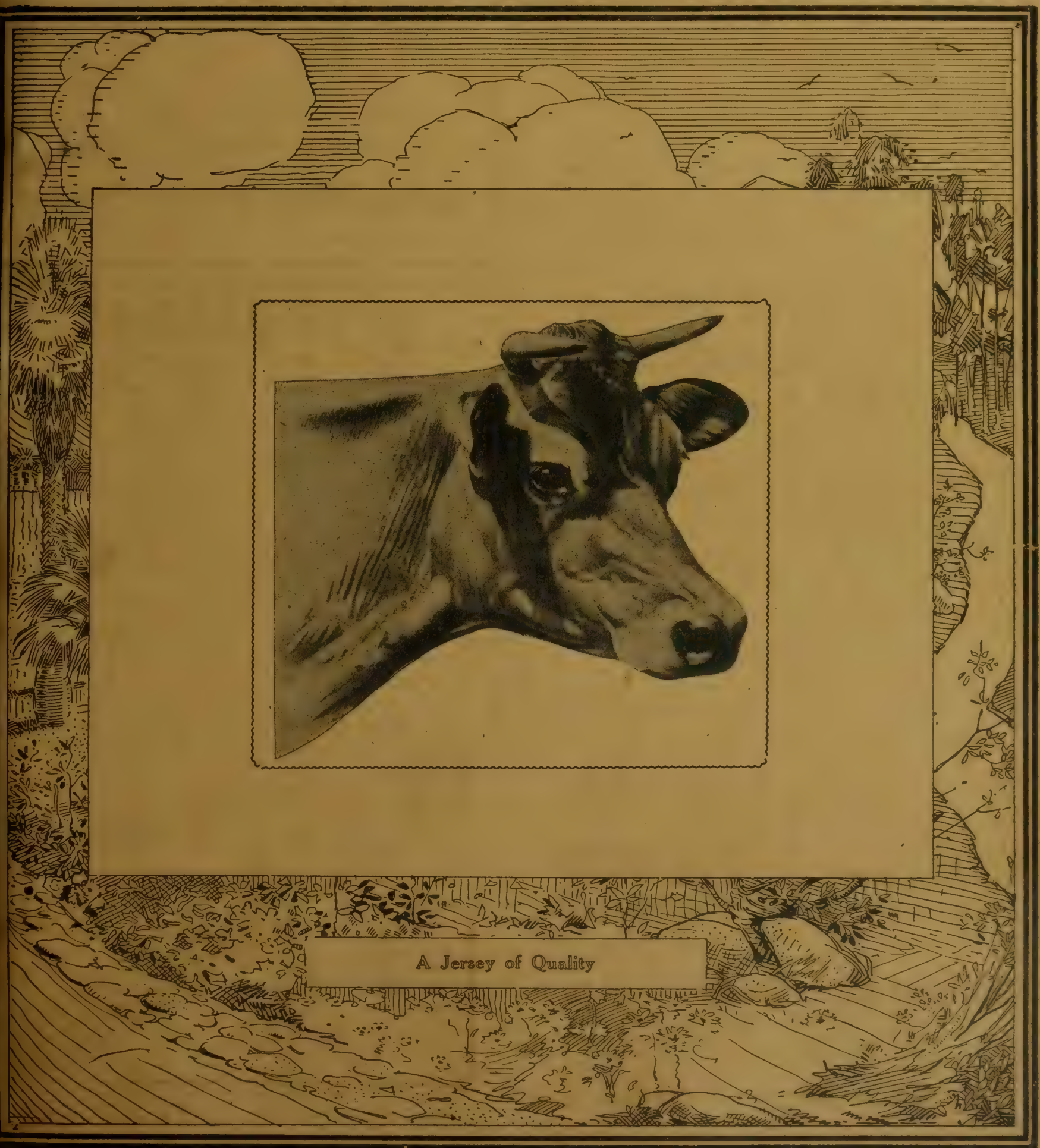
State.....

CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES May 5, 1917 SAN FRANCISCO



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Berkshires

PUBLIC SALE

Wednesday, May 9, 1917

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60 Bred Sows and Gilts

10 Boars - 50 Weanling Pigs

DISSOLUTION OF PARTNERSHIP

Our entire breeding herd of choice, registered Berkshires will be dispersed at public sale. Every animal of breeding age guaranteed a breeder, and every animal is cholera immune.

An opportunity to secure foundation breeding stock that in breeding, type and quality cannot be surpassed. The offering includes the sows that won for us so royally at the Panama-Pacific International Exposition, and a score of other individuals of outstanding Berkshire quality and breeding.

There isn't a breeder on the Coast who will not find something in our offering that will attract him, that will add strength to his herd, and that he can afford to buy.

Remember what we are offering. Remember the date and place. Write for catalogue.

Thatcher, Ennis & Williamson

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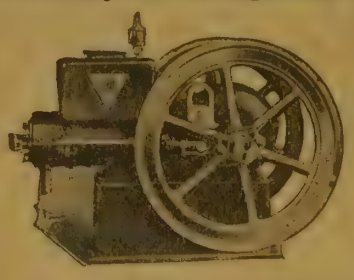

AN EFFICIENT ENGINE is one that will not only continue to develop the full amount of power required on the smallest consumption of fuel, but will also require practically no attention during operation. It must be free from repair expense and the possibility of a breakdown during the pumping season.

Alpha Distillate Engines

AND

Viking Rotary Pumps

Make Efficient, Reliable Pumping Plants

All Alpha Engines are equipped with a high class magneto; start easy without cranking; no batteries used; ignition and mechanical troubles eliminated.

Viking Pumps deliver more water for the same amount of power than any other type. REASON: Positive delivery, high efficiency and careful manufacture.

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COMMERCIAL ENGINES

will stand up indefinitely under hard work for years, and you can rely on them for 24 hours' service day in and day out. This guarantee protects every purchaser.

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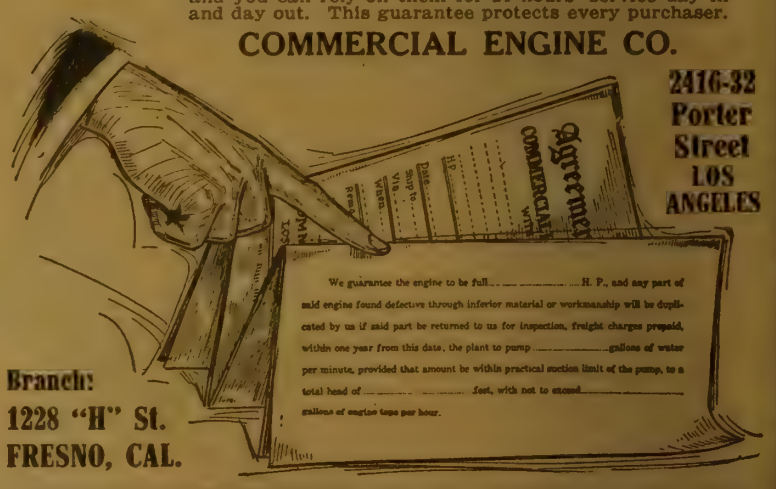
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We guarantee the engine to be full
H. P., and any part of
said engine found defective through inferior material or workmanship will be duplicated by us if said part be returned to us for inspection, freight charges prepaid,
within one year from this date, the plant to pump
gallons of water
per minute, provided that amount be within practical suction limit of the pump, to a
total head of
feet, with not to exceed
gallons of engine tops per hour.

2416-32 Porter Street LOS ANGELES

Branch: 1228 "H" St. FRESNO, CAL.

The Jersey Blood You Need

My cows pay good profits under general farm and dairy conditions. Will have a choice lot of young calves, both sexes, for sale, sired by Valet's Peter of L. 115734 shown herewith. Write for information to

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Oakdale, Stanislaus County, Cal.

Use Tuberculin Tested Sires in Your Herd

WE HAVE A NICE LOT OF SHORTHORN BULLS and HEIFERS THAT WILL SELL FAST WHEN THE SPRING FEED COMES. SELECT YOURS NOW FROM THE BRIGHTON FARM HERD.

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228-238 CENTRAL AVE. LOS ANGELES, CAL.
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FUEL OIL

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A LOW COST CHEAP UPKEEP ENGINE FOR GENERAL SERVICE

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California Cultivator

Vol. XLVIII No. 18 LOS ANGELES: May 5. 1917 One Dollar Yearly

The Jersey Cow in California

Rich Cow, Rich Man. Dairying Interests as Affected by the Jerseys Touched Upon by Secretary R. M. Gow of the A. J. C. C., by J. M. Roberts, Field Man of the Club in California, by C. L. Hughes, W. P. McClaskey and Others

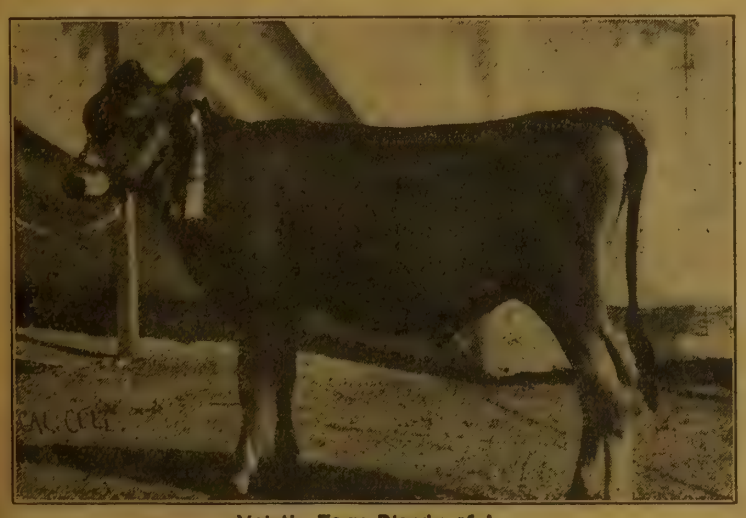
THE UNIVERSAL DAIRY BREED

Written for California Cultivator
By R. M. Gow, Secretary American Cattle Breeders' Association

ONE of the first things necessary to tell people entirely unacquainted with the Jersey breed of cattle is that they did not originate in New Jersey, but in the Island of Jersey, situated near the coast of France in the English Channel, from which New Jersey derives its name. This little island (it is only about eleven by seven miles in extent) has had an influence in the dairy world out of all proportion to its geographical importance on the map. It may be said of Jersey: "The cow has made the island famous." Jersey cattle owners just refer to it as "The Island." With them there is only one island.

This Island of Jersey has a very moderate and temperate climate. It is an universally observed fact that men or animals from temperate climates are best adapted for transportation to other climates, either hot or cold. The Eskimo cannot thrive in the tropics, nor the tropical races in the frozen north. The human product of the temperate zone can stand either extreme. The Jersey cow has had the great advantage of the most suitable climatic nursery to equip a bovine race for the conquest of the dairy world.

The real origin of the Jersey breed is unknown. Wherever the original stock came from, the breed as it exists is peculiarly the product of its island environment, plus many generations of intelligent breeding. The breed has been distinguished for 200 years, but it was in 1834 that the first organized efforts were made to improve it, and these have been continued ever since, first in Jersey, and afterwards in England, the United States and other countries to which it has spread.



Valet's Foxy Blondy of L.

Reserve grand champion Sacramento, 1916, reserve grand champion Fallon, Nevada, '16, and grand champion Modesto, '16. Property of N. H. Locke & Company.

Jerseys were introduced into England before 1800, and England has been a source of foundation Jersey stock for the United States, next to the Island of Jersey. The breed was first brought to America in 1817, but the real foundation stock did not come until 1850, and they have been coming ever since, even in 1917, despite submarines and war conditions. The Jersey is the most widely disseminated of all the pure bred dairy cattle, being well known in the United States, Canada, France, England, Denmark, Australia, New Zealand and Japan, in all of which countries there are Jersey cattle societies for the conservation and improvement of the breed. She has been exported in greater or lesser numbers to a dozen other countries and ocean archipelagos covering the temperate, subtropical and tropical zones of the earth.

The first importations of Jerseys to this country were to New England. From that section she has gradually spread, first South, then to the nearer West, then to the Mississippi Valley, then across the Rockies, and now she has reached the shores of the Pacific Ocean. The Jersey has found her best development in the United States. There are more Jerseys and more owners of Jerseys in the United States than in all other countries combined, and more Jersey owners than of any other dairy breed. Twenty thousand or more American farmers and dairymen who must make a living from their cows are using the Jersey. This is the most conclusive evidence that can be quoted that the Jersey is a profitable dairy animal. Prof. Eckles, of the University of Missouri, very succinctly and impartially summarizes the Jersey and explains her popularity when he writes:

"A good Jersey cow is the model of what is generally taught to be the dairy form. She has pronounced wedge shape, an immense barrel for her size, a well developed udder, and does not carry a pound of superfluous fat while in full flow of milk. Jerseys are easy keepers. The breed is very prepotent when crossed upon common cattle or grades of other breeds. The cross usually partakes strongly of the Jersey type and milking qualities. The heifers mature young. . . . In economy of production of butterfat this breed has always led where opportunity has been given to make fair comparison with other breeds."

The professor might have added with truth that, not only in the economy of production of butterfat, but in the economy of production of milk the Jersey has always led. In the Columbian world's fair tests the Jerseys gave the greatest amount of milk solids-other-than-fat (protein), and also produced butter at the least cost per pound. The Louisiana Purchase Exposition tests demonstrated that the Jersey is the "most economic producer of milk for all purposes of dairying". This has been proved in many tests on less conspicuous but no less important stages. The Jersey cow is a business proposition.

Is this cow fitted for California conditions? That is a fair question. I was talking to a man from the coast and used the words "the California climate". He took me up on that phrase, saying you have about every variety of climate in California. That being so, there must be also a variety of conditions. But I feel sure there is no condition that the Jersey will not fit; for she has proved a paying dairy cow everywhere from Alberta to Texas, from Maine to California, and surely every condition found in California is duplicated within the confines of the United States and Canada, not to speak of the many foreign countries the Jersey is enriching and adorning.

Sacramento Valley Beauties

Jerseys owned by Charles L. Leonard, Glenn County.

In San Joaquin County there is a herd of Jerseys, not one of the famous picked herds of the country, but just a practical working herd operated under ordinary dairy conditions. Last year it included 90 milking cows. In the county testing association it was the only herd of any breed that averaged over 600 pounds fat per cow. One cow produced 11,956.4 pounds milk, containing 637.1 pounds fat, in 311 days. Another produced 12,143 pounds milk, 654.6 pounds fat, in 351 days. Both cows carried calves a great part of the time. They are reproducers as well as producers.

The supreme test of a dairy cow is that she should earn money for her owner. Thousands of Jerseys are doing this everywhere. She has many attractions, but the real reason of her popularity is that she pays.

THE JERSEY ENLISTMENT

Written for California Cultivator
By J. M. Roberts, California Field Agent, American Jersey Cattle Club

COVERING this state under field conditions for the American Jersey Cattle Club it has been found that California is a "somewhat different" state, unlike any other in the Union. The last presidential election will substantiate me in this. Her North is entirely separate from her South, her central valleys do not know what the coast is doing, and the Imperial Valley takes but little interest in the doings of Sacramento Valley. Our labors are therefore centered upon the task of linking California into a workable unit. You will find the breeders of live stock in Missouri, Michigan, Wisconsin, or New York pulling harmoniously together, but this is not so in California. This condition seems to exist simply because we have not attained that degree of proficiency that comes through continued cooperation and organiaztion. It therefore behooves, not only the Jersey breeders, but all breeders of pure bred live stock in California, to enlist in all movements of cooperation and organization, if we are to attain the ranking that our natural resources are offering us.

It probably has not been brought home in impressive fashion, just what the American Jersey Cattle Club is doing for the breeder in every state in the Union, to further this spirit of organization. What they have accomplished in the past year is to be doubled this coming year. California has felt only a slight effect of this work; it is pioneer work of the first order in this state and will take time.

The five leading Jersey counties are as far apart as the boundaries of this state will permit. Stanislaus County, in the center of the state, harbors approximately one-fourth of the total number of Jerseys; Los Angeles County, in the south, Humboldt County, in the north coast region, and Imperial County, in the extreme south, each have about one-third the number of Stanislaus County, with Tulare County fifth. Definite figures as to the number of Jersey cattle in California are not available, but 25,000 can be taken as a safe estimate. So the task of assemblying this army of men is no one year job.

As a starter a series of local Jersey breeders' organizations are being formed. The Jersey Breeders' Association of Southern California recently organized at Riverside, the Orland Jersey Cattle Club, just formed at Orland, and the Humboldt County Jersey Breeders' Association at Ferndale are a few of the pioneer community organizations, together with the California Jersey Breeders' Association as a nucleus, that are expected to bring the California Jersey breeders closer together. An association in Imperial Valley and the lower San Joaquin should complete a very impressive and working unit.

The importation of new Jersey blood into California during the past eight or nine months has surpassed any two years in the history of the breed in this state. Two importations of sires stand out prominently as having the best influence on the coming generation. Jacoba's Emanon from the Roycroft Farm at Sidnaw, Michigan, has been added to the herd of Dr. H. W. Hand of Glenn County. Jacoba's Emanon is a proven sire with several daughters in the Register of Merit, and comes as a welcome addition to our state. The yearling bull, Oxford Majesty's Gold Link, has been added to the beautiful orange grove and dairy ranch of Mrs. C. D. Perry at Riverside.

Continued on Page 516

Speed Up the Haying

WHEN the mower has once started its work, every hour of good haying weather is precious. That is why it is good business to use **International Harvester** hay tools, which, in good curing weather, will put the hay under cover, well cured and in prime condition, in **four to five hours after cutting.**

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Securing Organic Matter in Orchard Soils

By J. R. Mattern

STARING every orchardist in the face is the problem of getting sufficient vegetable matter into his soil to keep up proper moisture and fertility conditions. It is a well known fact among modern soil experts that organic matter has a great deal to do with the moisture storage capacity of soils, and in connection with moisture the organic matter determines the bacterial activity in the soil, and therefore the amount of natural plant food available.

On a grain or stock farm the problem is simpler, because there are no trees to hinder free cultivation with broad implements, and no roots to interfere with deep plowing. Once the trees are started the ground cannot be plowed more than seven inches deep without damaging the roots. If manure is applied the weeds that spring from the seeds are exceedingly hard to kill by cultivation, and smothering crops can not be used in an orchard as they can in an open field.

The one remaining method of securing the organic matter is by the use of cover crops, or what some educators call green manure crops. The fundamental idea in this is to plant something that will make a luxuriant growth of tops and roots and then work the material grown into the soil. Legumes such as crimson clover (where it will grow successfully) vetch, cowpeas, and soy beans are best when they can be grown, but some times the soil is too much r down or too rough to permit of th finer plants catching. Rye, whe turnips, millet and other such pla then are better.

Still the chief problem is not solv for attention to the top seven inch of soil that the plows will reach w not always grow a good orchard. is necessary to get the organic m ter deeper than this; down there the real feeding place of the roo Roots of the cover crop plant alo can reach this soil, and they will p do so unless the way is opened f them by deep tillage. By subsoili an orchard site with plows befo the trees are planted you can acco plish much good. A better way is do it with explosives at the time t trees are planted and every five ten years afterwards.

Too much importance cannot be a tached to this subject of filling t soil with roots down deep, where th provide organic matter for bacter to feed on, and to aid in both t storage of moisture and the liberati of insoluble plant foods. Only a fe orchardists understand the value the practice, but the experiences these few are illuminating. Clean cu tivation or intercrop practice, makes no difference if the land is cu tivated during the weeks from Apr till in July, just so the cover crop sown each year in soil that has bee given intensive tillage down dee there will be abundance of growt and overbundance of fruit.

Sorghum Grains

DR. Hunt announces that there will soon be issued by the university a circular touching upon the cultivation of the grain sorghums. This is timely and, in fact, should be in the hands of growers at this moment, for, as Dr. Hunt says, "One feature which has not been enlarged upon is the need for feed for live stock."

Sudan Grass

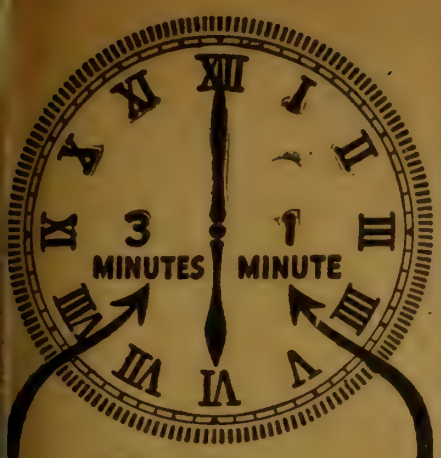
Second cutting of Sudan grass on C. D. Hayworth Ranch, Stanislaus County. Sudan is well worth considering in this year of short forage and high priced hay. This grass was brought from Sudan, Egypt, in 1909. It is closely related to the cultivated sorghums, is an annual, and resembles Johnson grass. In buying seed be sure it is pure.

The Cultivator has for some weeks been urging more extended planting of grains and forage crops. The poultryman must dispose of his stock unless he can secure cheaper feed than is possible at this time.

Milo, kafir, feterita, and Egyptian corn are perhaps the better producers. In the Imperial Valley milo is used almost exclusively. Feterita, one o the newer introduced grains, will no stand the drouth which milo will, an the heads shed badly, but it is a goo producer of exceptionally fine grain

If these grains are planted soo they may be harvested and out of th way in time for plowing for barley and other winter growing crops. Fo soiling or for pasture where th ground is now in good tilth, broadcasting is best, but if irrigation is to be followed, which is practically necessary unless conditions are exceptionally good, use drill with rows far enough apart to permit of cultivation. three and a half feet is best.

This crop is becoming such a staple one in this state that it will be well



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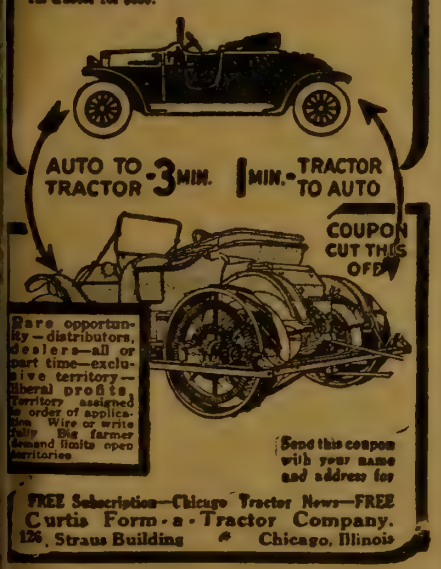

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to observe the behavior of different seeds and be prepared to select that which does best under California conditions. There is a great difference, especially in kafir and feterita heads. Some are loose growing, large, bulky looking heads which may not bear more than 15 or 20 bushels per acre, while others, more compact and bearing seeds nearly to the center stalk, will yield as high as 70 to 80 bushels per acre.

These grains give almost as good returns for stock feeding as does corn. Seed required per acre, four to six pounds. Cultivation, like that of corn, should be shallow, for the roots are surface feeders.

BACTERIA ON LEGUMES

We gave the merest outline of methods of applying bacterial cultures to seeds of leguminous plants last week. More specifically: Place the seeds to be treated in a pile on the floor or, if a small quantity, place in a large pan or other container and over this pour the cultures which have been prepared according to directions accompanying the bottle. This must be used within a short time after the bottle is uncorked for it will keep but a short time. After the liquid is scattered over the seed, with the hands thoroughly mix so as to distribute the moisture to every seed if possible. Once this mixing is completed the peas, beans, or whatever the seed may be should be spread and allowed to dry in a cool shady place. Do not place in direct sunlight. In using these cultures acid condition of soil is to be corrected. The use on the soil of air-slacked lime at the rate of 1000 pounds per acre is usually beneficial. Planting or future handling of the seed is just the same as when no bacteria is used. One may also apply the bacteria to seed already planted, but the former method is the better. The cultures which succeed with alfalfa also succeed as well with beans or other legumes.

Another method, rather more difficult, however, is to take soil from a field which is known to have grown successful alfalfa or bean crops. The moist soil is used and scattered over the field which is to be planted and cultivated in before it thoroughly dries out. In following this method, however, the grower should know that the soil is free from fungous diseases.

Book Review

"MODERN PROPAGATION OF TREE FRUITS"

"Modern Propagation of Tree Fruits," by B. S. Brown, M.S., professor of horticulture, University of Maine, published by John Wiley & Sons, New York. Many Californians will recall that Prof. Brown was at one time connected with the University of California at the farm school at Davis. If we remember rightly Prof. Brown was working on this book when in this state.

Prof. Brown says in his preface:

"In preparing this little book three important factors were kept in mind. First, only to include those practices of propagation which are in general use and which are accepted by the orchardist and the commercial nurseryman as being the most important. Second to furnish in a condensed form such information on propagation as will enable the general fruit grower to follow out the practices. It is assumed that the average fruit grower has a general knowledge of the various methods of propagation, hence the many confusing details are here omitted."

There are eight chapters in the book, Chapter I touching propation, in which the importance of the nursery business, the investments in nurseries, stocks of different tree fruits, the securing of seeds, the use of cuttings, shipping of seeds, quantities used, etc., are treated. Chapter II gives information regarding the growing of seedlings, chapter III, the nursery. Other chapters discuss budding operations, grafting operations, the propagation of cuttings, after treatment of nursery stock and general considerations. In the grafting operations chapter, grafting tools, saws, chisels, shears, grafting wax, waxing pot, theories of grafting, various kinds of grafts and how to collect scions are all treated upon. The book is valuable for the nurseryman and affords a fund of information for the orchardist.

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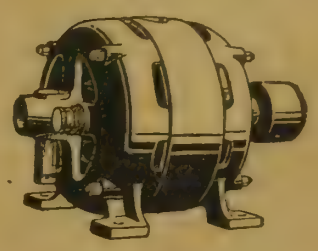
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Saturday, May 5, 1917

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THIS WEEK'S COVER

One of the most beautiful animals in the world is the Jersey. She belongs in the "handsome is as handsome does" class, too. She came to American from Jersey, a little island in the English Channel, only 11 miles long. The farms there range from five to 20 acres each, and the Jersey has been bred to fit these conditions. There are only about 40,000 of them on the island, and some of the finest and best producers were brought to America as far back as 1818. Their number has been increasing in California during the past year more rapidly than at any preceding time, and a wonderful showing will be made this fall at the various live stock fairs in the state.

On the cover we show a typical face of a young Jersey of quality.

CANS

The larger canneries have arranged for their supply of cans for the coming season; the smaller ones, who have not been aware of the tin can situation, may be unable to secure sufficient for this season's pack.

The federal government is taking a strong hand in the matter of the use of tin and requests that all products which can be dried or dehydrated shall be treated in that way, and only the more perishables tinned. Where this request has been ignorad a flat order has been given to stop canning such products as beans.

Home canners may be embarrassed and compelled to pay higher prices, and glass will doubtless be used to a larger extent. Here again is opportunity for foresight and early purchasing. Presumably prices for glass are more reasonable now than they will be in the midst of the canning season.

While the canning is going on, let us dry things. Many of us doubtless recall the dried corn of olden times and the pumpkin which was thoroughly cooked and dried on platters. There are today better methods of drying these products, even string beans, turnips and other vegetables are dried. Of course in California many of these methods may be useless because of our perpetual harvest season.

The Cultivator has already in hand some hints on methods of drying and wishes more. Have our subscribers experience in this matter? Let us have a symposium on methods.

BEANS UP

The directors of the California Lima Bean Growers' Association announce the sale of 100,000 sacks of limas of the 1917 crop at nine cents, and still the price is going up. Next Thursday is the last day on which new members will be received by the association. The association does not believe in holding the sack and allowing members to drop in if they please or remain out if the please. Plans for the season's work must be completed, sacks and other supplies must be purchased.

The association recently made an additional payment on the 1916 crop of one-half- cent per pound. This means distribution of about $260,000 to producers. This will practically complete the work of the association on last year's crop.

ABOUT THE LEMON

Live stock in general, and Jerseys in particular, have appropriated the larger amount of space in this week's Cultivator. Fruit will be given more attention next week, and especially valuable will be an article on pruning and planting of lemon trees by J. P. Englehart. Mr. Englehart has grown oranges and lemons almost since their first commercial production in California and has made closest study and observation of them.

The Cultivator camera has been used to make plainer Mr. Englehart's talk, with especial reference to showing the type of budwood which he would preserve in the lemon tree. There is rank growing wood in citrus trees and a fruit growing wood, and a little observation inspired by Mr. Englehart's article will result in much more profitable citrus orchards.

LOWER INTEREST

At the meeting of the California Development Board at Stockton last week a speaker said:

"Mr. Banker, your stock is quoted at fabulous prices and is earning 20 per cent. Will you reduce our interest, extend us more credits, and get us cheaper machinery if we should jeopardize our life's work that we may produce more food products for our army and navy that protect your securities?"

The same speaker offered to give freely of his services to aid in securing greater production.

But the farmer needs more and better equipment. Let capital see that he gets it.

THE DAVIS PICNIC

Things moved at the university farm picnic last Saturday. The wind started it and human dynamos picked up the movement and gave more punch to it and the agricultural preparedness campaign was pushed on. Thousands came though the great crowd of last year was not equaled.

There were games, inspection of farm operations, parades, valuable discussion and demonstrations, all of which means more tonnage of food products for California.

Mr. Meek said we need more production and for more production more farm power, more labor.

"It is true that it is impossible to starve the American people. We can produce practically everything we need, in sufficient quantities to care for our wants, but we have entered the greatest war history ever has known. It is a fight to the finish between autocracy and democracy.

"There is a great farm labor shortage facing us. We need a hundred thousand more men than are now in sight to harvest our crops. There are thousands of men engaged in the city in unproductive occupations, such as delivery men, solicitors and jitney drivers who could be used to help solve this problem."

As to California's supply of available food Prof. D. N. Morgan, who has had charge of the survey, said. California per capita supply: "Beans, 13 pounds; flour, 80 pounds; dried fruit, 20 pounds; meat, 2 pounds; sugar, 20 pounds; rice, 3 pounds; fish, 1 pound (the daily catch of fish is 180,000 pounds)."

Professor Morgan said there is sufficient food in California for home needs and a little for export, but that this state should produce much more for export.

Dean Hunt and Prof. Van Norman with large force of helpers made it a most memorable day for every attendant.

EFFICIENCY

This is a year for most efficient service. While there is much hot air wasted in the cities in the "produce more" campaign, there is also a genuine effort to meet the needs of the world. As to the shortage of food there is no question, and that the shortage will become more acute is equally certain, for there are thousands of tons weekly going to the bottom of the Atlantic.

There is one advantage which will come from the present agitation, and that is increase in efficiency of our farmers. This is made necessary, not only by the demand for more foodstuffs, but by the decreased supply of labor. And the labor question, by the way, is a long one. Hence, better equipment.

Here's a hint for the grower who may be in reach of establishments of Cultivator advertisers. With a list of these advertisers in the pocket one can spend a profitable day looking through implement houses. It costs money to equip, but it costs money to hire labor which perfect equipment may make unnecessary, or at least may lessen demand for. Money paid for labor is gone. Money paid for implements remains for future service.

The gas engine, or motor, has perhaps done more than any other one force to make effective the work on the farm. But as to implements; the manure spreader, the power sprayer, the adjustable cultivators, on which genius has worked out the most effective combinations, the gang plow, the drill, the seeder and the planter, all have added to the ability to do. We recently saw a hay press with self feed. This is not only a case of efficiency, of saving an extra man, but a case of safety first, for there can be no more crushed limbs. Then there is a pea and bean threshing machine mounted on one end of a truck with a small gas engine on the other, only a small neighborhood affair, but assuring saving of the beans instead of waiting for the big thresher outfit which may get around long after the rains have begun. The big combined harvester drawn by 25 or 45 horses formerly or by the big 75's of the past few years, is familiar to all who have seen California grain growing conditions. Now comes the small combined machine operated by one man and with either four or six horses. It costs about $1250; it weighs 2600 pounds and has an eight-foot cut, but it is a labor saver. Then there are light power disk plows with power lift for two to five gangs. These do exceptionally well in the turning under of cover crops in the large orchards. Then there is the one-man planter, operated by horse and man. This will plant almost everything, from kafir and milo to the larger beans.

We need not enumerate more of these appliances, for this is only to call attention of the producers to some of these up-to-date, efficient means of doing things.

Here again is where an early order may secure delivery in time for use in season. Manufacturing plants and transportation companies are all busy in many directions. Get your order in early.

When You Buy Home Furnishings from Barker Bros. in Los Angeles You Are Assured QUALITY Goods and Not "Mail Order" Merchandise.

Many concerns catering to mail order customers carry what is known to the trade as "mail order goods"—a grade made and designed to meet keen competition and afford highest possible margin of profit at the same time.

With Barker Bros. it is different. Merchandise intended for any kind of sale other than by regular selection on the floors of this store are never selected by Barker Bros. no matter how alluring the wholesale price or how great the possible profit from their sale. Every article distinguished by a place in our stock must first pass rigid inspection and possess the basic element of QUALITY which for nearly forty years has been associated with the offerings of this house.

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If you cannot visit our store, you will find it distinctly advantageous to buy through our MAIL ORDER DEPARTMENT. You are urged to write, telling us just what you want, etc. We will respond quickly, intelligently and courteously. We can save you money on furniture and everything in home furnishings.

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Write for free information and literature on all field and orchard crops.

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Agricultural News Notes of the Pacific Coast

Northern California

The Farmers' Protective League is after cattle rustlers.

Sutter County's biggest bean patch contains 1500 acres.

A new irrigation district is to be formed at Fairoaks, Sacramento County.

Ten thousand acres of land never before in rice will be planted in District 108, Northern Yolo County.

The increase in rice prices has caused a materially larger planting in Butte, Yolo and Glenn Counties.

The Sutter Almond Growers' Association met recently at Yuba City and elected directors for the coming year.

Shasta County prune growers are organizing and becoming members of the Prune and Apricot Growers' Association.

Thompson Seedless grapes in Sutter County were very seriously injured by the heavy frost about the middle of April.

Today is picnic day at the university farm, Davis, and the day has been declared a picnic holiday by all institutions of Yolo County.

The sugar beet outlook is exceptionally fine in Glenn County. A spur of the Southern Pacfic has been built into new beet growing sections.

J. B. Wrangham, secretary of the California Almond Growers' Exchange died recently at Oakland. The loss is a serious one for the Exchange.

The Tehama County Farm Loan Association is making initial appraisements of property as a first step toward securing loans from the federal loan bureau.

President G. W. Pierce, of the Almond Growers' Associaion, is visiting various almond producing sections in the interest of more effective organization for this season's work.

A sale of 2500 sacks of rice was made last week to a San Francisco firm by the Moulton Irrigated Lands Company for $2.68¾ per sack. Several bids have been made at $2.40.

Supervisors of Nevada County have been requested by a large number of farmers and business men to appropriate funds sufficient to secure the appointment of a farm adviser.

Butte County has been contemplating the appointment of a farm adviser, but definite action has been postponed pending more enthusiastic action on the part of the farmers.

The Amador-Eldorado Live Stock Association, a live wire in the matter of advancing and protecting the interests of its members, recently held a largely attended meeting at Placerville.

The state fish and game commission is planning a method of saving fish which are caught by receding waters in the tule basins of Sutter and Yuba Counties. Professional seiners will be employed.

Cloverdale, Sonoma County, has enacted an ordinance which will fine owners of dogs five dollars if they are allowed at large on the streets. Cows going to or from pasture must be led by an attendant.

The forest service has an office in San Francisco in which it requests campers or travelers in national forests or reservations to file recommendations as to any possible method of bettering the forest service.

Central California

Stockton is to have a free municipal market.

Feed ranges in the Sierra Nevada are reported in bad condition.

Cut worms have done some damage to Malaga grapes in Tulare County.

Stanislaus County growers are discussing conservation of animal feed.

The state dairy cow competition is now in full swing with all entries closed.

"More beef, more hogs" is urged in the report of the state council for defense.

San Joaquin County reports its grain crop as 75 per cent better than last year.

One bean grower of San Joaquin County netted $6500 for 8000 bags of pink beans.

Two hundred acres will be put in Tepary beans by Jesse Loughead of Poplar, Tulare County.

Fresno reports demand for dried fruit for future delivery as far better than other years this date.

The Tulare Cooperative Poultry Association made sales during March amounting to over $17,000.

The Lindsay Olive Growers' Association has elected W. B. Kiggens, president; R. W. Fenn, secretary; J. W. Irwin, treasurer.

Buyers are reported going through the country gathering up old horses and cows to be shipped to Petaluma for poultry feed.

A few days ago the wheat growers were paying $3.50 per cental; presumably before these words are read this price may be materially increased.

A Delta farmer of San Joaquin County has suggested to the state council of defense that many of the pastures of the "Islands" of San Joaquin County could most profitably be turned into grain fields.

San Jose reports that the Prune and Apricot Growers' Association has now practically 75 per cent of the California output signed up. Manager Coykendall says; "We have the acreage and we will now proceed to effect the organization.

A survey of the Turlock irrigation district shows a total planting of 116,319 acres. The leader of all the crops is alfalfa, with 42,418 acres. About 12,000 other acres are in crops, such as hay, which will soon be taken from the land and other crops put in.

The Deer Creek Citrus Association of Tulare County has filed articles of incorporation. The following directors have been named: Frank Wheeler, Albert Behrens, George E. Small, Philip A. Schultz, E. R. E. Paetsch, Will F. Phillips and Fred H. Gerdes.

E. B. Merritt, sales manager, and H. Thomas, advertising manager, of the raisin association, and J. F. Niswander, manager of the Peach Growers' Association, left Fresno April 23 for a seven-weeks' tour of the United States and Canada, visiting selling agents of their organization, brokers and specialty men.

The recent annual meeting of the Lindsay Olive Growers' Association resulted in the election of the following directors: W. B. Kiggens, W. A. Bohland, A. N. Moss, J. W. Irwin, E. E. Cross, S. W. Etheredge, R. W. Fenn; president, W. B. Kiggens; vice president, W. A. Bohland; secretary, R. W. Fenn; treasurer, J. W. Irwin.

Southern California

San Bernardino County is working for a farm adviser.

Effort is being made to organize a farm bureau center at Redlands.

Walnuts in nearly all sections of Southern California are setting full.

A carload of Imperial Valley fat lambs were recently shipped to Denver.

Hemet apricot growers are being offered $50 per green ton for their fruit.

School boys of Los Angeles high schools are weeding and thinning in the beet fields.

The bean acreage of Orange County this year is estimated at between 50,000 and 60,000.

The Hemet cannery is being materially improved and made ready for the coming season's pack.

Riverside County is the latest with a farm adviser, W. B. Parker beginning his term in that county May 1.

May 10 is the last day on which lima bean growers may sign up with the Lima Bean Growers' Association.

D. C. Lefferts has started suit against a fumigation company for $10,000 damages to his orange grove.

The annual meeting of the stockholders of the Santa Paula Walnut Association will be held next Tuesday.

The state legislature refused to make an appropriation in connection with the experiment station school at Riverside.

Cherries were seriously injured by April frosts in the Oak Glen, San Bernardino County, section. Apples, however, escaped.

The irrigation bond petition for an issue of $2,500,000 for improvement in the Imperial Valley canal system has received sufficient signatures, and the election will soon be held.

The cantaloupe season in the Imperial Valley will be late, but satisfactory warm weather has been given since March 25 so that vines are now making good growth and melons setting.

Thermal reports onion crates arriving at the rate of four car loads daily and being hauled by auto trucks to the ranches. There is the largest crop of onions ever grown in Coachella Valley.

Some of the ranchers of the Wintersburg section of Orange County are considering advisability of plowing under beets and planting beans, because of the attractiveness of bean prices and scarcity of labor for beet thinning.

At the recent monthly meeting of the California Lima Bean Growers' Association it was announced that the association has sold 100,000 sacks of beans of the 1917 crop for an average price of nine cents a pound. The price is still going up.

A simple steam sterilizer is being demonstrated by Health Officer Rice of Pomona. It is for the use of owners of three or four cows who wish to sell milk for human consumption. This is a government model which can be cheaply duplicated.

An increase of ten per cent in wages has been offered by the San Dimas Lemon Association to all packing house workers. This is to be paid as a bonus at the end of the season in October to those who stay with the house till that time. Pickers were raised 25 cents an hour.

The Coast

A farm loan association has been organized in Gila County, Arizona.

Farmers of Whatcom County, Washington, are selling hay at $40 per ton.

Farmers of Marion County, Oregon, have agreed to plant 500 acres of beans this season.

Considerable loss has visited the farmers of Cochise County, Arizona, because of loco poisoning.

Idaho stock raisers have been compelled to buy hay from Chicago, 25 cars coming in one bunch.

Women students of the Oregon Agricultural College have organized a Woman's Agricultural Association.

The Oregon Cattle and Horse Raisers' Association held its annual meeting at La Grande, Oregon, last week.

Hubbard, Oregon, is the center of onion set production, and the entire output has been cleaned up for this season.

Hundreds of acres of rich lands of Arizona not planted before have been brought under irrigation and are growing grain.

The live stock industry of Crook County, Oregon, has increased more than 50 per cent during the past five years.

The Wyoming Stock Growers' Association now has 1200 members. It recently held an enthusiastic meeting at Cheyenne.

Pupils from Tucson have recently visited the orchards of Salt River Valley for the purpose of studying sub-tropical fruits.

A dairyman at Grants Pass, Oregon, recently installed a number of purebred Jerseys, three of the best of these costing $1800.

The fourth annual meeting of the Oregon Cattle and Horse Raisers' Association was held at LaGrande Tuesday and Wednesday of this week.

At a meeting of the Fruit Growers' Agency at Spokane, Washington, J. B. Adams of Walla Walla was elected president and L. J. Blot, of Spokane, secretary.

The Mormon church at Salt Lake City, Utah, is offering a prize of $1000 for the best acre of potatoes produced; also $1000 for the best five acres of spring wheat.

One large concern has assured the Chandler Egyptian Cotton Growers' Association that its institution is in the field to purchase 100,000 bales of Arizona Egyptian cotton.

A bill providing for a new state department of markets for the state of Washington has passed the legislature. Fifteen thousand dollars is set aside for the operation of the department the first year. The department is to be attached to the state college.

The Utah-Idaho Sugar Company, with factories in both those states, offers list of premiums totaling nearly $4000 for the farmers who deliver the largest number of acres of sugar beets, the largest tonnage of sugar beets, the best average tonnage per acre, for each one of its 14 factories.

Stockmen of Okanogan County, Washington, recently met and discussed the losses to their stock from rabies which has been prevalent. Department of Agriculture Expert Averill said that unless a strong hand was taken with this trouble the losses to live stock would run into the millions.

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Highest grade rubber and fabric, perfectly balanced design, most careful workmanship, full size.

A tough road-gripping tread—neither so heavy as to produce stiffness, nor so light as to give insufficient protection to the carcass. Cushion of high-grade resilient rubber—absorbs the road shocks. Sidewall specially shaped to distribute flexing—will not crack.

And the carcass—finest Sea Island cotton, long fibre, tough, triple tested, built up layer by layer into the strongest carcass that can be made.

High mileage, low cost per mile. Sold from factory to you through our own distributors. Watch for the red Savage sign.

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MAY is an ideal month in which to plant orange and lemon, pomelo and lime trees. The advent of warm weather as the rainy season draws to a close, renders the soil ideal for tree growth. Ideal conditions call for ideal trees, which are the only kind we have to offer, hence are anxious to serve you. Correspondence a pleasure; a telephone message a joy; and a personal interview a delight.

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Made In All Sizes
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Manufactured and Sold Exclusively by

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Legal Queries

Louis B. Stanton, attorney, 243 Willcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Unsigned communications receive no attention.

Broken Pipe

If owner employs a man to cultivate his place and cultivator breaks a pipe which is laid six inches under the ground, cultivator not having been told of the pipe, who is responsible? According to law what depth should a pipe be laid?—Subscriber.

If the man has not been told to look out for pipes and he knows nothing of the pipes being located under the ground he is cultivating, it would appear that the property owner is the one who should bear the loss.

Note Lost

A gives a note secured by a mortgage on land, to run three years. A renews note for two years. At end of six months paid interest. Some weeks after that B claims note is lost or stolen and claims note was drawn for one year. Note is not on record.—Subscriber.

It is purely and simply a matter of proof and as to which side the court will believe on the question of the length of time for which the renewal was made. It would seem that the best thing for you to do is to refinance your mortgage with some other party, thus paying off your old note. On foreclosure of a mortgage you are, of course, entitled to a year within which to redeem. The additional expense incident to the foreclosure probably would not amount to over $100, so that by exercise of reasonable diligence you should be able to save your place one way or the other.

Roads on Section Lines

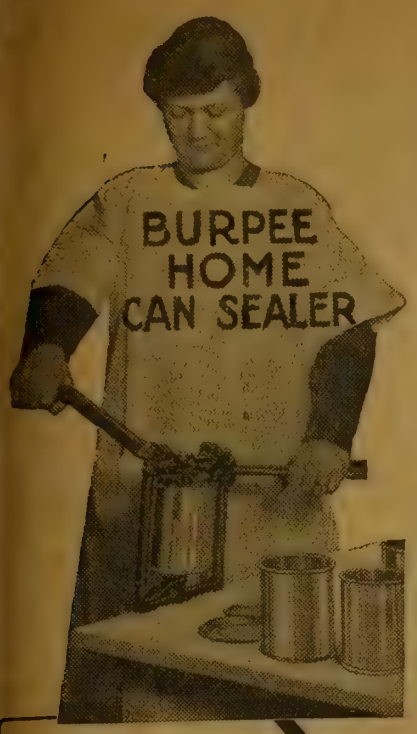
Is there any legal reservation on section lines for road purposes? If so, how many feet are reserved on each side of section line?—Subscriber.

The code provides that the width of all public highways shall be not less than 40 feet. It is, of course, frequently found that roads follow the section lines on account of convenience due to the manner in which government lands were taken up, but there is no law of which the writer has knowledge, that reserves a road along the section lines in this state.

Draining Land

I own property with a storm water creek running through it, in which water sometimes runs for a few days during the rainy season. I would like to know whether I can lay a few strings of underground tile and drain alkali into the water-way without forming a drainage district or getting permission from property owners below me? Would also like to know whether I can drain into the road gutter of the county road providing it is deep enough to give me an outlet for my tile. It would only have to follow the road gutter a few rods before reaching the creek and a culvert.—Subscriber.

The owner of land has the right to collect surface water and the natural drainage of his land into ditches, drains, or artificial streams and discharge it into a natural watercourse on his land, which is the natural outlet of the waters so collected, and is not liable to lower proprietors even though the flow of the waters is accelerated or increased; provided the discharge is not beyond the natural capacity of the watercourse. The word "watercourse" in this connection also includes ravine, gulley, or natural depression, having a fixed course, and which follows a natural channel for the escape of surface waters. It would seem that you could also discharge, as stated in the question, into the road gutter provided, however, that no injury to the highway results therefrom. If injury does so result you are liable to a penalty of $10 for each day during which the injury remains and may also be prosecuted under the provisions of the penal code.



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Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Shoulder Slip or Sweeny

I have a horse that is apparently sound when standing for a time but gets lame when he starts out and after going a mile or so gets lamer and lamer, until he cannot touch his foot to the ground. This lameness started about a year ago and is getting worse constantly. There is a slight lump on the shoulder and we are sure it is not a sweeny. We were riding him one day when he stumbled and was a little lame after it but seemed all right next day. Please tell me what I can do for him.—Subscriber, Coachella.

The tendon that passes over the shoulder joint was strained at the time the horse stumbled. Now, after so long standing it will be hard to cure. It may need to be fired and blistered and the blister repeated several times. You really need a veterinarian to do it for you.

Difficult Parturition

I have a four-year-old mare that labored a good part of the night delivering a colt. In the morning the colt was dead with nose and front feet in sight. We had to take it. The mare did not try to get up for two or three hours, and then could not stand and was not able to stand for two days, being paarlyzed in the right hind leg. Now after ten days she walks with a hitch and seems to take a trifle longer step with the right leg. Is there anything that I can do to help her and was there anything I could have done to have prevented it?—Subscriber, Owensmouth.

The mare should have had assistance and the whole trouble probably would have been averted. If a mare does not foal in 20 minutes there is something wrong and she should have help. She will probably recover all right in time but you can hurry it along by applying a good liniment on the top of the hips at the highest point: that is where the muscles and nerves are affected from the straining. Try this liniment: One ounce each turpentine, tincture of camphor, tincture of capsicum, oil of origanum and aqua ammonia; four ounces of alcohol and enough water to make one pint. Mix. Apply twice a day and rub it in well.

Queries

Too Late for Alfalfa

Is the middle of May too late for planting alfalfa in this part of the country (Mohave)? We can expect very little rain, if any, from now on, yet I am in a position to irrigate it. Should it be irrigated before it comes up or should I keep the water off until after it comes up? What would be the best cover crop to sow with it, oats or barley?—Subscriber, Mohave.

It is too late in the year to get a good stand from alfalfa seed sowed at this time in your locality. Alfalfa should be sowed in the cooler weather while the evaporation of water from the surface soil is at the minimum. Then have the soil thoroughly wet, sow the seed and harrow well with a drag harrow and follow with a roller. This is of course wasteful of moisture, but there must be moisture in the ground sufficient to keep a supply near the surface until the young plants have become established. It is not best to irrigate until the young plants have four to six inches growth, but it sometimes becomes necessary to put water on earlier to save the plants. In that case a very small stream of water should be used to avoid washing.

Better results will be obtained this year by planting to some one of the grain sorghums, preferably Dwarf Milo maize. Have the land well prepared and plant in rows three feet six inches to three feet ten inches apart, with the grain eight to ten inches apart in the row, but do not allow more than one plant in a place as this grain stools considerably and will be too thick to produce a crop of grain. If the seed is planted properly three to four pounds will be sufficient for an acre. The seed should be planted deep enough to be in the moist ground, but will not come up if deeper than four inches. Frequent cultivation should be given and the crop will be very much increased by liberal irrigation.—J. B. N.

Gopher Bounty

Please give information as to the bounty on gopher tails.—Subscriber, Burbank.

We believe there are no counties in this state which give bounty on gophers. Certainly Los Angeles County does not.

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Rhubarb

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OTHERS MAKING $1,000 PER ACRE ANNUALLY—SO CAN YOU. Don't put it off any longer. April, May, June positively best months to plant. Write

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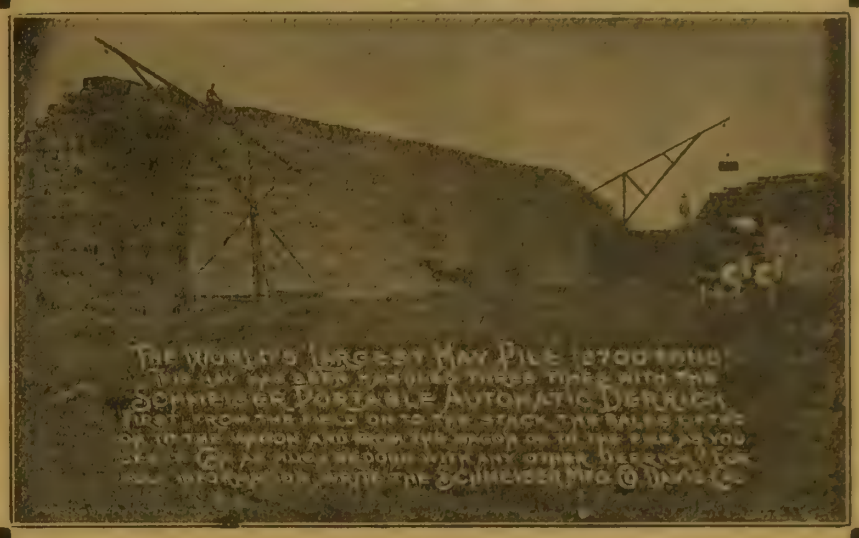

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"The World's Greatest Hay Stacker,"

Stacks hay baled or loose, Saves Labor, Saves Time, Saves Money. More Schmeiser Portable Automatic Derricks are sold on the Pacific Coast than all other hay stackers combined. The reason is:

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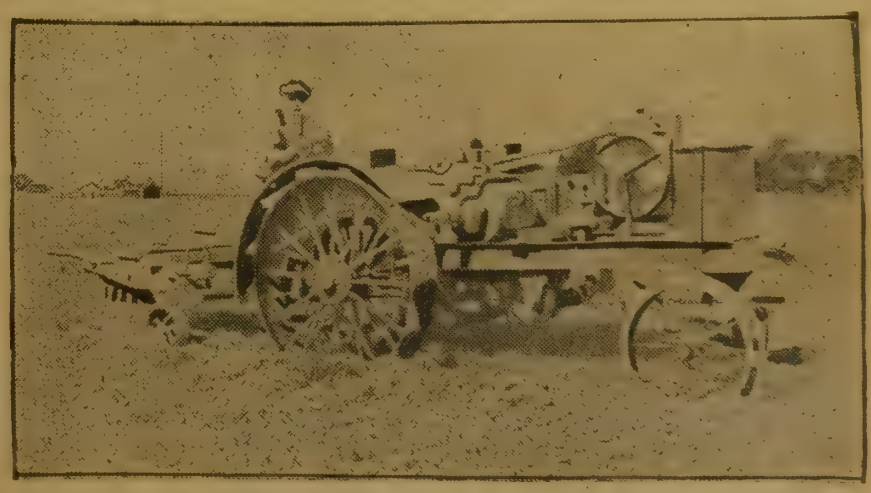

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This tool firms the soil about the roots, breaks up crusts or lumps, and *stirs* the surface like a cultivator. Farmers use it on wheat or oats or corn till several inches high with absolutely no damage and wheels can be quickly detached for straddling larger corn.

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Quick detachable wheels removed from Culti-Packer for cultivating corn until it is a foot high.

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Wheat	33 bushels per acre	Wheat	14 bushels per acre
Oats	45 " "	Oats	40 " "
Potatoes	199.84 " "	Potatoes	97.15 " "
Cotton in Egypt	400 pounds "	Cotton	185 pounds "

European farmers use about 600 pounds to the acre of a Home-Mixed Nitrated Fertilizer containing 8 per cent of Phosphoric Acid and 4½ per cent of Nitrated or Nitratable Nitrogen.

American farmers apply 200 pounds to the acre of a Fertilizer containing 8 per cent of Phosphoric Acid, together with 2 per cent of Nitrogen which is mostly unavailable.

The difference in results is largely due to the large amount of Nitrated Nitrogen used in Europe per acre as **Nitrate of Soda.** Our pitifully small American yields are due to failure to appreciate the necessity of using Nitrated Nitrogen.

Write for "What Nitrate Has Done in the Farmer's Own Hands"

Dr. WM. S. MYERS Director Chilean Nitrate Propaganda **25 Madison Ave., New York**

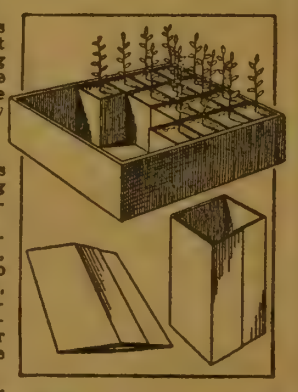
Perforated Tree Protector

That will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour.

For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus and Conifers. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.



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These Roofing and Siding Products are supplied in all standard patterns from our APOLLO-KEYSTONE Copper Steel Galvanized Sheets. The added Keystone indicates that Copper Steel is used. These sheets also give unequaled service for Tanks, Silos, Culverts, and all exposed sheet metal work. APOLLO Products are sold by weight by leading dealers. Accept no substitute. Owners of farm buildings should have our "Better Buildings" booklet.

AMERICAN SHEET AND TIN PLATE COMPANY, General Offices: Frick Building, Pittsburgh, Pa.
Pacific Coast Representatives: United States Steel Products Co., San Francisco, Los Angeles, Portland and Seattle.

Vegetable Planting Calendar for May

Northern California

Written for California Cultivator By A. R. Gould

IN view of the movement which is general throughout the country to grow more food and see to it that the land is made to produce an abundant supply, readers of the Cultivator will be well able to assist and apply the information which has already been given to good advantage. And let me urge you to lose no time nor space in an endeavor to produce the crops. It is not too late to bring still more land into use and perhaps you have half an acre or more which you could prepare and use. Such crops as beans and tomatoes may be planted and will grow with very little water, and it may also be convenient to use an overhead sprinkler to irrigate in some way or other, in which case onions and corn may be grown. These crops are all of great value.

Peas

The early varieties will soon be ready to pick now, and those of the main crop which grow tall may require staking by this time. Wire and sticks every ten feet should be used. Where there is a good water supply available keep well watered and this will also keep down the aphis. Readers well favored with water may also make another sowing of Melting Sugar variety and Little Marvel.

Onions

Many of the seedlings thinned out from the regular rows may be used to plant up new beds. Trenches may be made and these seedlings laid in ten to 12 inches apart. If irrigation and constant cultivation can be resorted to they should supply fine bulbs by the fall, which if stored in a dry place can be kept all winter and will prove of value to the housewife. Ailsa Craig, Prizetaker and Australian Brown are the best keeping onions and are varieties which we recommended in January last for planting. By this time there should be lots of seedlings of these to spare, and in view of the present food crisis not a single plant should be wasted but use every one available and all spare ground.

Carrots

This is another useful vegetable which can be served up in many different ways and will also keep quite a long time after growth is finished. Sow in quantity, not too thickly, French Forcing and Danvers Half Long. If possible give these plenty of water.

Corn

Sow Country Gentleman, Golden Bantam and Late Mammoth varieties about 18 inches apart in rows 36 inches apart. One and a half pounds of seed will be needed to sow a 100-foot row. As soon as the plants are up three inches keep the cultivator going through the rows.

Turnips

Sow more of these varieties which quickly mature, such as Early Snowball and Orange Jelly, and for late keeping sow the rutabaga, or Swedish turnip, Large White or American Purple Top. These grow to a very large size and are not generally used in this country for table but are esteemed in Europe for their food value and long keeping qualities and are certainly worth growing to help out the food shortage. Sow these by the acre as they will also be useful to store away for the winter. We shall give a few hints or methods of storage in a month or two.

Beets

You may still make sowings of Crosby's Egyptian and Detroit Dark Red. Give them a fair amount of water.

Lettuce

Sow White Paris Cos and Big Boston. Keep the cultivator, or hoe at work between the rows.

Tomatoes

These should be planted out this month; San Jose Canner, Victoria Whole Salad and the varieties as mentioned before. After planting supply plenty of water for a week or two to get them started, after which they should be simply mulched around the roots with a dust mulch and they will then grow without much further attention. Space the plants at least six feet apart either way. As the plants develop look out for black aphis which can be destroyed by the application of "Black Leaf 40" or Aphine. Large areas of tomatoes should be planted up as they grow without much water and they can be carred for the winter months.

Peppers

Plant out these in rows 20 inches apart some time this month.

Squash, Pumpkins, Etc.

Small mounds well manured may be made up for these six or eight feet apart either way, and three or four seeds may be sown to a mound and watered for a time. Eventually thin out to one or two plants. These will also be useful to put in storage for winter use. Plant the Hubbard, Boston Marrow, Early White Bush Scallop, Vegetable Marrow and Morse's Marrow.

Cucumbers

See that these are sown without delay in mounds as advised for squash. White Spine is a splendid variety as is also Long Green.

Melons

Make up mounds as advised for squash and plant three seeds to a mound: Rocky Ford, Persian, Golden Beauty, Casaba and Burrell's Gem. Also such watermelons as Angeleno and Black Seeded Chilian. Supply these with plenty of water during the first few months.

Artichokes-Asparagus

Artichokes (Globe). These will now require plenty of water as also will the asparagus beds.

Potatoes

There is still time to plant a late crop, such as American Wonder or Oregon Burbank, and those who are anxious to fill their gardens up with something substantial should secure sound seed tubers at once and get busy. Those planted earlier will now need hoeing, and the soil should be carefully drawn around the roots.

Beans

Sow more and more of these at once: Golden Wax, Refugee, Stringless Green Pod and the White Tepary (for dry situations). Cultivate between the rows as they show through and continue to do so.

Celery

See that trenches well manured are prepared for this crop, and the young plants should be ready in a few weeks to set out.

Southern California

Written for California Cultivator By D. F. Reichard

ON a ranch it is too often considered a waste of space and time to grow vegetables for home consumption. This may be true in some instances, but in general the vegetable garden is a very profitable part of the ranch, especially so if one is inclined to give it proper care. One has right at hand, as needed, herbs and other vegetables that one particularly likes, but are not always obtainable on the market.

Now that the dictum has gone out for us all to produce as much as is possible to make up for the great shortage of foodstuffs it is imperative that we put all unoccupied ground into some crop. A vegetable garden for home use should be the first consideration.

There is also a social side to this work. Neighbors are always interested in what each other are doing, and a well kept garden is always attractive. Visitors, especially those from the city, take it as a matter of course that your fruit or berries or peppers or whatever you are specializing in are doing well, but as soon as they get sight of the garden patch they are at once interested and will spend hours

going through it with you, and both of you will find new things to talk about and are better for it.

A few suggestions on the home garden, which is much more diversified than the market garden, may be of use now, although the garden should have been under way several months ago.

The plot should be large enough to produce an ample supply for the family, from 50 x 50 to 200 feet square according to number of persons to be supplied. The ground selected for the garden should be of rich loam soil, easy to work, and be nearly level or with the slope, preferably to the south, of from two to four feet to the 100 feet, so that when irrigating the water will go down the furrows slowly and soak into the ground instead of rushing over the surface and out into the road or elsewhere where it is not needed.

After the ground is decided on then the plan of successive crops should be worked out. It is well to make out a chart for reference when the planning is done. A complete rotation of crops will maintain the richness of the soil and will be a saving in fertilizer, although a certain amount of either commercial or animal fertilizer must be put in each year to keep up fertility.

For the home garden it is always better to have water under pressure so that irrigation can be regulated from hydrants which should be not over 50 feet apart, as it is much cheaper to put in pipe and faucets than to buy hose. Pipe once laid will last a lifetime while hose wears out every few years and has a greater first cost. If you are situated so that your water is not under pressure, then ditch or flume systems will necessarily have to be relied on. By using the flume system you will save at least 25 per cent of the water as well as avoid the washing away of your soil which occurs with the open ditch system. Equip with one-inch to two-inch outlets about two feet apart, having either cork or tin gates. Underground concrete pipe systems are even better than the flume, turnouts being placed at intervals of about 20 feet. When irrigating allow the water to run very slowly down the rows, taking at least an hour to travel 100 feet. This gives the water a chance to soak into the ground and you will not have to irrigate one-third as often as where the water is rushed over the ground.

What is as important as irrigation is cultivation. The handling of the soil after it has been wet either by rains or irrigation cannot be impressed too strongly. As soon as the ground breaks up well without sticking to the cultivator or spade it is in proper condition to work. The whole surface should be gone over with the proper tools until the clods are all broken up. About a home garden one needs a light hoe, rake, shovel, spading fork, Norcross cultivator, five tined manure hook and a hand cultivator, such as Iron Age or Planet Jr., equipped with a plow, cultivator teeth, weed cutters and rakes, and if the garden is large a seeder is practical.

During the month of May our work will be heavier than ordinary. Irrigating will be necessary for practically all growing plants, and that means cultivation and the liberal use of the hoe to get the weeds out of the way. Watch the growing trees to see that they are not developing ill shaped heads. It is well to discontinue the cutting of asparagus this month, especially if the plants are young. Let the shoots grow up to mature plants that the roots may be developing. See that your tomatoes are not getting too wet and that the ground is well worked and pulverized.

The seeds of all varieties of vegetable may be sown this month with success with the exception of peas, turnips, cauliflower and cabbage, except in cool places.

NEXT WEEK

This Month in the ornamental garden, both for Northern and for Southern California, will appear in the next issue of the Cultivator.

HE WILL

Always live within your income,
For there's just this much about it—
If you do not live within it
You will some day live without it.
—Exchange.

FARMERS RUN RAILROAD

There is one railroad in the United States without a single debt and that is run by a bunch of farmers, says the Spokane Chronicle. C. A. Granis is president and George P. Wiley is secretary. They probably aren't known on Wall Street, but in the Big Bend country of Washington they are regular rail magnates.

The line is eight miles long. It was concerning this road that the old railroad story was told—it isn't as long as the Great Northern but is just as wide. The road runs from Waterville to Douglas and meets all of the Great Northern trains at Douglas. The company was organized in 1909 and has been paying 4 per cent regularly on its capitalization of $80,000.

The Delano-McFarland National Farm Loan Association has a membership of 26 who desire to borrow in the aggregate about $70,000. This association is the result of farm bureau activities. All told it is anticipated that Kern County will wish to borrow $600,000 or $700,000 of the federal farm loan board.

These Redwood frame dwellings, at 20th and Mission Streets, were scorched, but refused to burn, thus preventing a further spread of the big San Francisco conflagration of 1906. The telephone poles are also Redwood.

The safest wood you can use

Uncle Sam says, in the United States Forest Service Circular No. 193:

"Redwood resists fire well, and even when ignited burns very slowly. It checks but little when exposed to the sun, and is practically free from resin. These properties make it especially suitable for use in buildings."

Chief Engineer P. H. Shaughnessy of the San Francisco Fire Dept., after 22 years' experience with Redwood, including the big fire of 1906, said:

"ignites much less quickly"—"burns much more slowly"—"more easily extinguished."

Sounds like the kind of wood you should use for the new home, doesn't it? Especially when you add that it *resists rot, will not shrink or warp,* is light in weight, easily worked and suitable for every inside and outside use except fine floors.

California Redwood

Resists fire and rot

Ask for "A Test by Fire" and "California Redwood on the Farm." They're free. We will appreciate receiving the names of your architect, builder and local retail lumber dealer.

CALIFORNIA REDWOOD ASSOCIATION
770 New Call Building, San Francisco

Ask for the Child's Story of the "Big Trees" of California—there's a copy for every child in the nation

Gives any speed you want-instantly

CEDAR RAPIDS SPEED GOVERNOR

—as low as $12.00

Includes line shaft, pulleys and hangers, attached to heavy plank

—the speed governor of a thousand different speeds. Every turn of the hand wheel gives a different speed and each speed is absolutely steady and uniform.

Install it yourself with a screw driver. No figuring pulleys, no chance of installing it wrong for it runs in either direction, attached to the floor, the wall or the ceiling. It's *as cheap as an ordinary line-shaft* with the governor pulley thrown in.

THE Cedar Rapids Speed Governing Line Shaft is as cheap as the average friction-clutch pulley, yet it controls the speed of several pulleys at once without stopping your engine. The engine operates the governor—the governor controls the line-shaft.

The governor absorbs all jerky vibration. The power transmitted is steady and smooth. Runs all machinery at uniform speed. If you own an engine you need the Cedar Rapids Speed Governing Line-Shaft. One man saved enough labor fanning 50 bushels of clover-seed to more than pay for his governor outfit.

Go To Your Dealer and see it. He'll demonstrate it and he'll show you what a profit-producer it will be for you. Get ALL THE FACTS. THEY ARE WORTH KNOWING.

CEDAR RAPIDS FOUNDRY & MACHINE COMPANY
752 Second Street, West
Cedar Rapids - - Iowa

Controls Them All

Cream separators require starting at slow speed. The Speed Governing Line Shaft *makes any separator run smoothly.*

Butter Churning necessitates slowing down the machinery to gather the butter. It regulates this.

Your Grindstone can best be run from a pulley on the Speed Governing Line Shaft.

Lighting plants require regular power without "miss-fire" or "break." Controlled by the Speed Governing Line Shaft.

Your Washing Machine should be operated slowly when washing large pieces. The Governing Line Shaft controls it.

$50 in Cash Prizes

to be awarded July 1st. Present *owners* and *prospective buyers* should write for full particulars.

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ORLAND

JERSEY CATTLE CLUB

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Willowwood Jersey Sale
MAY 17, 1917
Tulare, California

Efficiency Jerseys

We recently sold Jacoba's Emanon 84177, one of the greatest bulls ever brought to California. We now offer for sale saveral of "JAKE'S" daughters having Registry of Merit Records. Our stock possesses blood and breeding which produces butter fat at a low cost of production. Inquirers and visitors invited.

Colusa Butter Co., Colusa, Cal.

ABORTION IN CATTLE

PREVENTED AND CURED PERMANENTLY

YOUR COWS MADE PROMPT, REGULAR BREEDERS BY

STERILOID

STOP LOSING CALVES

TREATMENT: If STERILOID is used at the first sign of abortion the cow will go her full time and have a healthy calf. If your cows or heifers do not come in season, or fail to get with calf, use STERILOID. Cows get with calf after only one treatment. Write today for FREE BOOK. It explains the causes and symptoms of Abortion and tells how to cure Abortion, and make your cows regular, healthy breeders with STERILOID. Also contains letters from breeders who have used STERILOID successfully.

GUARANTEE: We will refund money in every case when STERILOID FAILS to make good. Price $1.00. Mail postpaid, in plain wrapper.

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Requesting your local merchant to stock articles advertised in the California Cultivator helps your town, the advertiser and the Cultivator.

THE JERSEY ENLISTMENT

Continued from Page 507

This young bull carries the blood of the most prominent of Jersey families. He comes from the Ferndale Farm near St. Joseph, Missouri.

The value of Register of Merit testing has been brought home to the breeder on so many occasions that this work has taken a very strong foothold. The prospective purchasers are insisting more and more that the offspring be from a Register of Merit dam. One prominent Jersey breeder remarked just recently that bulls from authentically tested dams are seldom found waiting for a home. This little saying, coming from this man, might well be kept in mind by some of our breeders who are still on the fence.

In the California State Dairy Cow Competition we again find the Jersey in a prominent position. Fern's Silver Ray and Interested Jap's Santa, owned by Mr. F. H. Van Derpoel, of El Centro, and the University of California, at Davis, respectively, are leading the Jersey division with an average of 80 pounds of butterfat per month. Both are being milked and fed under strictly dairy conditions, twice a day.

We need not fear for the Jersey cow in California. The conditions in this state, both climatic and feed conditions, are ideal for the Jersey. On practically her own merits she has made a phenomenal rise to popularity.

Jerseys are today the most talked of and sought for of all the dairy breeds, not only in California, but far and wide over the United States. The Jersey is now appealing more than ever to the business and practical man's point of view.

Eminent's Bess 209719

Worlds champion Jersey cow. Owned by Roycroft Farms, Michigan, 18,782 lbs. 15.6 oz. milk, 962 lbs., 13.6 oz. fat, 1132 lbs., 12 oz. butter one year. World's record for both Jersey and Guernsey breeds.

JERSEYS FOR PRESENT DAY REQUIREMENTS

Written for California Cultivator
By C. L. Hughes

THE watchword today in all of dairydom is known production. The owner of grade and common dairy cows must know the production of each individual cow in his herd throughout a year and then year after year, in order to weed out the boarders, and keep only the profit makers. To this weeding process the agricultural press, the agricultural colleges, and all other agricultural educational agents have lent their support through published facts, practical demonstrations, cow testing associations, and dairy competitions.

After a dairyman knows the production of his herd as established by private tests or by cow testing association records, his next progressive step is to breed better cows than the best he has retained in his herd, and the laws of animal breeding say that he can do this only by using a pure bred sire that will transmit higher production of milk and butterfat. It is at this point that the dairyman must turn to the breeder of pure bred registered dairy cattle for the instrument to further his progress. The breeder of pure bred dairy cattle is enabled to know the production of each individual cow in his herd and to make this production a matter of reliable official public record through the official tests conducted by the various national breed associations and entered by them in their official advanced registers.

In times past, and in possibly a lesser degree today, all breeds of registered dairy cattle have suffered greatly through the fact that some of the greatest cow specimens have lived and died in the hands of some breeder who never took the pains to make an official record of their production. In countless numbers the sons of such great cows have gone to the butcher's block, the quality of their blood unknown, while the absence of the selection established by official testing has also been responsible for the use of thousands of other bulls that should have gone the packing house way.

Possibly no breed has suffered more than the Jersey breed because of the lack of official testing. And this statement is made with the highest admiration for the great world's records that cows of this breed have made, and the high average production shown in the official records of cows of this breed.

There was a time, not so many years ago, when registered Jersey cattle enjoyed an undisputed leadership among the dairy breeds in America, for production records. This naturally created a widespread demand for cattle of this breed, and in the scramble to buy breeding stock buyers fixed their attention on the breed, but neglected to keep in mind the real function of a dairy cow—the production of milk and butter in quantities sufficient to be economical and profitable. As a result, breeders asked and obtained prices for animals with little to recommend them as producers, that could not possibly be obtained today with our more general knowledge of the value of known production in the dairy animal.

All of us know that some animals of every dairy breed are profitable producers, and that their near relatives constituting a breed family are profitable producers. But it is against all the rules of animal breeding and common sense to say that a whole breed is profitable because one cow or a dozen cows of that breed have made known profits.

Facing these demands for known production in dairy animals, it would seem the part of good business on the part of the breeder of registered dairy cattle to prepare to meet the situation by establishing as far as possible the production of all his cows by official testing. It is only under such conditions that the breeder can intelligently talk to the dairyman who wants a bull of known producing blood, or can reasonably expect the best prices for his animals from other breeders.

Today there is a tremendous movement on foot among the Jersey breeders of the United States. There is

PILLING

A necessity for every farmer. Practical, reliable, easy to use. No veterinary experience required. Used and endorsed by leading live stock raisers and milk producers. Manufactured by the largest firm of its kind in the world—backed by 100 years' experience.

CASE NO. 3

CATTLE INSTRUMENTS

This oak case contains the following instruments:

		"Easy to Use" Pilling	
Injection Syringe	$4.50	Teat Dilator	$1.20
Bloat Trocar	1.75	Teat Slitter	1.75
Animal Soap	.30	Teat Opener	.90
Milk Fever Outfit	3.50	Garget Outfit	4.50
Two Bandages	.65	Fever Thermometer	2.40
Three Lead Probes	.90	Sinus, or general syringe	1.50
Two Milk Tubes	1.20	One oak-polished case	1.20

$26.25 VALUE, complete with "Easy to Use" directions for $18 Prepaid

CASE NO. 2

Containing $3.50 Milk Fever Outfit and 8 other "Easy to Use" cattle instruments needed by every dairyman, complete in polished oak case.

$17.85 VALUE, complete with "Easy to Use" directions for $12 Prepaid

Get Our Free Booklet on "Easy to Use" Cattle Instruments.

G. P. PILLING & SON CO., 2234 Arch Street, PHILADELPHIA

nothing spectacular about it, and little noise yet. Go into any particular community where registered Jersey herds are found and at first glance you might not notice anything out of the ordinary, except that Bill Jones and Tom Smith and George Brown have all started to put a few of their cows on official test for entry in the Jersey Register of Merit. But just consider a moment that that same "except" is true throughout practically the breadth of the land, and you get something of an idea of the great result that will be presently made known to the world through the cooperative efforts of all the Bill Joneses and Tom Smiths and George Browns who are breeding and testing Jersey cattle.

This movement is being ably and vigorously directed and aided by the American Jersey Cattle Club, the national organization of Jersey breeders that has gained greatly in strength and renewed energy during the past two years. This great work means that through official records of known production the big profitable producing families within the breed are to be developed and their blood scattered throughout dairydom, and that by the same process the unprofitable families and individuals will be rooted out and their blood cut off from entry into our dairy herds. Under such cooperative effort the Jersey breed as never before is going to be able to meet the demand of the dairymen for known production and to gain for itself its legitimate share of places on the thousands of American farms that will be added to the list of dairy farms within the next few years.

A WESTERN QUEEN AND WESTERN KING GO EAST

Written for California Cultivator
By C. A. Briggs

F. B. Armstrong of the Oak Grove Dairy Farm has just sold that splendid Berkshire sow, Peggy Queen 7th, to the Hamilton Farms, Newark, New Jersey. "Peggy" weighs 565 pounds in her working clothes and looked good enough to J. W. Clapp, the Berkshire manager for the big eastern breeding farm, to give her a free ride across the continent. Mr. Clapp is here to take back another of California's best, Grand Leader II, A. B. Humphrey's Panama-Pacific grand champion, and 20 of his get that were recently purchased by Milton R. Thomas of Douglassville, Pennsylvania, the boar bringing the handsome price of $3000. California breeders can well feel good at this evidence that the East, long established in the breeding game, is recognizing the worth of the stock bred in the West and is coming after good ones. Exchange of fine animals will equally benefit both sections.

FIELD NOTES FROM THE LIVE STOCK MEN

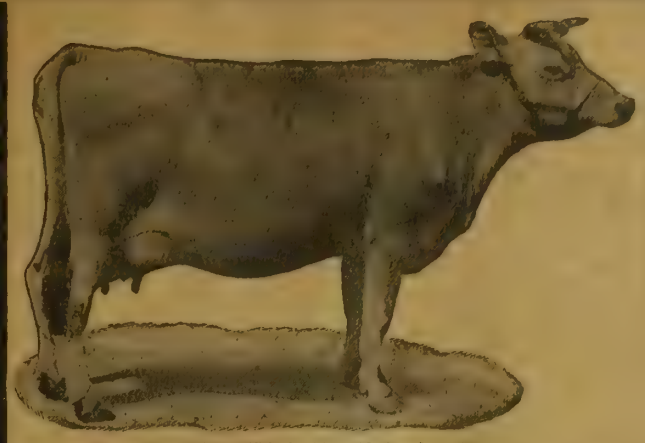
W. D. Trewhitt has recently sold a boar to E. W. Smalley.

Arlington M. Smith reports sale of a sow sired by Star Leader to H. H. Fowler and of five gilts to E. B. McFarland.

W. S. Guilford has recently purchased from the Oak Grove Dairy Farm five fall of 1916 open gilts for the Superior California Farm Lands Company.

Geo. A. Smith reports sales of registered Poland-Chinas: N. A. Cairns, 31 gilts; J. S. Bateman, three bred sows; C. H. Powers, sow and litter of seven pigs; F. J. Martin, two bred gilts and one boar; Rose Land Company, two bred gilts; R. C. Wilkins, one bred gilt and one boar; R. A. Steele, one boar; John Imbach, one bred gilt; R. E. Smith, gilt; A. A. Pluth, gilt; R. Kern & Son, one boar.

When properly finished the alfalfa grazed, barley fed hog makes a firmer, better flavored piece of bacon than the corn-fed hogs of the middle west. They do not yield as high a percentage in weight but this is not a disadvantage. Such a hog, however, must be fed grain from the time he is big enough to commence eating it until he is sent to the shambles. For five months of his life he should be allowed to graze and have from one and a half to two and a half pounds of grain per day. Then for 30 to 40 days he should be put up in a pen and fed all the grain he will eat.



DAISY WITCH, No. 19 In Catalog

PHILADELPHIA'S GLORY ZELLA, No. 20 In Catalog

Deep-Bodied JERSEYS

Depth of body, denoting capacity to handle feed and roominess to carry a sturdy calf, is one of the big things the keen judge of dairy cows looks for in his ideal cow.

Depth of body is one of the outstanding characteristics of Willowwood Herd of Registered Jerseys, owned by Mr. C. G. McFarland, Tulare, Cal., and they belong to families of great, deep-bodied Jerseys.

Their ancestors are the famous producers and world's record makers of the Jersey breed, and in this herd they have carried out the high production of milk and butter to which they are so richly bred in form and family inheritance.

Jersey breeders in America are today alive as never before to the value of Register of Merit records, and cows with Register of Merit records and sons and daughters of Register of Merit cows are in unprecedented demand, for the successful dairyman of today insists upon known production behind the sire of his future dairy cows.

With this demand in evidence, it is only upon rare occasions that an opportunity is afforded for the purchase of high class Register of Merit animals, but such a rare opportunity will be afforded when we sell at public auction, absolutely without reserve or limit, the entire

WILLOWWOOD HERD

60 REGISTERED JERSEYS 60

Owned by Mr. C. G. McFarland

TULARE, CALIFORNIA

Thursday, May 17, 1917

The sale will be held on Mr. McFarland's new farm, 12 miles from Tulare, 3 miles from Waukena, Tulare County, California.

It is entirely conservative to state that this is the greatest offering of high class registered Jerseys ever made at public auction in the West, and one of the choicest herds ever offerd for sale in the United States. The offering will include

13 REGISTER OF MERIT COWS with records averaging 516 pounds butter in one year, including the records of 2-year-olds and several under mature age.

3 COWS NOW ON OFFICIAL TEST, one of which will finish before sale, one in July, and the other about six months on test.

16 DAUGHTERS OF REGISTER OF MERIT COWS, the average Register of Merit records of the dams being 502 pounds 1 ounce of 85% butter in one year, including the records of several 2-year-olds and others under mature age.

16 COWS AND HEIFERS in calf to a half brother to Rosaire's Olga Lad, who has 19 Register of Merit Daughters averaging 526 pounds 3 ounces of 85% butter in one year, ages from yearlings up.

4 HEIFERS AND COWS in calf to a son of a cow with a Register of Merit record of 592 pounds 3 ounces 85% butter in one year.

Bulls

This sale is a most unusual opportunity for the purchase of a good young bull of splendid type and backed by high Register of Merit records. Not only will dairymen be able to secure bulls of known producing ancestry, but the owners of registered herds will find several that are qualified in every way to head high class breeding herds. Among those to be sold

A Half Brother to Rosaire's Olga Lad

(mentioned above) who is without doubt one of the very great sires of the breed today as measured by the production of his near ancestors and by the production of his daughters. The dam of this bull is 50% the same blood as Gertie of Glynllyn 2nd, Register of Merit 744 pounds 4 ounces 85% butter in one year, former world's 3-year-old record.

8 Grand Young Bulls

All out of Register of Merit dams, and the dams of the eight average 526 pounds 1 ounce of 85% butter in one year.

Heifer Calves

Since the catalog went to the printer there have been eight choice heifer calves, out of some of the great cows in the herd, added to the herd, and these will be sold.

Plan to be at this sale. It will be a milestone on the road to successful Jersey breeding for more than one man.

Every animal over six months of age tuberculin tested. Catalog now ready. A copy free on request.

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The Jersey

Written for California Cultivator By W. P. McClaskey, Secretary Jersey Breeders' Association of Southern California

FROM the modest beginning of a few cows scattered among those who could afford the luxury of a cow imported from across the seas, the Jersey has grown to over half a million registered animals in the short space of a little over 60 years. Added to these are almost a countless number of grades and scrubs that carry the strains of the blood but which could not be in any registry. This is not a registry with here and there a shining light, but is a registry containing the names of thousands of great producers of milk and butterfat, for the Jersey is preeminently a dairy cow, and the uniformity with which this type and character are transmitted from generation to generation is truly marvelous. The Jersey is a wonderful little milk machine, and the persistency with which she continues her work from month to month makes her a joy to her owner. There is no fear that in four or five months her milking period will be over nor do you have fears that some change of rations or care will throw her off her feed and milk. It matters little what the feed or if sometimes she is neglected, she seems with almost human intelligence to feel that it is her duty to give milk and she proceeds to fulfill that duty with persistent regularity.

If it is milk and butter one wants the Jersey is there with the goods. To give milk is her mission.

The Jersey is not a beef cow; the Shorthorn takes that place. We make no claim of a dual purpose cow. She is beautiful, gentle to handle, a fine family cow and unsurpassed for the dairy. Her milk is high colored, looks good, and the cream that makes milk worth while for food is always there. She is uniformly a high tester; the low butterfat cow is the exception. More and more the consumer is demanding a milk that has more color, and he wants to see the cream in the neck of the bottle.

California, more than any state of the Union, is a state of diversified farming. We grow everything grown by the other states and many things peculiar to California alone. The possibilities of the state as a dairy state did not appeal to us until within recent years. There were so many things one could do to make a living which did not require the time and patience that dairying does. There were two seasons, wet and dry. There was no profit in cows which gave milk while the rains made pasture and went dry when they ceased and pasture dried up, but since the advent of extensive irrigation, the introduction of alfalfa with its numerous crops. dairying could be made profitable the year round.

The coast farmer is an alert business man. It did not take him long to see that live stock and dairying was the backbone of farming in all that great Middle West country. To gain the greatest profit from the soil its products must be consumed on the ranch. Dairying points a way to the profitable use of the products of the soil. It is marvelous how much of products of the farm can be made palatable to the cow.

The mildness of our climate makes it most fitting to the Jersey. She thrives here and does her best. Her value as a dairy cow will be more and more apparent as feeds continue to advance in price as they have in the past few years. No dairy animal can more economically convert the products of the farm into milk and butterfat than the Jersey.

Little by little the Jersey is finding her way into California. There have been some herds here for more than 30 years, but they have been comparatively unknown in a territory so large as our state. The Jersey breeder has not been making much noise, always proud of his stock he has let them speak for themselves by their performance at the milk pail, but during the past year the Jersey breeders have been getting together in little groups here and there and organizing into associations, each with a feeling that it is time for the Jersey to come to her own in California. It should be made known how well this state is adapted to the Jersey breed, and how well the Jersey is adapted to the conditions of California and how splendidly she performs when given an opportunity. We are surprised at the number of owners and breeders of pure bred Jerseys and at the number of cows in the state. They are found from the extreme north to the southeast corner, Imperial Valley, but when the length and breadth of the state is taken into consideration they are comparatively few. The cow with some marks of the breed is far from being a pure bred Jersey.

The lovers of the breed are legion. All cannot own them. The cost of pure bred stock has been prohibitive to many, and grading up by the use of a pure bred sire seems a long way around to the many. But there is a

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Head of the herd of O. A. Ames, Stanislaus County.

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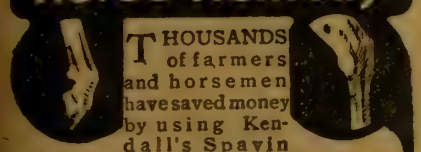

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C. L. HUGHES, Sales Mgr., SACRAMENTO, CAL.

Col. Ben A. Rhoades, Auctioneer, Los Angeles

real pleasure in watching the growth and development of a dairy herd. Almost invariably dairymen tell you that their best cows are heifers they have raised themselves from their best producing cows. They take great pleasure in the development of those heifers and cows, they expect much of them, and are less often disappointed than in stock they get that is sold on the open market. How much is this pleasure and profit enhanced when they know that in these heifers are the blood of a 200-year-old ancestry, and that the chances of her paying her board and a profit besides are many fold greater than in the offspring of scrub stock.

The slogan of the Jersey breeders should be "Watch the growth of the Jersey breed in California in the next ten years." It will be great, because this preeminent little dairy cow by her own performances will make her own way and win by merit alone.

LIPSA DECLARES A DIVIDEND

NEW champion Jerseys are today a frequent occurrence. This is bound to be the case, for Jersey breeders are not only breeding with an eye to the future, but are officially testing. With 3540 cows on test in 449 herds scattered throughout 47 states, no record can remain long unbroken.

Ohio has a new champion Jersey, Lipsa 323967, whose record of 11,509.3 pounds milk, and 684.32 pounds butterfat not only sets a new standard for her class, the junior two-year-old, but teaches a lesson in profitable milk production.

Lipsa, freshening with her first calf, started on test at the age of two years and five months and weighed 673 pounds. On the day she finished her record, she tipped the scales at 884 pounds, a gain of 211 pounds during her test period. This significant gain should be borne in mind when studying her feed record.

The value of an official record insofar as it concerns the cow and her progeny has never been questioned. But it has often been said that the milk and butterfat produced by a cow in a record year was made at great expense and was unprofitable. Lipsa's record refutes this absolutely.

An accurate record of her feed and its cost was kept throughout the test. This record shows that Lispa consumed $134.54 in feedstuffs, which includes grain, hay, ensilage and roots. The feed record is given her in full.

Feed	Lbs.	Cost Per ton	Cost
Bran	779.5	$28.20	$10.99
Corn meal	473.0	37.50	8.86
Gluten	1021.0	30.65	15.64
Cottonseed Meal	370.5	39.36	7.29
Ground Oats	859.0	35.14	15.09
Schumacher	111.0	27.25	1.52
Oil Meal	279.5	43.40	6.05
Peanut Meal	52.0	40.00	1.04
Hay	4074.0	15.00	30.56
Ensilage	3250.0	6.00	9.75
Beets	55.5	* .50	27.75
		Total	$134.54

*Per bushel.

Lipsa's production of milk sold by her owner at ten cents per quart brought $541.60. Deducting the $134.54, cost of her feed, she returned $407.06 over and above her feed cost. Lipsa also presented her owner with a heifer calf, which is not for sale at any price, and constitutes an "extra dividend."

The Ohio state university supervised Lipsa's test, having sent its testers to her owner's farm 22 times during the year. She was also tested on one occasion by the head of the Register of Merit department of the A. J. C. C. Her record showed remarkable persistency and regularity, the best month's yield being 61.97 pounds fat and the yield of the twelfth month in lactation 58.05 pounds fat.

Lipsa is sired by Hood Farm Torono 35th and out of Alexie 201585. She is owned and was tested by R. L. Pike of Fairview Farm, Geneva, Ohio, and was bred by Hon. E. Stevens Henry, Rockville, Connecticut.

Alfalfa makes the best quality of hay if it is cut just as it is coming into bloom, say when it is one-fourth in blossom. It will be more digestible if cut at this period and there will be less loss in leaves than if cut later. If cut earlier there will be a reduction in yield.

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SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three-year-olds.

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HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent Santa Anita, Cal.

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Berkshire Hogs—Milking Shorthorns
Breeding Stock For Sale
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SOPHIE'S BERTHA

"LIKE begets like or the likeness of some ancestor." This great law of breeding is usually quoted at farmer gatherings and dairy meetings by experts to drive home to breeders the fact that, in order to have the best kind of dairy cows, one must mate animals of the best dairy strains. A remarkable instance of the application of this law is the case of Sophie's Bertha.

Sophie's Bertha 313238 is now world's champion junior three-year-old Jersey, having produced 14,954.2 pounds milk, 829.54 pounds fat on a year's test started at three years five months of age. Her dam, Lass 66th of Hood Farm 271896, is the senior three-year-old champion, and her sire's dam, Sophie 19th of Hood Farm, is the breed's highest producer, a champion out of a champion, and by the son of a champion.

Sophie's Bertha's pedigree shows production in every line. Her sire, Pogis 99th of Hood Farm 94502, has 24 daughters in the Register of Merit, two of them champions, (Sophie's Bertha and Sophie's Adora 299594, junior four-year-old, 15,852.2 pounds of milk, 888.0 pounds of fat). Her dam, Lass 66th of Hood Farm, after making a splendid two-year-old record, broke the world's record by producing 17,993.7 pounds of milk, 910.6 pounds of fat. For grandparents "Bertha" has such animals as Hood Farm Pogis 9th 55552, a champion in the show ring, son of the famous Figgis 76106 and sire of 78 daughters and 14 sons in the Register of Merit; Sophie 19th of Hood Farm, the champion of champions, and Hood Farm Torono 60326, a sire of 73 daughters in the Register of Merit, seven of which are ex-breed champions and one a present world's champion. Sophie's Bertha surely has a grand array of ancestors, and "blood will tell."

Sophie's Bertha is not unknown to the world's dairymen, for as a two-year-old she won a gold medal and second place in her class, with a production of 13,242.8 pounds milk, 771.1 pounds fat. The summary of her work is as follows:

Age Years-Months	Milk Lbs.	Fat Lbs.	Butter 85% Lbs.	Butter 80% Lbs.
2—2	13,242.8	771.1	907.1	963.9
3—5	14.954.2	829.5	975.9	1,036.9
Total	28,197:0	1,600.6	1,883.0	2,000.8

Over 2000 pounds of 80 per cent butter in the first two lactations is production extraordinary.

Sophie's Bertha is famous for other things besides her production and ancestry. She was sold at the Hood Farm sale, in May, 1916, to Ayredale Stock Farm for $5000, which is the highest price ever paid at an auction sale for an American bred Jersey.

In butterfat production the new champion exceeds the old, Goldie's Nehalem Beauty 283330, by almost 75 pounds and she advances the milk record of the class, which was held by Lucky Farce 298177, with 14,184.8 pounds, almost 800 pounds.

Sophie's Bertha was bred by Mr. C. I. Hood, Lowell, Massachusetts, who also bred her sire, dam and grandsires. She is now owned by Ayredale Stock Farm, Bangor, Maine.

Youngster on University Farm
High bred Jersey of the University Farm School at Davis.

GRIND THE COARSER FEEDS

The grinder, cutter and shredder of the coarse stock feeds are gradually forcing their way into the hands of dairymen and live stock men generally.

Chas. S. Hardy, San Diego County, has the most unique and probably the most up-to-date feeding plant to be found anywhere in the United States. He has his plant equipped with a grinding machine of large capacity. This machine grinds hay, bean straw, alfalfa or any substance that is fit for feed. It grinds the material down to a 5-16 size, and from the machine that grinds the material it is blown by a blower of a cyclone collector which holds all of the good material, and the device is arranged so that the dust is separated from the feed. Then when the ground product is delivered from the bottom of the cyclone collector it is dampened with an ordinary garden sprinkler.

Ground feed will absorb its weight in water; that is, if you have ten pounds of ground material you can absorb ten pounds of water in this without having any water to drain off. This moist food is allowed to stand for 12 hours. Twelve hours it seems, develops sugar and is just the right length of time to let it stand. Then it is fed to the cattle and sheep in stalls. There is no waste.

MARCH RECORD TULARE COW TESTING ASSOCIATION

By Charles Klint, Tester

In answer to your letter we are sending you our roll of honor for the past month, giving owner, name of cow, breed, pounds milk, test, pounds fat:

Ralph Smith, No. 23, H.-F., 1914, 4.6, 88.04.

W. J. Higdon, Thelma, H.-F., 2334, 3.6, 84.02; Paula, H.-F., 2243, 3.3, 74.02; Pearl, H.-F., 2097, 3, 62.91; Leda, H.-F., 2355, 2.8, 65.74; Jewel, H.-F., 2022, 2.5, 50.55; Acadia, G., 1409, 4.8, 67.58; Queen, G., 1559, 4.2, 65.48; Amy, G., 1290, 4.6, 59.34.

A. S. Legueira, No. 12 H.-F., 1437, 4.4, 63.23.

A. A. Jenkins, Exile, J., 1392, 4.6, 64.03.

P. L. Hoyt, Lineback, H.-F., 1926, 3.1, 59.71; Star, S., 1125, 4.6, 51.75.

Chicago Ranch Co., 61, H.-F., 1416, 4.2, 59.47; 4, S., 1158, 4.7, 54.43; 56, H.-F., 1266, 4.1, 51.91.

J. F. Smith, Daisy, H.-F., 1659, 3.4, 56.41.

Geo. Beck, Kiz, S., 1467, 3.8, 55.75.

E. M. Cate, 45, H.-F., 1050, 5.2, 54.60.

E. L. Thompson, 3, H.-F., 1872, 3, 56.16; 20, H.-F., 1536, 3.4, 52.22.

W. A. Jenkins, Stub, J., 1113, 4.8, 53.42.

H. Cereney, Edison, H.-F., 1224, 4.1, 50.18.

These are the picked cows producing 50 pounds of fat or over in a period of 30 days. Our association has grown steadily and made a 100 per cent gain during the past year. We now have around 1000 cows on test.

UNCLE EBEN

"Many a time," said Uncle Eben, "de bes' part of de sermon is over after de text has been read."

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Gertie's Lad; Gertie's Son; Melia's Fox
Service bulls and heifers from Registry of Merit cows of strong individuality and best lines of blood and breeding for sale. For information, prices and pedigrees, write to
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Read the ads of Jersey breeders in this paper—write them for prices. Send for our free book "Story of the Jersey", and plan now to build a herd you'll be proud of.

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Registered young bulls from best families. Some of serviceable age.

REGISTERED BERKSHIRE PIGS

Masterpiece, Longfellow and Robin Hood Strains. Fine individuals of both sexes—we pay registration fee.

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It restores the breeding functions; corrects the irregularity of cows that do not come in season; removes the irritation and restores the organs to normal condition in cows that are constantly in season. We will gladly mail you more information and statements from breeders who have used the Powder with success. Order today. Mention this paper. Prices by mail, $1.15, $2.75 or $5.00. Injection Tube 90c.; with $5.00 order, 75c.
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My Herd is all Register of Merit Stock---Averages as High in Butterfat as any Herd on the Coast

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BREED BETTER

FROM addresses by Judge Shields and Prof. True before the annual meeting of the Amador-El Dorado Live Stock Association at Placerville on April 7 we quote much valuable information :

Judge Peter J. Shields

One of the most deplorable conditions of the great war today is the death of the great number of livestock. Think of the loss of the priceless animals, the fine Belgian horse, the cattle of Germany, and the destruction of northern France where some of the best cattle of the world were raised.

In the United States the big range business is rapidy breaking up, and men with smaller numbers of cattle are taking their places. You are not going to conduct your business as your fathers did. Each generation is going to stand on the foundation of what has gone before. Their conditions were vastly different from yours. Your fathers had to make the roads, find the ranges, and pastures. You have the small ranges, good roads, and closer markets.

There is less actual work on the range for you, but more head work. There will be less bronco busting, which was at best, an expensive pastime. You are confronted with different conditions.

There are many problems for you to work out that will better the industry. There is much work in the reseeding and renewing of the pasture grasses in the high mountains. Thoughtful men have drained a little pice of land and planted sweet grass in place of the sour grass. Clear out the encroaching tamaracks that are taking the place of feed for another cow.

Increase the production of the foot hill ranges. Think what it will mean to you to put on an extra pound of flesh on an animal.

The big thing today is to breed better animals. The animals are not as high bred as they should be. You are breeding cattle today such as we bred 100 years ago. Why do you stay back? The world is going ahead. The purer the animals you breed, the better the result.

When you are holding up your herd, they are holding you up. Your herd is a judge of your manhood. If you do not like the looks of your cattle, change your breeding.

You do not know what you may be called upon to do in the coming months when our country is at war. Your patriotic duty at the present time is to carry on your business so that there will be a greater and better food supply for the nation.

* * *

Prof. Gordon H. True of the University Farm at Davis, spoke first of correspondence with officers of the diffent cattlemen's associations of the state with reference to sending representatives to Davis during "Farmers' Week," beginning Tuesday, May 26, and ending June 1, when there will be a program of special interest to persons running range cattle on the reserve. Continuing, he said:

Prof. Gordon H. True

Stock are being better bred today than the old stock. I noticed particularly the fine stock of Modoc and Lassen Counties. They would bring high prices on an eastern market. These men have been taking advantage of the times, and using only pure bred bulls on their range and the stock shows a decided advantage.

With the high price of beef at 10 cents a pound, the buyers are more discriminating in their buying and are passing over the poorer classes of stock. We must do the very best we can for the improving of the livestock.

In calling for men for the army the expert farmer will be exempt from draft as a large food supply will be greatly needed. Put our line of work in line with the times and improve our business so that the supply will be the very best, not only for the army but for the people at large.

The time has passed for immense ranges as well as large numbers of range stock. The mountains of California and the western states are bound to be range country, but there is no reason why we should do our cattle business in the old Texas way.

Continued on Page 523

A Grandson of

Prince Gelsche Walker

out of a 34 Pound Dam

Here is a real herd header. His sire is Prince Aralia Walker, son of Prince Gelsche Walker and Aralia De Kol 3d, a 28-pound daughter of Aralia De Kol, the former world's record cow. His dam is the great young cow, Gerben Abbekerk Maid, who dropped five calves, all of which are living, before she was 6 years old, and made a 30-pound record and a 34-pound record within 12 months. She is a splendid individual and will be reasonably sure to increase her record at next calving. This bull is only one of the many features of the sale we will hold for Stalder Bros. at their

ROSAMOND FARM

Riverside, California

TUESDAY, MAY 22, 1917

When the total offering will consist of

60 Registered Holstein Cows, Heifers and Bulls

16 Registered Percheron Stallions, Mares and Colts

60 Grade Holstein and Jersey Heifers

The offering of registered Holstein-Friesian cows and heifers will be of unusually high quality, including

13 A. R. O. COWS AND HEIFERS WITH RECORDS UP TO 28.07 POUNDS BUTTER IN 7 DAYS.

15 DAUGHTERS OF A 28-POUND SON OF PRINCE GELSCHE WALKER, sire of the California champion junior 4-year-old Lady Hiske Walker, 34.24 pounds butter in 7 days.

20 SPLENDIDLY BRED HEIFERS AND COWS in calf to a 34-pound grandson of King of the Pontiacs.

Bulls

Besides the great young fellow mentioned at the beginning of this announcement, there will be sold an extra choice lot of young bulls. One of them is a grandson of Prince Gelsche Walker and out of a 28.91-pound cow. Five more are by a 34-pound sire, out of good dams, and a fine bunch of individuals.

Everything over six months tuberculin tested.

Registered Percheron Horses

Horses will be horses for years to come, and the man who breeds and owns the best will reap the benefits according to the excellence of his stock. Everything points to the greatest demand for Percherons in the history of the world. The offering of registered Percherons carries the best blood of the breed, and in it are young stallions that will make great sires; brood mares that are proven great dams; fillies that will develop into great brood mares.

At the conclusion of the sale of registered stock we will sell for Stalder Bros.

60 High Grade Holstein and Jersey Heifers

a desirable lot of dairy stock that dairymen who are looking for good young stock will find satisfactory.

Sale will be held on Stalder Bros.' Rosamond Farm, 13 miles west of Riverside, 3½ miles south of Wineville, California, beginning promptly at 9 a. m., Tuesday, May 22, 1917. Parties arriving at Riverside by train will find free conveyance to the sale at Mission Inn Garage.

Catalog now ready. A copy free on request.

Sale under management of

California Breeders' Sales and Pedigree Company

C. L. HUGHES, Sales Manager
Sacramento, California

Auctioneer: COL. BEN A. RHOADES, Los Angeles

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When B-K the POWERFUL disinfectant (NOT A POISON) is worth from two to seven times as much on the basis of germ-killing strength alone—and costs only a trifle more? Consider that B-K is powerful yet not a poison; that it is clear and clean as water and as easy to use. Then you will understand why it is entirely in a class by itself as a farm disinfectant. Anyone can safely use B-K for spraying barns and stock—hog pens and poultry houses—for dipping birds and stock—for mixing in drinking water through which contagious diseases are spread. You should use B-K regularly. If your dealer does not sell it—send us his name. Dealers Wanted in Every Town

Awarded Gold Medal Pan.-Pac. Exposition.

FREE BULLETINS—Send for complete information—"trial offer" and bulletins on Farm Disinfecting—Contagious Abortion—Calf Scours, Hog Sanitation or Poultry Raising.

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3106 Washington Bldg.,
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TREES

For Sale — Washington and Thomson Navels, Valencias, Seedless Grapefruit, Eureka, Lisbon, Villa Franca and Seedless Lemon, Harman Avocados. Buds were selected from the best bearing trees and will yield bumper crops. Also 40,000 Mission and Manzanillo Olives. The above stock is growing in Rialto, Whittier, Glendora and Fallbrook. Budding cloth 30c yard, post paid. No frost damage. We solicit your patronage. Prompt replies to inquiries. Cyrus W. Wilhite, P. O. Box 164, Glendora, Cal. Phone 303.

FOR SALE
2000 Valencia trees, 1 year old.
8000 Villa Franca trees, 2 years old.
3000 Washington Navel trees, 2 years old.
1000 Eureka lemon trees, 2 years old.
All carefully selected fruit buds on sour stock roots.
John Shingler, Upland, Cal.

Citrus Trees, 7 kinds, at "live and let live" prices. Stock that will bear fruit. No high priced reputation charged for. Why pay a dollar for something you don't get? A few thousand left. No culls. Come or write B. C. Dodson, Glendora, Cal.

By Far the Lowest Priced means of reaching a buyer for what you have to sell is through classified advertisements in California Cultivator. The cost is only 3 cents per word per issue, with a minimum of 35 cents.

Citrus Trees—All leading varieties. Large line, Lisbon and Villa Franca Lemon and Washington Navel trees. All first class and clean. Special prices to dealers or in carload lots to growers. Randall Bros.' Nurseries Co., Whittier, Cal.

For Sale Citrus Trees—Valencia, Navels, Grapefruit, Seedless Lemon, Villa Franca and Eureka; also Manzanillo olive and walnut trees. W. W. Burns, 631 Security Bldg., Los Angeles. F-3110.

20,000 Valencia and Washington Navel orange trees, some lemons, 3 years old, at a bargain. Inquire No. 2116 Cedar St., West Alhambra, Cal. Telephone Alhambra 332-R.

For Sale—6000 fine thrifty two-year-old Lisbon lemon trees. Bud selection the best. Address Chas. Story, Rivera, Cal. Phone Whittier 4721.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

For Sale—All kinds citrus nursery stock. 1-year buds, fine roots. Y. Yamaguchi, Box 574, Phone Sunset 470R Upland, 10th St. and Cucamonga Ave., Upland.

Valencias, one and three years old. Eureka lemons, three years old. Selected stock. May A. Miller, Glendora, Cal.

For Sale—Sour orange seed bed stock. W. B. Richards, 335 N. Park Ave., Pomona, Cal. Phone Pomona 6302.

Budded Avocados—All leading varieties. Address Mather's Avorado Nursery, 137 N. Fair Oaks Ave., Pasadena, Cal.

Citrus Trees—All kinds, any quantity. Butler's Morning Side Nursery, Lamanda Park, Cal.

For Sale—1600 very choice Valencia trees on sour stock. A. O. Hayes, San Dimas, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Olives—Large stock of Mission, Manzanillo and Ascolano olives. No scale, no defoliation. C. E. Moyer, Hemet, Cal.

Quality Trees—Prune trees 10c each. Cash Nurseries, Sebastopol, Cal.

WANTED

Wanted—Man in each California county to represent established California company. Should have rig or auto to get around. Good pay and several weeks' work to right parties. Address J. H Yetter, Sales Department, 810 Santa Marina Building, 112 Market St., San Francisco, Cal.

One of the Most perplexing problems to farmers and ranchers is that of help. A small liner ad in California Cultivator is the quickest and easiest means of securing farm help.

Wanted by Practical Man—Pruning and budding of citrus trees. Gummed trees doctored. All work guaranteed. J. W. Woodworth, Lemon Grove.

Wanted—Second hand tread mill to use in exercising a bull. Power attachment not necessary. Box 175, Holtville, Cal.

Wanted—Sweet Potato Plants by Imperial Valley Nursery & Seed House, El Centro, Cal.

Wanted—Sweet potato plants in quantity. State varieties and price per 1000. Park Hill Nursery, Hemet, Cal.

AGRICULTURAL IMPLEMENTS

Large Assortment slightly used and agents' sample plows, harrows, cultivators, wagons. Call and see them before buying. Save 50 per cent on some. Four floors. Largest stock. Arnott & Company, Ranchers' Supply House, 112 to 118 South Los Angeles St., Los Angeles.

New Bull Tractor 10-20 H. P. Only $600. Guaranteed perfect condition. Having leased my ranch this is a chance to secure good money-saving tractor cheap. Walters, 1547 Manhattan Place, Los Angeles.

FOR EXCHANGE

For Exchange—My southeast Missouri farm for Southern California property. Well improved; 200 acres; four miles from county seat. Send complete description of what you have and value of same and I will give full particulars. Jno. P. Robertson (owner), Doniphan, Missouri.

HOGS

Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

Make Big Money with our famous Whitten Ranch Big Type Poland-China. Prolific breeders and profitable feeders. Grow rapidly, fatten quickly. Top the market at 225 lbs. in six months. Make greatest profit for feed consumed. Prices reasonable; satisfaction guaranteed. Send for free illustrated book, "Hogs for Profit". Finest ever issued. Packed with valuable information; tells how to become successful. Ranch in Tulare County, but address owner, R. H. Whitten, 610B Security Building, Los Angeles.

The Billiken Herd of Chester Whites. The type that is ready for the market in 7 months or less. Sold out of bred gilts and service boars. Three open gilts, show prospects to offer. Some young stock of last October farrow, as follows: 18 sow pigs and 8 boar pigs. These are from 6 different litters and 3 different sires. Write for description and prices. C. B. Cunningham, Mills, Cal.

Large Number of excellent young boars ready for immediate service. Weanlings of either sex. Sired by Joker, first prize boar at Wisconsin State Fair 1915. Sows and gilts, sired by Iowa Wonder and bred to Joker and Sunnydale's Chief. For prices and further information write to Geo. A. Smith, Corcoran, Cal.

Cholera-Immune Berkshires. A dandy 750-lb. son of Star Value, $75. Sons of above ready for service $35. September gilts $30 each. November Ames Rival boars $25 to $30. 3 months pigs $15 each. All bargains. All registered. Order now and get choice. W. H. WAUGH, Riverside, Cal.

Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P.P.I.E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

Superba, World's Grand Champion Poland-China boar and one of the greatest sires of the breed. Spring boars ready for service, also few sows bred to this noted sire, reasonably cheap. Rough's Greenfields, Arlington Sta., Riverside, Cal.

Duroc-Jerseys—Finest herd of brood sows on the coast, bred to and sired by the best boars in the world. Peters, Lamson & Walker, breeders for Fontana Land Co., Devore and Fontana, Cal.

Crawshaw's California Chinas are prolific and profitable. Weanlings $15.00, boars $25.00. Dr. J. A. Crawshaw, Hanford, Cal.

Poland-China Swine Recorded. Stock for sale at all times. We please you or refund your money. W. A. Young, Lodi, Cal.

Choice Boar Pigs for Sale. Sired by Superba 220620, champion Poland boar at San Francisco. Prices right. C. R. Hanna, Riverside, Cal.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, Cal.

Cholera Immune Duroc-Jerseys of the large type. Bred for show and utility. Derryfield Farm, I.O.O.F. Temple, Sacramento.

Rancho Rubius Durocs all sold except a few extra good July and September gilts. Write for prices. Elmer Lamb, Ceres, Cal.

One Large and two medium type boars, extra choice, 9 and 10 months old. W. Bernstein Ranch, L. C. Trewhitt, Mgr., Hanford, Cal.

Carruthers' Farm Berkshire Hogs. Our herd won Premier Exhibitor prize at the P. P. I. E. Exposition. Mayfield, Cal.

Duroc-Jersey—Sow and boar pigs from registered stock. Low prices. Delta Farm and Livestock Co., Colton, Cal.

Berkshires—Two hundred pounds at six months. Ray C. Hannan, Corning, Cal.

Durocs—A few gilts of exceptional quality. H. E. Boudier, Napa, Cal.

Poland-Chinas—A few good breeding boars. S. F. Williams, Orland, Cal.

Big Type Durocs—Quick maturing, easy keeping. F. M. Johnson, Napa, Cal.

ESSEX

Little Black Essex—New crop nearly ripe. Supply very limited. L. W. Millsap, Yolo, Cal.

BEE SUPPLIES

For Sale—150 bee hives, little used, 10-frame, finely equipped. Will take cash or exchange for honey. James McKee, Riverside, Cal.

For Sale—175 to 250 colonies Italian bees with extra equipment; in eight-frame hives; can remain in present location if desired. Geo. A. Sill, Watsonville, Cal.

Beekeepers' Supplies — Descriptive catalogue free. Alliso Apiary Co., Glendale, Cal.

FARMS WANTED

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

DOGS

For Sale—One pure bred Russian Wolf Hound, female, 2 years old. Mrs. E. Rogers, Neenach, Cal.

LIVE STOCK

For Sale—25 gentle young milch goats, fresh and coming fresh, bred to the following thoroughbred Toggenburg bucks, sired by Chieftain, Paul Tamarix, Prince Bismarck, America's best. Bucks for sale or rent; service fee $3. Take dry goats or chickens in exchange. Goats delivered anywhere. CARL P. SHEDDAN, 4509 Central, Los Angeles.

Butte City Shorthorns, Shropshires, Berkshires and Ponies. Stock of all ages for sale. Can supply one or a carload. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., Cal.

At Last the Perfect Silo—the Stay Round. No hoops, no bolts. No experiments. Any one can erect. Close price. Address D. O. Lively, 125 Hobart Bldg., San Francisco.

Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco, manufacturers of Calf Meal, Balanced Dairy Feed, Balanced Hog Feed. Write for samples.

Registered Shires — Blackhawk Stock Ranch. Importers and Breeders. Easton & Ward, Burlingame, Cal.

CATTLE

For Sale—From 1 to 70 extra fine, straight, well marked, light colored, registered Holstein heifers, from 8 to 20 months old. Those old enough are being bred to a first prize son of Prince Gelsche Walker, whose dam has a high yearly record. Some of these heifers are sired by bulls whose dams have from 35 to 37-pound records. They carry the very best blood of the breed and are good enough for any herd, anywhere. Prices to fit any pocketbook. Geo. A. Smith, Corcoran, Cal.

Notice to Dairymen—Sharples 3-unit milker, No. 6 pump to handle 6 buckets. Counter shafting, pulleys, stall fixtures and piping for 103 cows. Owner sold ranch. Price $250. C. M. Lynn, Milpitas Road, San Jose.

D. O. Lively Stock Farm, Inc., 215 Hobart Bldg., San Francisco. Breeders of Hereford cattle. A few choice heifers for sale. We buy and sell live stock on commission. Farm at Mayfield, Cal.

For Rent—Modern dairy plant, eight miles from Los Angeles city limits on boulevard. Complete, up-to-date sanitary equipment, including silo. Address Box W, Cultivator.

For Sale—140 head young cattle, about one-third heifers. Ages from young calves to 2½ years old. All in good condition. In lots to suit. R. S. Mossman, Antioch, Cal.

Have a Nice Registered Holstein bull calf from dam with 18.025 lbs. record. Is 3 years old. J. W. Benoit, Route C, Modesto, Cal.

For Sale—Ayrshire Bull, 4 years old February, Santa Maria Prince No. 16266 Ayrshire Breeders' Association. Bred by Brown & Brandon. Santa Maria Ranch Company, Watsonville, Cal.

Venadera Jerseys, the herd with official yearly records. Calves of both sexes for sale. Guy H. Miller, Route 1, Modesto, Cal.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

FARM LANDS FOR SALE

Want a Hog Ranch? In order to accept a business proposition I will sacrifice my 80-acre farm, 30 acres old alfalfa, 15 new; 20 grain, 10 pasture, 5 hog pasture. Soft water artesian well; plastered bungalow, 6-room, bath, screen porch. Quarter mile to paved road connecting with state highway. Lemoore 6 miles, Stratford 4. Ditch water stock with land, costing only upkeep, average 45c yearly per acre. Price $12,000; one-third cash, balance easy. To insure quick sale will include 1914 Ford, 15 brood sows, mostly Poland-China, 4 registered; 2 milk cows, team, wagon, harness, implements. District mostly dairying, but all kinds fruit, vines and English walnuts do well. Act quick. A. J. Lower, Route A, Box 73, Lemoore, Kings Co., Cal.

ORCHARDISTS AND DAIRYMEN
Before you invest, investigate Mountain View, in the center of Santa Clara County's fruit and dairy section, 6 miles from Stanford University, 35 miles from San Francisco. Rich soils, abundance of water. Ideal climate. Write for catalogue "California's Choicest Acres." William P. Wright, Mountain View, Santa Clara Co., Cal. The oldest real estate office in Northern Santa Clara County, established 1901.

For Sale—Orange County ranch, 167 acres with good improvements and in good state of cultivation. Water conditions excellent. Artesian wells and pumping plant both. Located ¾ mile from village of Westminster and ¼ mile from Orange County's fine highway running from Long Beach to Santa Ana. Property clear and title perfect, but on account of peculiar circumstances of ownership this land is for sale under value just now. W. F. Marks, 226 S. Main St. Phone Main 1499, Los Angeles.

Oregon & California Railroad Co. grant lands. Title to same revested in United States by act of congress dated June 9, 1916. Two million three hundred thousand acres to be opened for settlement and sale. Power site, timber and agricultural lands. Containing some of best lands left in United States. Large sectional maps showing lands and description. Price $1.00. GRANT LANDS LOCATING CO., P. O. Box 610, Portland, Oregon.

Finely Improved 20 acres of almonds and alfalfa. For prices and description write George Arbuthnot, Manteca, Cal.

State, Government and Indian Lands. Bargains overlooked. Free New Blue Booklet, Joseph Clark, Sacramento.

MONEY TO LOAN

Money to Loan—On improved farms, city property, or for building loans, also on cattle or cotton crops. C. G. Paul, 407 Chamber of Commerce Building, Los Angeles, Cal.

POULTRY

Roofden Ranch Chicks are well hatched from first class utility breeding stock; money making egg producers our aim, and the prices are right. 7 to 14c, depending on breed, month, quantity (dozen to thousands). White, Buff, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks. For Dollars and Sense. Send card for circular. Roofden Poultry Ranch and Hatchery, Campbell, Cal.

Your Opportunity! 200-290 Egg Early Maturing, Winter laying Leghorns, Reds, Anconas; White, Buff Wyandottes; White, Barred Rocks; Buff Orpingtons, $3-$10 yearly profit every breeder. During May-June, EGGS HALF, CHICKS FOURTH OFF. Few pens, all breeds bargain make room. Guaranteed profit feed high. C. Beeson, Pasadena, Cal.

East Side Poultry Yards, Established 1904. Our object, egg type and size for ideal utility stock. Thoroughly Hoganized, correctly hatched baby chicks, dozen or thousand. White Leghorns 7c, R. I. Reds 12c for May and June. Satisfaction guaranteed. 255 S. 18th St., San Jose, Cal.

Baby Chicks, reasonable prices—White Leghorns, R. I. Reds, settings, 100's-1000's. Hatched right in our $60,000.00 brick and concrete hatchery from our quality heavy layers. Stock, hatching eggs. Pebbleside Poultry Farm & Hatchery, Sunnyvale, Cal.

Baby Chicks and Eggs for Hatching from pure bred McFarland strain of carefully culled and Hoganized stock; bred-to-lay S. C. White Leghorns. $8.50 per 100 and $80.00 1000, shipped on approval. Sonoma Valley Hatchery and Poultry Ranch R. F. D. 2, Sonoma, Cal. Box 48.

Baby White Leghorns—Hatched from high producing utility and ribbon winning matings. Booking orders for baby chicks, pullets, cockerels and hatching eggs. A. D. Roberts Poultry Yards, Box 605, Ceres, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

Baby Chicks—Hatching Eggs. White, Buff, Brown Leghorns, R. I. Reds, Barred Rocks; sturdy chicks from well mated fowls. Prompt, efficient service. Write for circular. Campbell Poultry Ranch, Campbell, Cal.

Free—How to Mate and Breed Rhode Island Reds. Just what you want to know, but could not get correct information. Send stamp. Trap-nested stock, both combs, big dark velvety red strain for sale. Ava Poultry Yards, Ava, Mo.

Eggs—Closely Hoganized Single Comb White Leghorns that averaged 186 eggs in pullet year, mated to 200-egg cockerels, $5.00 per hundred. Remit with order. 804 Acacia Street, corner West Road, Inglewood, Cal.

Model Poultry Farm, White Leghorn specialists. Baby chix and hatching eggs from heavy laying stock, bred by us for thirteen years. Our prices are right. W. C. Smith, Prop., Corning, Cal.

Baby Chicks from S. C. White Leghorns from trapnested hens with records of 192 to 297 eggs. Also S. C. Black Minorca chicks and eggs. J. W. Benoit, Route C, Modesto, Cal.

Mrs. R. E. Allen's Beautiful Prize Columbian Wyandottes. Winners at Boston, San Diego, Los Angeles shows. Unexcelled for eggs, broilers and table use. Stock and eggs for sale. Fullerton, Cal.

Petaluma Hatchery, Established 1902. Capacity 16,000 chicks a week—the kind the hen hatches. Five varieties. Send for free circular. L. W. Clark, Petaluma, Cal.

Hatched Chicks For Sale—Barred Rocks, R. I. Reds and White Leghorns. Strong, vigorous chicks. Send for circular. G. L. Hawley, Madera, Cal.

Rhode Island Reds—Dark red, vigorous, heavy layers. Eggs by setting or hundred. John Reed, Route C, San Jose, Cal.

Baby Chicks—White Minorcas and Golden Buff Leghorn. Two popular breeds. Cockerels for sale. Sandridge Hatchery, Kerman, Cal.

Earl E. Sanders, Modesto, Cal., breeder of M. B. Turkeys, S. C. White Minorcas, S. C. Black Minorcas and S. C. Barred Plymouth Rocks. Nothing but the best.

Incubators—Essex Model Incubators at factory prices. Write Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco. Poultry supplies.

Big Profits in Squabs and something in demand. Write me for prices on Carneaux and Homer breeding pigeons. Fair Oaks Squab Yards, Sunnyvale, Cal.

For Sale—324-egg Jubilee incubator and a hot water, 4-section brooder. Both nearly new, also new single harrow. James McKee, Riverside, Cal.

"Eastman's Bred-to-Lay" Barred Plymouth Rocks. Chicks, eggs, cockerels. We Hoganize and trapnest. Fairmead Poultry Farm, Fairmead, Cal.

Baby Chicks—White Leghorns, Brown Leghorns, Reds, Barred Rocks, Black Minorcas, Anconas. Prices on application. Orland Hatchery, Orland, Glenn Co., Cal.

Rainescourt Reds—Eggs from prolific laying strain and exhibition winners from $1.50 up. Day old chicks $15 per 100. Rainescourt Poultry Ranch, Zel-ah, Cal.

Day Old Chix—Barred Rock, R. I. Reds, White Leghorns, Black Minorcas, Light Brahmas, Buff and White Orpingtons. Enoch Crewe, Seabright, Cal.

Baby Chix — White Leghorns, White Rocks, "quackless" White Muscovy ducklings. White Star Hatchery, Kerman, Cal.

For Sale—Rhode Island Red Baby Chicks from our carefully selected matings. $12.00 per hundred. Williams Poultry Place, 236 No. Gage, Los Angeles.

Turlock Hatchery—Baby chicks. A chick that will live. Turlock Hatchery, Turlock, Cal.

Aldrich Strain White Orpington Cockerels, bred from prize winning stock. Wellman, Box 113, Los Altos, Cal.

Guinea Eggs $1.00 per setting, postpaid. E. A. McKinley, Ukiah, Cal. R. D.

SEEDS AND PLANTS

• • ALFALFA SEED • •

As has been our custom in the past, we are offering alfalfa seed both retail and wholesale. This is tested stock and up to our usual high standards. Samples, prices, etc., on application. Wire, write or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

• ALFALFA SEED OUR SPECIALTY •

• • SEEDS • •

Don't You Want pure home grown seeds? Of course you do. Ours are all tested and are good enough for anybody. Prices, information, samples, etc., upon application. Write, wire or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

• • MAKE OUR SEED YOUR SEED • •

Giant Winter Rhubarb Plants. Big profits. From ⅝ acre first season after planting I sold 675 boxes rhubarb, receiving $675.70. Grand prize San Diego Exposition. Big discount on plants for prompt orders. Booklet Free. W. A. Lee, Covina, Cal.

Seed Beans—We sell direct to the grower. Buy now before the advance. Our stock is carefully selected. Satisfaction guaranteed. Tell us the nature of your soil and we will suggest the best variety. Modesto Farmers' Union, Modesto.

Seed Corn—Egyptian white, large, pure white kernels. High germination test. None better offered. Also milo maize, feterita and Egyptian wheat. MODESTO FARMERS' UNION, Modesto, Cal.

Dwarf Milo Maize, grown from seed personally selected yearly from field. Samples and prices on application. Chas. N. Tufts, Brawley, Box 46A.

New Varieties sweet potato plants, Nancy Hall, Early Triumph, Porto Rico Yam, $5 per 1000, 75c per 100, May delivery. J. Braswell, Lindsay, Cal.

Alfalfa Seed—The very best, guaranteed 16c. Wm. Stuthman, 1239 West Pico St., Los Angeles, Cal.

Sudan Grass Seed—100 per cent pure, state analysis 40c lb. Kelly's Nursery, El Centro.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

SUDAN GRASS SEED
C. Meyer, San Bernardino, Cal.

MACHINERY

FOR SALE—USED RANCH TOOLS.
Material guaranteed. Save half. Why buy new? It's second-hand after used few times, but not necessarily worn out. WINDMILLS. TANKS. WINDMILLS.
8, 10, 12, 16-ft., cost $260, for $95; 1000-gal. new galv. tanks, $32.50; 2000, $44. Big stock used galv. and redwood tanks, all sizes; 25 used 1500-gal. galv. tanks with covers, $22.50; 50 used redwood tanks. Special 20,000-gal. corrugated galv. tank, cost $560, for $235; fine for oil or water storage; 15,000-gal., $175.
ENGINES. PUMPS. PIPE.
Most all sizes—in good shape.
Centrifugal pumps, 2-in., $24; 3-in., $35; 4-in., $45; 5-in., double runner, $95; all size plunger pumps, $5 up; new pump jacks, $12.50; double-acting No. 2 Ames deep well pump, $125; No. 3 Ames, $175, cost $660; Means double-acting deep well pump, $275; pumps 50 inches; 12-h. Lambert engine; 9-h. Foos, $135; 6-h. Stearns, $89. Many other first class engines very cheap.
Brass Cylinders, All Sizes.
Plunger rods, pipe, pipe fittings.
Ranch Machinery. Sundries.
Walking, riding plows, $15 to $22.50; fine 2-gang mouldboard plow, $45; 3 or 4-gang disc tractor plow; alfalfa renovator, $25; 24-disc, 4-horse harrow, $38; fine Bull tractor, $295; cement mixer, $35; sprayer, $19.50; mowers; buck rake, power hay baler, $25; 250 feet 7-in. irrigating pipe, 16½c; bone grinders, $5 to $12; corn sheller.
Wanted to buy first class material. No junk wanted. Pioneers in our line. DEMMITT CO., Upstairs, 120 N. Main Yard, $16 Yale, Los Angeles.

Several new and slightly used engines at a bargain. Best makes. 1 to 35 h.p. Arnott & Company, Wholesale Machinery and Implements, 112 South Los Angeles St., Los Angeles, Cal.

For Sale—38 H.P. "Otto" gas engine in good shape, at a bargain. E. A. Hayes, El Monte, Cal. Phone 48 R.

For Sale—Yuba tractor No. 12 in A1 condition. Plow and cultivator if wanted. Satisfactory reason given for selling. Address P. O. Box 306, Colton, Cal.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit". It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

For Sale—Pianos and Players. Several good used pianos—WEBER, EMERSON, SCHUBERT, DECKER, ELLINGTON, etc., and others, all in good condition, at prices ranging from $115, $135, $187 up to $315. New pianos for $228. New players from $395 up. Delivery free. Write today for complete list. Save agents' commission. Prompt service guaranteed. BARNES MUSIC COMPANY, 131 South Broadway, Los Angeles.

Second Hand Pipe For Sale—All sizes standard water pipe and screw casing, half inch to ten inches. Also valve and fittings. Guaranteed good as new. Cheap for cash. Write for our prices. Weissbaum Pipe Works, 169 Eleventh Street, San Francisco.

While the War Lasts—To help farmers grow larger crops at lower cost I reduce my charge for soil analysis from $11.50 to $7.00. Get particulars from R. R. Snowden, Agricultural Chemist, 320 Stimson Bldg., Los Angeles, Cal.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

HORTICULTURAL PRINTING

Catalogues — Good Printing. Specialists in preparing nursery, seed, poultry and live stock catalogues and all kinds of commercial printing. For prices and information address WOLFER PRINTING CO., 115 No. Broadway, Los Angeles.

Paper is advancing; save money by ordering your printing now from G. C. Gallagher, The Service Printer, 441 Sacramento St., San Francisco.

TURKEYS

Bronze Turkey Eggs—$2.00 per ten from now on. Baby turkeys, choice lots of 15, with turkey mother, $10. Brehm Bros., St. Helena, Cal.

PATENT ATTORNEYS

Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS".

RABBITS

New Zealand Rabbits are money makers. Send 25c for our new book on their culture — also catalogs. Gilmore Rabbit Farm, Dept. C, Santa Barbara, Cal.

LUMBER

AAA—Lumber, New and Second-Hand; rough, $10 M; finished, $15 *A*R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St., San Francisco, Cal.

BREED BETTER

(Continued from page 521)

We are using the domain, and must use it to the best possible advantage.

Our practice of bringing our cattle in from the summer range and turning them out to winter by simply "roughing it," coming out at the end thin, is poor business. Count the number of pounds lost at seven cents per pound.

There is no place today for the steer over two years old. Every one over that age on the range is one in the place of a cow that might be raising a calf. This is one way of increasing livestock: Get your animals to market at an early age and replace them by breeders on the range.

By better breeding of stock we get a higher percentage of dressed beef. Eliminate the under weight for the steer of greater weight. The tendency of the time is not only for better cattle but the better maturing of cattle.

For years there has been an International Livestock Exhibition at Chicago. This is purely a meat making animal show. This year there were exhibited an 11 months old steer weighing 1130 pounds, the champion of the times, and the other a two-year-old weighing 2700 pounds. Both were from California.

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From addresses of other speakers the Cultivator will later give extracts, especially from the paper by Dr. J. H. Hamond of the bureau of animal industry, which discussed "Preventable Losses of Live Stock."

STATE DAIRY COW COMPETITION

The University of California announces results from which we quote as to cows which produced over 40 pounds of butterfat during March, 1917.

IN the following report the name of the owner is given first, then a list of the cows with the performance. The abbreviations Gr., Ay., G., H., J. stand for grade, Ayrshire, Guernsey, Holstein and Jersey.

The first figures after the name of the cow indicate age (or where age is not given it is indicated by dash). For instance "Riverside Beauty 2d, H. 7-7" means that animal is a Holstein aged 7 years and 7 months. The next figure (84 indicates number of days in milk at beginning of the month, the next number (1921.2) production of milk in pounds for the month, and the last two numbers, percentage of fat (3.60) and pounds of fat (69.163) for the month.

Abbott, K. W.: Mabel Haskins Colantha Girl, H., 4-2, 5, 2500.5, 4.21, 105.271; Riverside Beauty 2d, H., 7-7, 84, 1921.2, 3.60, 69.163; Melba, Gr. H., —, 87, 1386.1, 4.15, 57.523; Colantha, Gr. H., 6, 8, 1774.6, 2.95, 52.351; Opal, Gr. H., 3-8, 8, 1535.6, 3.40, 52.210; Ella, Gr. H., —, 134, 1226.8, 4.25, 52.139; Gretchen, Gr. H., —, 38, 1254.8, 4.00, 50.192; Rilla Gr. H., —, 139, 1480.5, 3.31, 49.005; Pet, Gr. H., —, 67, 1332.4, 3.67, 48.899; Charlotte, Gr. H., —, 52, 1538.6, 3.15, 48.466; Della, Gr. H., —, 37, 1452.8, 3.30, 47.942; Emeline, Gr. H., 4-4, 49, 1310.3, 3.57, 46.778; Nellie, Gr. H., 8, 27, 1153.1, 4.00, 46.124; Illa, Gr. H., 3-11, 50, 1099.4, 4.06, 44.636; Tulip, Gr. H., 3, 30, 1200.4, 3.41, 40.934.

Baldwin, Anita M.: El Prado Walhallo, H., 3-3, 35, 2058.1, 4.44, 91.380; Alba Sadie Cornucopia Creetia, H., 7-2, 6, 2348.8, 3.88, 91.133; Leda Hengerveld DeKol Korndyke, H., 4-8, 16, 2276.9, 3.07, 69.901; Mabel Wyntje 2d, H., 9-0, 5, 2132.7, 3.19, 68.033; Pearl Beets Walker, H., 2-1, 27, 1649.0, 4.01, 66.125, Linden Spofford Walker, H., 2-1, 106, 1664.2, 3.71, 61.742; Miss Gelsche Walker Korndyke, H., 2-4, 78. 1916.5, 3.16, 60.561; Princess Zozo Pontiac, H., 4-4, 102, 1730.6, 3.45, 59,706; Josephine DeKol Walker, H., 2-6, 22, 1661.8, 3.37, 56.003; Mabel Aouda, H., 5-3, 5, 1692.6, 3.20, 54.163.

Beebe, Floyd: Rosie, Gr. H., 11, 123, 1534.5, 3.6, 55.242; Blackie, Gr. H., 6, 5, 861.0, 5.1, 43.911*; Brownie, Gr. H., 3-2, 89, 1109.8, 3.7, 41.063.

Bohnett Bros.: Spot, Gr. H., 5, 115, 993.8, 5.68, 56.448; Sophia, Gr. H., 7, 20, 1125.3, 4.75, 53.452; Murne, Gr. G., 5, 77, 958.5, 5.24, 50.225; Flossy, Gr. J., 9, 51, 1208.8, 4.15, 50.165; Reddie, Gr. S., 7, 66, 993.1, 4.76, 47.272; Fayne, Gr. J.-H., 6, 82, 1102.5, 3.99, 43.990.

*21 days.

Bomberger, J. M.: Lulu, Gr. J., 9, 23, 1344.4, 4.44, 59.691; Rose, Gr. J., 8, 76, 1069.7, 4.70, 50.276; Edith, Gr. J., 5, 127, 984.9, 4.80, 47.275; Nina, Gr. J., 7, 23, 1047.6, 4.50, 47.142; Petraleda, J., 15-2, 106, 744.9, 5.61, 41.789.

Christen, J. M.: Shily DeKol, Gr. H., 4-11, 6, 1202.6, 4.36, 52.433; Snail DeKol, Gr. H., 4, 48, 1030.7, 3.96, 40.816.

Coppini, J. W.: Princess 2d, Gr. J., —, —, 1171.8, 4.6, 53.903; Florinda, Gr. J., 5-10, 5, 888.0, 5.6, 49.728*; Rosalee, Gr. J., 11, 5, 840, 5.8, 48.720†; Olga Fern Smith, J., 5-11, 20, 900.5, 5.07, 45.655; Beauty 1st, Gr. J., 8, 5, 984.4, 4.4, 43.314‡; Melia Olga Pogis, J., 2-11, 6, 862.9, 4.78, 41.247.

Cornwell, H. E.: Holland Aaggie Belle Colantha H., 6-9, 29, 2422.0, 3.18, 77.020; Abbie De Kol of East Bank 2d, H., 5-3, 105, 2057.6, 3.69, 75.925; Lady Holland Crane Kakenstein, H., 6-9, 34, 2116.5, 3.33, 70.479; Ciruela Maid, H., 5-1, 34, 1790.9, 3.37, 60.353; Hermana Mechthilde Ciruela 4th, H., 3-1, 10, 1810.1, 3.25, 58.828; Hermana Ceres Ciruela, H., 3-4, 33, 1726.9, 3.17, 54.743; Hermana Mechthilde Ciruela 3d, H., 7-2, 41, 1983.1, 2.75, 54.535; Senorita Ciruela Mechthilde 3d, H., 5-2, 5, 1320.4, 3.88, 51.232x.

Elliott-Brant Rancho: Butternut G. 8-1, 92, 1374.8, 4.98, 68.465; Little Beauty 2d, G., 5-1, 51, 1215.7, 5.24, 63.703; Victime of Iowa, G., 5-2, 31, 1076.4, 4.97, 53.497.

Gross, H. E.: Cynthia of Butter Valley, 3-6, 44, 1079.0, 5.07, 54.705; Marion of Butter Valley, J., 4-10, 102, 789.8, 5.51, 43.518.

Guill, J. H., Jr.: Piebe Laura Inka DeKol, H., 11, 44, 1667.8, 3.6, 60.041; Midget, Gr. H., 7, 33, 1525.2, 3.2, 48.806; Bessie, Gr. H., 4, 33, 1246.2, 3.5, 43.617; Alice, Gr. H., 7, 33, 1503.5, 2.8, 42.098.

Guise, N. J.: Guise Beauty, Gr. J., 5, 37, 1109.8, 5.18, 57.488.

Henderson, Dr. J. W.: Clementine Mabel, G., 11-11, 38, 1406.1, 4.05, 56.947; Kitchener's Clementine of Vista, G., 2-1, 111, 1086.7, 4.42, 48.032; Rancho Morning Rose, G., 4-8, 118, 938.5, 4.46, 41.768.

Hewins, Homer Jr.: Silver Gloss Poplar 2d, H., 7, 63, 1370.2, 4.12, 56.452; Pauline of Bloom, H., 6-7, 118, 1218.3, 4.03, 49.097.

*24 days.
†24 days.
‡23 days.
x18 days.

Higdon, W. J.: Paul Segis, 5-2, 90, 2236.2, 3.19, 71.335.

Hollow-Hill Farm: No. 459, Gr. G., 6, 37, 1088.6, 6.35, 69.126; Imp. Brittleware Mistletoe, G., 4-9, 95, 1406.0, 4.83, 67.910; Imp. Cherry of the Effords 3d, G., 4-7, 135, 1377.6, 4.50, 61.992; No. 811, Gr. G., 4, 89, 1269.4, 4.88, 61.947; No. 482, Gr. G., 4-9, 70, 1117.7, 5.42, 60.579; No. 812, Gr. G., 4, 94, 963.6, 5.62, 54.154; No. 480, Gr. G., 4-9, 34, 1202.8, 4.36, 52.442; Imp. Brittleware Wild Rose, G., 4-11, 79, 942.3, 5.1, 48.057; No. 476, Gr. G., 5-1, 8, 1106.7, 4.2, 46.481; No. 485, Gr. G., 4-5, 165, 855.0, 5.23, 44.717.

Kell, F. J.: Creamcup Poybe, H., 5-10, 34, 2768.3, 3.49, 96.627; No. 66, Gr. H., 3-1, 6, 2061.5, 4.09 84.315; No. 63, Gr. H., 3-2, 33, 2182.4, 3.60, 78.566; No. 1, Gr. H., 3-2, 5, 1856.9, 3.80, 70.562; No. 65, Gr. H., 3-2, 33, 1779.4, 3.70, 65.838.

McAlister & Son: May Lyntge 151194, 6-5, 37, 2247.5, 4.05, 91.024; Venango Queen, 11, 21, 2768.3, 3.12, 86.371; Maud Rachael Segis, —, 7, 54, 2430.4, 2.95, 71.697; Lochaven Colantha Segis, 3-10, 67, 1953.0, 3.40, 66.402; K. P. Baby Walker, 1-11, 25, 2061.5, 3.06, 63.082; Woodcroft Ybma Pietertje, 6-7, 5, 2116.4, 2.79, 59.048*; Segis Spring Farm Pontiac De Kol, 2-2, 50, 1810.4, 2.80, 50.688.

McFarland, E. B.: Willowmoor Vesta 4th, Ay., 4-7, 185, 1628.7, 5.01, 81.598.

Mealey, S. A.: Beauty, Gr. H., 5, 164, 1484.9, 3.83, 56.872.

Miller, Guy H.: Lorita of Venadera, J., 10-2, 13, 1137.2, 5.27, 59.930; Goldie of Venadera, J., 7-1, 90, 1154.8, 4.86, 56.123; Juanita of Venadera, J., 8-7, 6, 949.7, 5.85, 55.557; Lorna of Venadera, J., 2-8, 89, 1004.6, 5.07, 50.933; Annette of Venadera, J., 6-7, 5, 1023.4, 4.87, 48.407*; Pearl of Venadera, J., 10-6, 184, 786.2, 5.80, 45.600; Wanda of Venadera, J., 10-3, 192, 732.1, 6.15, 45.024.

Morris, A. W. & Sons, Corp: Aaggie Acme of Riverside 2d, H., 6-1, 115, 2429.7, 4.31, 104.720; Hartog Creamelle De Kol, H., 7-5, 117, 2672.9, 3.53, 94.353; Aralia DeKol 3d, H., 6-2, 113, 2250.7, 3.46, 77.874; Aralia DeKol Pontiac Mead, H., 2-7, 105, 1475.5, 4.43, ———; Cobossie Korndyke Burke, H., 2-3, 95, 1313.0, 3.21, 42.147; Aralia Mead Pontiac DeKol, H., 2-7, 119, 1562.4, 2.91, 45.466.

Napa State Hospital: No. 15, Gr. H., 6, 123, 1994.0; 3.75, 74.775; N. S. H. Brownie, Gr. H., 6, 79, 1911.7, 3.56, 68.057; N. S. H. Queen, Gr. H., 7, 89, 2191.6, 3.01, 65.967; N. S. H. Beauty, Gr., H., 3, 69, 2026.7, 3.07, 62.220; No. 68, Gr. H., 4, 100, 2079.3, 2.97, 61.755; No. 67, Gr. H., 4, 99, 1400.4, 4.23, 59.237; Shy Lady, Gr. H., 3, 59, 2008.8, 2.91, 58.398; No. 29, Gr. H., 5, 119, 1417.9, 3.72, 53.746; No. 29, Gr. H., 5, 119, 1417.9, 3.72, 53.746; No. 30, Gr. H., 4, 169, 1623.4, 2.84, 46.105.

*26 days.

Pacific States Corporation: Forest View Wayne Korndyke, H., 5, 64, 2986.9, 3.41, 101.853; Tagus Julip Astrologess, H., 4-4, 36, 2211.3, 3.0, 66.333.

Palo Alto Stock Farm: Roxie Pauline Burke Hengerveld, H., 6-3, 43, 2721.5, 3.41, 92.803; Imp. Miss Jane of Lewison, G., 5-8, 54, 2173.9, 4.05, 88.043; Jennie Terzool Hecks 4th, H., 7-9, 40, 2807.3, 2.88, 80.850; Ketchener's Dainty Lass, G., 5-7, 42, 1395.4, 5.16, 72.003; May Wa Wa DeKol Burke 3d, H., 6-11, 92, 2305.8, 2.90, 66.868; Imp. England's Lady Orange, G., 5-6, 68, 1322.5, 4.98, 65.861; Mysie's Jane of Alta Vista, G., 9-11, 59, 1520.2, 4.23, 64.304; Athalva 2d, H., 5-2, 114, 2023.5, 3.00, 60.705; Mousie DeKol Lady 2d, H., 5-8, 100, 2170.8, 2.74, 59.480.

Stenzel, F.: Hilda, Gr. H., 5, 16, 2199.3, 3.26, 71.697; Blackie, Gr. H., 5, 74, 2180.1, 2.56, 55.811; Janette, Gr. H., 5, 101, 2016.6, 2.74, 55.255; Rosa, Gr. H., 5, 75, 1879.3, 2.87, 53.936; Carmelita, Gr. H., 3, 56, 1618.8, 3.30, 53.420; Fannie Gr. H., 5, 117, 1698.5, 3.11, 52.823; Spot Teat, H., 3, 79, 1657.2, 2.92, 48.390; Brownie, Gr. H., 5, 39, 1749.7, 2.71, 47.417; Rumpy, Gr. H., 5, 129, 1987.6, 2.34, 46.510; Spot, Gr. H., 3, 41, 1814.7, 2.46, 44.642; Dixie, Gr. H., 3, 95, 1543.5, 2.70, 41.675.

University Farm: Interested Jap's Santa, J., 4-2, 62, 1523.1, 5.45, 83.118; Korndyke Senorita, H., 6-2, 58, 2233.7, 2.97, 66.341; Fern Ridge Pearl, G., 7-3, 62, 1170.1. 5.17, 60.494; Cherry, Gr. G., 8, 92, 1391.5, 4.19, 58.304; Agnes Colantha, H., 5-3, 125, 1266.0, 3.65, 46.209; Willowmoor, Cherry, Ay., 7-6, 145, 903.2, 3.89, 35.134; California Juliana De Kol, H., 2-9, 105, 866.0, 3.89, 33.687; California Mermaiden, 3-2, 61, 471.7, 7.09, 33.44.

Vina Ranch, Leland Stanford Jr. University: Belpil, H., 6-2, 23, 2614.8, 2.81, 73.476; Arequipa, H., 6-7, 62, 2017.6, 3.32, 66.476; Boweda, H., 6, 107, 2023.8, 3.24, 65.570; Moremoon, H., 6-10, 107, 1695.4, 3.67, 62.221; Lady Ormsby Burke, H., 3-11, 55, 1942.7, 3.05, ———; Lady Spotlight Ormsby, H., 3-2, 26, 1951.2, 3.02, 58.926; Colantha Ormsby Muchacha, H., 2-7, 39, 1871.6, 3.01, 56.335.

Van Derpoel, F. H.: Fern's Silver Ray, J., 7-11, 45, 1753.0, 4.86, 85.196; Lowland Lad's Lily, J., 2-10, 38, 1114.6, 4.91, 54.727.

Welch, A. J.: Imp. Acadia of Linwood, G., 4-2, 22, 1238.1, 4.93, 60.890; Imp. Governor of the Chenes Herald Queen, G., 4-2, 16, 1404.8, 4.19, 58.861; Imp. Amy of Ore Hill, G., 4-2, 29, 1171.3, 4.56, 53.411.

Winner of Pacific Rural Press prize for March: F. J. Kell, average production of five grades, 71.060 pounds butterfat.

Winner of McAlister & Sons' prize for March: F. J. Kell, grade Holstein, No. 66, 84.315 pounds butterfat.

Average production for March, 1917 (185 cows): 1410.1 pounds milk, 54.315 pounds fat (range, 104.7—23.8).

Total entries to date, 567 cows.

The Cultivator Patterns

8324—Ladies' Waist. Cut in sizes 38 to 42 inches bust measure. The waist has a separate overblouse.

7830—Girls' Dress. Cut in sizes 6 to 12 years. The long waist-body of this skirt is gathered to a plaited skirt.

8070—Ladies' Dress. Cut in sizes 36 to 44 inches bust measure. The dress is cut in one piece and closes at the front.

7860—Ladies' Shirt Waist. Cut in sizes 34 to 42 inches bust measure. Figured and plain materials make up this waist very prettily.

8344—Children's Dress. Cut in sizes 4 to 10 years. Long or short sleeves may be used.

8357—Ladies' Overdress. Cut in sizes 36 to 44 inches bust measure. This over dress slips on over the head.

7852—Ladies' Skirt. Cut in sizes 22 to 32 inches waist measure. The skirt is cut in three gores.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH.

HOW TO ORDER PATTERNS

Write your name and address plainly in full, give correct number and size of each pattern you want, and send ten cents in coin or (1 or 2c) stamps for each number. In order to furnish our readers with the very latest New York City styles, all pattern orders are filled in New York City. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

Pattern Department
California Cultivator
Los Angeles

Household Department

THE PERFECT DAY

When you've started the day with a bunch of pep
And a zest for the old ham and—;
When you've swung to work with a springy step
As the tasks of the day you planned;
When you've pitched right in and raised merry hob
With the work that you found to do,
With a brain so clear that the meanest job
Was easy as pie for you—
Then the feeling you have as you hit the hay
Is a feeling of great content,
And that is the end of a perfect day,
Of a day that has been well spent.
—Baers' Fasts.

CANNING

Written for California Cultivator
By Clara I. Remington

OUR home gardens are about all planted now, and the growing season is well under way. With the newspapers full of war news, foretelling food shortage and mounting prices, our minds naturally turn to the question, how shall we store for winter use our surplus vegetables.

Drying is, of course, the simplest and least expensive method of keeping some of them. We will, all of us, undoubtedly carry over all the dried beans possible. Beans must be fumigated to kill weevils, so it is well to be prepared with a bottle or two of carbon bisulphide. Chemicals will not get any cheaper with the increased demand.

After drying comes the very important business of canning. Jar tops, rubber rings and extra jars should be purchased now, before the tin shortage and increased price of glass cause them to become scarce and very expensive.

Beans

We will begin with Kentucky Wonder beans, which are about the first vegetable to produce in abundance. The same process will apply to any string beans, corn, peas, okra, asparagus, Lima beans, and in fact, about any vegetable one may wish to preserve.

The style of glass jar is of importance. It should have a glass top and a wire spring at the side for sealing. Only pint and quart jars are used in these directions, but if half gallon jars are to be used, increase the time of boiling one half hour.

There are excellent patent steamers for use in canning but the ordinary clothes boiler provided with a false bottom made of mesh wire or strips of wood to prevent the jars breaking, will answer. Have the kitchen swept and dusted to insure an atmosphere as free from bacteria as possible before beginning to can.

It is desirable that all vegetables be canned as soon as possible after gathering, as they lose in flavor and texture very rapidly after growing stops. Carefully select only the young and tender beans, string, cut them in short lengths, and wash well. Pack each jar full, pressing down firmly; add a teaspoon of salt to each jar, fill to the top with cold water, put on rubber ring and glass cover, bringing up the wire spring loosely over the top. Now place enough jars in boiler to stand easily on the false bottom without crowding. Pour three inches of water in boiler, the idea being to have only enough water to sterilize with hot steam without boiling away. If you use gas, oil or gasoline you can have your boiler standing over the burners, before puting in jars. Then when all is ready, light the gas. This is less work than lifting the heavy boiler full of jars, as would be necessary to set it over a fire. Cover the boiler closely, bring the water to a boil and boil for one hour.

Then uncover the boiler, letting the steam escape and lower the spring on the side of each jar, sealing it and preventing outside air from penetrating.

This sterilizing kills all bacteria contained in the jar, but leaves the seeds or spores which hatch out when the jars are cold. So we must go over the whole process again the next day, being sure to raise the spring on the jar before sterilizing begins and lowering it when the water, which, of course, has been replenished, has boiled one hour. This sterilizing effectually kills all bacteria but for an extra precaution, authorities say we should repeat the process the third day.

Be sure to leave the jars in the boiler until cool, to prevent breaking sometimes caused by the hot jar being chilled in the outside air. The jars should be kept in a cool dark pantry two or three days and then tested by raising the spring and removing wire from top. If the jar can be lifted by the top, it is thoroughly sterilized and will keep indefinitely in a cool dark cellar or storehouse. Light injures the color. If the top comes off, when lifted, the contents must be resterilized or thrown away, depending on how far decomposition has advanced.

To open the jars, run a thin knife blade under the rubber, next the jar to let in the air, but if this is very difficult, as it very often is, place the jar with wire loose in a deep pan of cold water, bring to a boil and keep boiling a few minutes, when it will open easily.

Corn, Eggplant, Etc.

For canned corn, gather the ears, husk and brush them with a stiff brush, cut off the grains with a sharp knife and pack the jar full, as with beans, adding salt and water, and sterilize. Lima beans may be canned with corn for succotash, but require an hour and a half sterilizing, as do also mashed vegetables, such as summer squash, pumpkin, etc. Eggplant should be cut in slices and stood in boiling water for about 15 minutes before packing in jars. In canning asparagus use only the tender tips.

A delicious addition to soups and stews may be made by canning two or more vegetables together. I always cut up a bell pepper to every can of tomatoes and some people add an onion. Tomatoes are easily canned by placing the jars, tops and rubber rings in a pan of cold water, bringing it to a boil and boiling ten minutes, when the jars may be filled with hot stewed tomatoes, the tops fastened securely and the jars inverted until cold. I find it less trouble to sterilize them by filling the jars cold and placing in the boiler. The tomatoes retain their shape and consistency better.

When the chilly fall days arrive, and we can no longer make the rounds of our gardens every day, gathering a dinner from this bush and that vine, it will be with a feeling of great satisfaction that we reflect on our cellars, well stocked with sacks of beans and potatoes, and case after case of nourishing canned vegetables, sanitary in every detail and ready for almost instant use. We will have performed a substantial duty to Uncle Sam towards victory in this war, where food promises to take such a prominent part.

HOME CANNED VEGETABLES

Written for California Cultivator
By Ella C. Gamble, Amsterdam

HOME canned vegetables are certainly a good means of keeping down the living expenses. The following methods are tested and give the best results. The vegetables will keep perfectly and expense of canning them is so small that the cost of these vegetables for winter use is a very small amount per can.

Of course a steam pressure canner is most convenient but the wash boiler or a ten-gallon lard can will answer the purpose, or even a pail will do. Make a false bottom for the boiler of a board bored full of holes with a few nails driven in to prevent the board from resting on the bottom of the boiler. Set the jars on the board so that they do not touch one another or the side of the boiler. I use pint or quart glass jars.

Fill the boiler with water till it comes to the necks of the jars. This is to insure uniform cooking of the contents. Be sure to have a close fitting cover for the boiler. Place wire handles on each end of the board on which the jars stand so you can lift it from the boiler to handle the jars.

The following rule is known as the cold pack method and if carefully followed will give good results. I intend to can peas, string beans, corn and tomatoes, but the rule is good for asparagus, spinach, beets, carrots and parsnips as well.

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Every time you buy an article, advertised in the California Cultivator, at the local store you do your town some good.

Be sure to can them at once after picking them; within an hour if possible. Brush the silk off the corn and cut it off the cob as close to the cob as possible, string the beans and shell the peas, peel the other vegetables and slice if large. Pack the jars full, add a teaspoon of salt to each quart and fill the jar full of water. Put a rubber on jar and put top on loosely.

Put in canner which has been filled with cold water to come at least to the neck of the jar. Bring water to a boil and let boil one hour. Then screw the lids on tight and let cool. The next day put the jars in the canner again, loosen the tops and boil for one hour. Then tighten the tops and set away. The third day loosen the tops and place in canner and boil again for one hour; tighten tops, then set away in a cool dark place and they will keep perfectly.

String beans may be placed in a crock raw, first a layer of beans and then a layer of salt until filled. Then pour on cold water and hold down with a weight.

CORN, BEANS AND TOMATOES

Written for California Cultivator
By Mrs. D. W. Crist, Yorba Linda

I HAVE two ways of canning green beans and both have proved satisfactory. The recipe with vinegar seems easier to keep, but with salt a little nicer to prepare for the table.

Canning Beans

String tender green beans and break in several pieces. Cook until tender but not soft. Drain off all water and fill your cans with them, keeping hot as possible. To can with vinegar. Put a cup of vinegar to a quart of water and pour boiling over beans and seal. To can with salt. Take a cup of salt to two quarts of water and fill can with it as hot as can be and seal.

To prepare either way for table use. Drain off liquor and cover beans with cold water. Bring to a boil and drain. Add enough hot water and a piece of bacon and cook as fresh beans.

Canning Tomatoes

An easy way to can tomatoes. To one gallon of boiling water add a teacup of salt. Drop whole tomatoes in that have been peeled and cored and cook until tender. Dip them out with a wire spoon and fill cans and seal quickly.

For soup I use all pieces of tomatoes and small ones and cook and run through coarse sieve. Add salt to taste and heat and fill cans and seal.

Dried Corn

This is not a canning recipe but the corn I prepared this way has been a great help to me. Prepare green corn as for cooking and cut from the cob carefully. Put in a dripping pan and add about a teaspoon of salt, a tablespoon of sugar and butter the size of walnut to a dozen ears of corn. Set in the oven and let it cook thoroughly, stirring often. Then spread on cloths and dry in sun or a gas oven set on top of the back of cook stove is a good way to dry and easier to keep from flies. Heat corn well when perfectly dry and put it in a flour sack and hang in a dry place for a while. It may then be put in a covered can or other vessel. To prepare for the table soak the corn for an hour or so, season to suit and add cream.

CANNING IN TIN

Written for California Cultivator
By E. H. Barnharts, Alpaugh

TAKE stringless green pod beans. Pick while tender. Can as soon as possible after picking. Break in pieces, wash thoroughly. Put them in a muslin bag, drop in hot water, cook eight minutes after they commence to boil. Drain off water. Have No. 2 solder hemmed capped cans. You obtain these cans from a canning company. Get a soldering tipper, some wire solder, some soldering flux and a little brush at the hardware store. You are ready now to can all kinds of vegetables.

Wash and scald cans, put in one teaspoon salt, fill with beans, cover with water. Do not have beans or water touching top of can or they will not seal. Wipe the top dry with cloth, put on lid of can, take the brush and wet the solder on lid with the soldering flux. Have your soldering iron hot enough to float solder. Don't close vent hole in lid.

Take a wash boiler, put in cans, put in water to come within two inches of top of can. Put on stove until cans are hot. Take out and seal vent hole in lid. When you have two tiers of cans ready for boiler cover with water. Boil without stopping three hours after they commence to boil.

I have canned vegetables this way for eight years and I am sure there isn't anything nicer than a variety of canned vegetables.

You say a woman cannot operate a soldering outfit. Yes she can, just as easy as melting sealing wax. I expect to can peas, corn, pumpkin, tomatoes, vegetables for soup, asparagus, sweet potatoes, string beans. You can can all kinds of fruit and meat.

CANNING VEGETABLES PAYS

Written for California Cultivator
By Mrs. H. P. Monroe, Carlotta

IT certainly seems as if we must look to our home gardens, as prices still continue to soar.

Last year I canned peas, beans, corn, tomatoes, cabbage, carrots, white beets, summer squash and turnips.

I had very few bottles spoil and intend to can the same and anything more that we grow this year.

I gathered my vegetables and put them up the same day. I prepared as for table, cutting into small cubes or slices so as to get as much in the jars as possible. The corn I cut from the cob and the tomatoes I scald and peel and put whole into Golden State Mason jars. Jars must be carefully washed of course and new tops or caps for Golden State Masons and Economy and new rubbers for the other Masons.

I fill my jars, add a level teaspoon of salt, fill with cold water and place top on firmly but not too tight. I have a wooden frame to fit my boiler, placing my jars on this. Then I fill nearly to the shoulder of the jar with cold water and cover to keep in steam. Place over a fire and boil three hours. Lift out, screw down top tightly and set by to cool.

I certainly think it pays, especially where there are growing children.

RICE A GOOD POTATO SUBSTITUTE

Eating rice instead of potatoes, provided that the diet is varied, is good economy now that the price of potatoes is so high, according to Prof. M. E. Jaffa, of the California state board of health. The brown or natural rice, containing a large amount of mineral matter and other vegetable food products, is much more desirable than the white or polished rice. Vegetables, milk, meat, or fruits, rich in mineral matter and other products, must be included in the diet if white rice is used.

The housewife purchases a large amount of water at a high price in buying potatoes, for about 75 per cent of their weight consists of water. Such is not the case in buying rice. A pound of cooked rice will weigh from two and a half to four pounds, because of the water added in cooking; but a pound of cooked potatoes weighs no more than a pound of raw potatoes. The reason for the economy in the use of rice is obvious.

Brown rice contains four times as much mineral matter as white rice, according to Prof. Jaffa, but unfortunately, the bran and other portions of brown rice removed in polishing and which are so rich in desirable food products, are now fed to poultry and cattle. If the water in which brown rice is cooked is discarded, much of this valuable mineral matter will be lost. For this reason, steaming or preparation in a double boiler with no excess water added is recommended.

Wound Up.

A truly eloquent parson had been preaching for an hour or so on the immortality of the soul.

"I looked at the mountains," he declaimed, "and could not help thinking 'beautiful as you are, you will be destroyed, while my soul will not.' I gazed upon the ocean and cried, 'Mighty as you are, you will eventually dry up, but not I.'"

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Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

PROFIT IN GREEN DUCKS

Written for California Cultivator
By Jean A. Koethen

FOR some reason the business of raising "green" ducks for market has never been very popular among California poultrymen. Perhaps it is because this is not exactly a duck climate; perhaps because the Pekin duck has an unenviable reputation as an extraordinarily large eater—perhaps merely because duck raising is a little less certain than chicken raising. Be the reason what it may the fact is that only now and then does one hear of a poultryman who dares attempt market ducks on anything like a large scale.

An exception to this rule is found in the poultry colony of Inglewood. This section, being quite near the ocean, is more favorably located for duck raising than the hotter inland valleys, beside being near the city of Los Angeles, and even a hasty trip through it reveals a good many small duck plants, while the signs "Duck Eggs for Sale," "Baby Ducks for Sale" may be seen on nearly every block.

G. C. Ely, a chicken rancher in the Inglewood Acres district, has been more than ordinarily successful in this branch of poultry raising. His duck plant is comparatively small, less than 40 Pekin breeders, but the eggs from these 40 breeders keep the incubators running at full capacity during the duck season, and ducklings in 100 duckling lots pass from baby duck brooder to bigger duck brooder, and from this to half grown duck coop as rapidly as they can be cared for.

Duck eggs are usually fertile, and fertile duck eggs rarely fail to hatch. A neighbor of Mr. Ely's showed me a 100-egg incubator in which about 97 ducklings were already in sight, and said she had just sold a similar hatch. This simplifies duck raising considerably. On the other hand, ducks cannot be raised at all seasons as chickens are. Mr. Ely and some of his neighbors have experimented with raising ducks in the fall. The breeders laid a sufficient number of eggs, the eggs hatched, but nearly every duckling died.

The duck eggs are hatched in incubators, the temperature being kept a little lower than for chickens. The first night after hatching the ducklings are kept in the incubator nursery. Next morning they are removed to the baby duck brooder, which is merely a small box with hover and provision for ventilation. No heat is used. The ducklings keep each other warm. The brooder is, however, carried indoors for the first week or so.

Nothing could be more simple than Mr. Ely's duckling pens which are made of boards ten or 12 inches wide, laid on the side. Each pen is just large enough to permit the ducklings to move about freely, for ducks do not need exercise as chicks do, and the less exercise a green market duck gets the better. As the ducklings grow they are transferred from one pen to the next and given room according to their size, but never more than they need. As soon as the ducklings outgrow the baby brooder they are transferred to pen No. 2, which is considerably larger and contains a good-size double fireless brooder. Ducks at this age grow very rapidly, and their sleeping quarters must allow for this.

The ducklings are not fed till they are two days old. The morning of the second day they are given some clean sand on a board and later in the day fine cracker or bread crumbs are scattered over the sand.

Real feeding begins the third day out of the incubator. Bran with considerable sand mixed in it is made crumbly wet and fed on the board four or five times a day. Water is given in chick fountains but the ducklings are not allowed to get wet. It is a rather curious commentary on the eternal fitness of things that ducklings and goslings, both water fowls, are more easily injured by wetting than chicks in their first babyhood. Later on they might, of course, have a pan or puddle to swim in, but I saw nothing of the sort on this plant. It is not necessary, and makes the duck yard a mussy, bad smelling place.

The tenth day a little corn meal and a little cut-up green stuff is added to the bran and sand, and this is gradually increased until at four weeks of age the ducklings are on a mash which is equal parts bran and corn meal, with 15 or 20 per cent of green stuff added. I asked Mr. Ely if he did not think this a rather small proportion of green, and he replied that the proportion depended entirely on the amount of green available. "You feed what you have", he remarked, with a twinkle in his eye, which is, I fancy, just what most poultry raisers do, regardless of what they or others recommend.

From the time the ducks begin to eat heartily this moist mash or bran, corn meal, green stuff and sand is kept before them all the time, for the green duck must be brought to marketable size as rapidly as possible. These ducks are marketed at about ten weeks of age, when they should weigh from four to five pounds apiece. Mr. Ely sold his green ducks last year for from 17 to 21 cents a pound, averaging a profit of about 30 cents per duck.

The care and feeding of the breeding ducks is as simple as that of the ducklings. They are confined in a large yard, two-thirds of which is green range, partly barley, partly grass and other greens. The ducks get their green feed for themselves from this range and are fed in addition a moist mash which is mainly bran, a little corn meal being added. This is fed night and morning.

Activity is the life of the laying hen. As her activity decreases, so does her egg production. The hen that stands around all day and scarcely has enough energy to eat food placed before her is never a laying hen.

Keep a sharp lookout for lice and mites and use good insecticides freely. Where small runs must be used, scrape out the droppings for use in the garden land and spade up the runs often. After spading rake in a few oats.

Every variety of insect except bees and rose bugs are good for the youngsters. Bees are sure death to ducks and young geese.

Cleanliness is the easy road to disease prevention—cleaning the droppings-boards should be followed by a liberal dusting with slaked lime.

Never mind how many more you hatch than you need; sell those that are in the way. There's money in them.

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Apr.	25	26	27	28	30	May 1
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Brokers' prices:

California fresh, lb. 24
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Exchange quotations:

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Case count 31
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Apr.	25	26	27	28	30	May 1
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Asparagus, lb. .....5@6
Beans, green and wax 13
Beets, doz. bunches 45
Cabbage, lb. 4½
Red, lb. 6
Carrots, doz. 40
Chicory, doz. .....40@50
Cauliflower, doz. 1.25
Celery, doz. .....90@1.35
Cucumbers, Hothouse, doz.....1.00@1.75
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Lettuce, doz. 25
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Wholesale prices:

Apples—W. W. Pearmain .....2.10@2.50
Newtown Pippin, Yellow.....2.00@2.35
Avocados, doz. .....8.00@12.00
Bananas, lb. 5
Loquats, lb. 10
Strawberries, basket .....4@6
Pineapples, lb. 8

CITRUS

Lemons .....1.75@3.00
Grapefruit .....2.50@3.50
Limes, basket 1.00
Navels .....2.50@3.00
Tangerines, lug 1.50

HONEY

Wholesale prices:

Extr. lb. White 8½@9½c; A. 8½@9c; W.W. .....10@11
Comb., lb. W. 12½c; Lt.A.....12½@14c
W.W. 14½
Beeswax, lb. 32

BEANS

Wholesale Prices:

Lady Washington 17.00
Limas 16.50
Pinks 14.00
Manchurian Reds 11.00
Baby Mex. 8.50
Garbanzos 8.50
Small White 17.00
Blackeyes 9.50
Tepary 12.00
Lentils 18.00

HAY

We quote ton f.o.b. L. A. to producers:

Barley .....19.00@23.00
Oat, tame .....21.00@24.00
New Imperial Barley and Alfalfa .....21.00@22.00
Alfalfa, local, new 19.00
Stock .....15.00@16.00
Straw .....10.00@12.00

GRAIN

Wholesale selling price f.o.b. L. A.

Wheat—No. 1 .....5.20@5.25
Corn—No. 2 yellow, 3.85; white.....3.95
Oats—White 3.35
Barley—Recleaned 3.45
Milo 4.15
Egyptian Corn 4.15
Rye 4.65

FEED STUFF

Wholesale, cwt. f.o.b. L. A.

Alfalfa Meal 1.75
Bran, Heavy 2.85
Shorts and Middlings 3.45
Alfalfa Molasses 1.30
Meat Scraps 3.60
Beet Pulp 1.80
Cracked Corn 3.90
Cracked Wheat 5.60
Cotton Seed Meal 2.60
Oat, C. L. 3.10
Bone Meal 2.45
Feed Meal 3.95
Green Bone 2.25
Fish Meal .....3.60@3.70
Rolled Barley 3.40
Rolled Oats 3.40
Hulled Barley 3.90
Hulled Oats 5.00
Scratch Feed, 10-sk. lots $4.75; 5-sk. $4.80; 1-sk. 4.85
Scratch Feed with grit, 20c less.
Oat Chop 2.10
Oil Cake Meal 3.30
Pigeon Feed .....4.55@4.65
Chick Feed 4.65, 5.00, 5.25
Blood Meal 4.20
Cocoa Meal 2.05
Rice Paddy 3.70
Gritless Chick Feed 5.25, 5.30, 5.35
With grits 20c less.

San Francisco Markets

SAN FRANCISCO, May 1, 1917.

BUTTER

Dairy Exchange quotations, lb.:

Rcts. wk. ending April 30, 914,500 lbs.

Fresh extras 33
Prime firsts 32½

Extr. Cr'y. Prod. Exch. past wk.

Apr.	24	25	26	27	28	30
'17	33½	33	33	33	33	33
'16	25	24½	24½	24½	24½	..

CHEESE

Dairy Exchange quotations:

Cal Flats ...19½@20½; Y. Am. ..23½@25
Ore. Triplets.....24 Y. Am.....23½

EGGS

Rcts. wk. ending April 30, 22,423 cs.

Dairy Exchange quotations:

Fresh extras 32
Firsts 31
Select Pullets 30
Firsts 29

Fresh Extr. Prod. Exch. past wk.

Apr.	24	25	26	27	28	30
'17	33½	31½	32	32	31½	32
'16	21½	21	21	21	21	..

POULTRY

We quote from producers, lb.

Hens, large 22@23; Leghorns .....15@17
Fryers, lb. .....37@40
Broilers, large 32@35; small .....24@25
Roosters, old 14@15; young .....30@35
Squabs, doz. .....2.25@2.75
Ducks .....18@20
Geese .....10@20
Turkeys, live, lb. .....20@22
Belgian Hares, live 14@15; dr.....17@18

LIVE STOCK

Prices gross weight:

Cattle:

Steers, lb., 8@9¼, cows and heifers, 5@7¼; calves, 7@9.

Sheep:

Wethers, 11@11½; shorn, 1½@2c less; ewes, 10@10½; lamb, lb., 12@12½.

Hogs:

Hard grain fed, wt. 100 to 150 lbs., 12 @12¼; 150 to 300 lbs., 14¼@14½; 300 to 400 lbs., 13¾@14, undesirable, 6@8.

POTATOES

Wholesale selling prices at wharf:

Delta Burbanks .....4.00@4.75
Oregon Burbanks .....3.90@4.50
New Potatoes, lb. .....5@7

ONIONS

Wholesale selling price on wharf:

Australian, cwt. .....6.00@6.50
Crystal Wax, cr. .....2.85@3.00
New Green, box .....1.00@1.25
Garlic, lb. .....1@3

VEGETABLES

Wholesale selling price:

Asparagus, bx. .....1.25@1.75
Canners, bx. 1.00
Artichokes, doz., large 50; small...25@35
Beans, String, Wax, lb.....10@15
Celery, cr. .....1.00@1.50
Cucumbers, bx., hothouse .....1.00@2.00
Eggplant, lb. .....15@20
Lettuce, cr. .....50@85
Peas, sack .....1.50@2.00
Rhubarb, bx. .....60@85
Spinach, cr. .....50@75
Squash, Summer, cr. .....1.25@1.50

FRESH FRUIT

Wholesale selling price:

Apples—Newtown Pippins .....1.25@1.75
Bananas, bunch .....1.25@1.75
Pineapples, doz. .....2.25@2.50
Strawberries—
Longworths, chest .....11.00@12.00
Banners .....8.00@9.00

CITRUS FRUIT

Wholesale selling price:

Lemonettes .....1.25@2.25
Lemons .....1.75@3.50
Limes, Mex., cs. .....5.50@6.00
Grapefruit .....2.00@3.00
Navels, bx. .....1.50@2.90
Tangerines, half orange box.....1.75@2.00

PEACH PRICES

Please note the following advance in prices, effective Saturday, April 14, 1917, at 6 p. m. All prices are f.o.b. factories, California common shipping points. We reserve the right to refuse confirmation, at the following prices, unless f.o.b. factories where grades and varieties desired are available. All quotations are subject to our approval of variety and assortment, subject to our confirmation and subject to advance without notice; April-May shipment.

Price list No. 7 is hereby withdrawn and ineffective at 6 p. m. Saturday, April 14, after which time prices herein quoted shall apply.

	Yellows.	Muirs.
Standard Peaches	.06⅝	.06⅝
Choice Peaches	.07	.07
Fancy Peaches	.07½	.08½
Extra Fancy Peaches	.08	.08⅞
Slab Peaches		.06¼
Choice Peeled Peaches		.10
Fancy Peeled Peaches		.11½..

Above prices, bulk basis.

For 50-lb. bxs., unfaced, add ..... ½c
For 50-lb. bxs., faced, add..... ⅝c
For 25-lb. bxs., unfaced, add ..... ⅝c
For 25-lb. bxs., faced, add ..... ⅞c
For 10-lb. bxs., unfaced, add 1¼c
For 10-lb. bxs., faced, add 1½c

For prices on Graded Peaches, Original, in bags, add 1c to the bulk basis prices above quoted.

Ungraded, Original, bags, nothing to offer.

	Per Lb.
Choice peeled, 2-lb. cartons.....	.12
Choice unpeeled, 1-lb. cart....	.08½ .08⅝
Choice unpeeled, 5-lb. cart....	.08¼ .08⅜
Fancy unpeeled, 1-lb. cart....	.09¼ .09⅜
Fancy unpeeled, 5-lb. cart....	.09 .09¾

	Per Lb.
Choice peeled, 5-lb. cartons.....	.11¾
Fancy Peeled, 2-lb. cartons.....	.13¾
Fancy peeled, 5-lb. cartons.....	.13¼

The above prices are guaranteed against our own decline to June 30, 1917, and apply only to sales and shipments made direct to the recognized jobbing trade. No goods will be confirmed at above prices to coast or eastern brokers, or to speculators, it being our desire to eliminate speculation in dried peaches, we preferring to carry our stock in storage here on the coast until actually required by the jobbing trade.

DRIED FRUITS

Wholesale quotations:

PRUNES—Bulk basis, per lb: 30s, 8¼c; 40s, 8½c; 50s, 8¾c; 60s, 70s and 80s, 9c.

Other fruits, 50-lb. bxs:

	Standard.	Choice	Extra Choice	Extra Fncy.	Extra Fncy.
Apples ..	....	10¾c	11 c	11½c	....
Peaches .	7¾c	7¾c	....	8¼c	8¾c
Pears	6½c	8½c	9½c	11¾c	....

BEANS

Jobbers' prices, cwt. recleaned:

Limas .....15.50@15.75
Bayous .....11.50@12.50
Garbanzos .....6.25@6.50
Small White .....15.00@16.00
Mexican Red .....11.25@11.50
Large White .....14.00@15.00
Pinks .....12.25@12.75
Horse Beans 6.50
Black Eyes .....9.25@9.75
Red Kidneys .....13.00@13.50

HONEY

Jobbers' prices:

Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. .....11@12
Ex. Fy. W. lb.....10c; Lt. A.....8
Beeswax .....30@32

HOPS

Prices to growers at shipping points:

Sacramento .....5½@8½
Sonoma .....7@9
Mendocino .....7@9
Oregon and Wash., lb. .....5@9

RICE

Price to growers:

Cal. Rough cwt. .....3.40@3.75
Lower Grades .....2.75@3.25

HAY

We quote the average wholesale price of hay in carload lots on today's market as follows, viz:

Wheat, Fy., lt. bales.....33.00@35.00
Wheat or Wh. and Oats, No. 1.31.00@33.00
Wheat, or Wh. and Oat, No. 2.28.00@30.00
Oats, Choice Tame .....31.00@33.00
Other Tame .....28.00@30.00
Wild .....24.00@29.00
Barley .....27.00@30.00
Alfalfa .....24.00@27.00
Stock Hay .....15.00@16.00
No. 1 Barley Straw .....1.00@1.25
Oregon Hay .....25.00@29.00

GRAIN

Grain Exchange prices, ctl.

Wheat—No. Bluestem .....4.70@4.75
Corn, California .....3.35@3.50
Corn, Egyptian White .....4.00@4.10
Oats, White Feed .....2.85@2.87½
Barley, Feed .....3.00@3.05

FEEDSTUFFS

Wholesale prices per ton:

Bran .....45.00@46.00
Cornmeal .....71.00@72.00
Cracked Corn .....71.00@72.00
Cocoanut Meal .....35.00@36.00
Middlings .....57.00@59.00
Alfalfa Meal, carlots .....33.00@34.00
Shorts .....47.00@48.00
Rolled Barley .....61.00@62.00

SEEDS

Prices in round lots, lb.:

Millet, recleaned .....3¼@4
Alfalfa .....20@21
Flax .....5@6

Citrus Fruit Market

LOS ANGELES, May 4, 1917.

Some poor and wasty stock has been going forward. This makes a showing of much lower average prices and some stock, especially in auctions, has sold at about freight and packing charges. Good stock regular sizes is holding fairly firm.

Shipments

Shipments of oranges from Southern California since November 1, 1916, 21,421 cars, lemons 3685, total 25,106; to same date last year, oranges 18,609, lemons 2986, total 21,595. From Central California to date this season, oranges 4061, lemons 164, total 4228; to same date last year, oranges 4623, lemons 146, total 4769. From Northern California to date this season, oranges 845, last season, oranges 610, lemons 1.

DISPERSAL OF WILLOWWOOD JERSEYS

Willowwood Jerseys, the great herd that we will disperse at public auction for C. G. McFarland at Tulare, on May 17, are apparently claiming the attention to which they are rightfully entitled by reason of their splendid production records, excellent type, and general good quality. Requests for information regarding this herd are coming in not only from many points in California, but from every western state and several of the eastern states. It is good to note in this connection how many of the inquiries particularly request information about the Register of Merit cows and their daughters. This is additional evidence of the present widespread demand for Jersey cows with Register of Merit records and daughters of such cows.

When we consider that the highest Register of Merit record in the Willowwood Herd is 658 pounds seven ounces 85 per cent butter in one year, and that the 13 Register of Merit cows to be sold in this sale average 516 pounds in one year, it is readily seen that there are no mean records present, for the average includes several two-year-olds and others under mature age.

Willowwood Herd is a clean, well bred, well developed bunch of registered Jerseys, the kind that the progressive breeder must have to keep up with the procession, and Mr. McFarland's decision to disperse this entire herd opens up the door to real opportunity to those who want to own some of the best Jerseys to be found in the west today.—C. L. Hughes, Sales Manager, California Breeders' Sale and Pedigree Co.

WEATHER CONDITIONS

For the Week Ending April 28, 1917

	Rainfall—Wk.	Season	Norm.	Temp.—Max.	Min
Eureka	.48	30.22	42.23	62	44
Red Bluff	.28	17.08	23.15	82	56
Sacramento	.42	12.81	16.58	82	52
San Francisco	.03	15.72	21.23	74	50
San Jose	.01	12.40	15.99	78	42
Fresno	.16	7.06	8.87	86	50
San Luis Obispo	.00	22.54	19.38	84	46
Los Angeles	.04	15.02	15.04	68	48
San Diego	.04	9.78	9.52	62	50

ORPINGTON YEAR BOOK

The Orpington Club of California is a live wire bunch, as is indicated by its 50-page year book with illustrations of some of California's fine producing Orpingtons and illustrations of Orpington breeders. The president of the association is W. J. Stewart of Alhambra, secretary, L. C. Geiser, San Gabriel.

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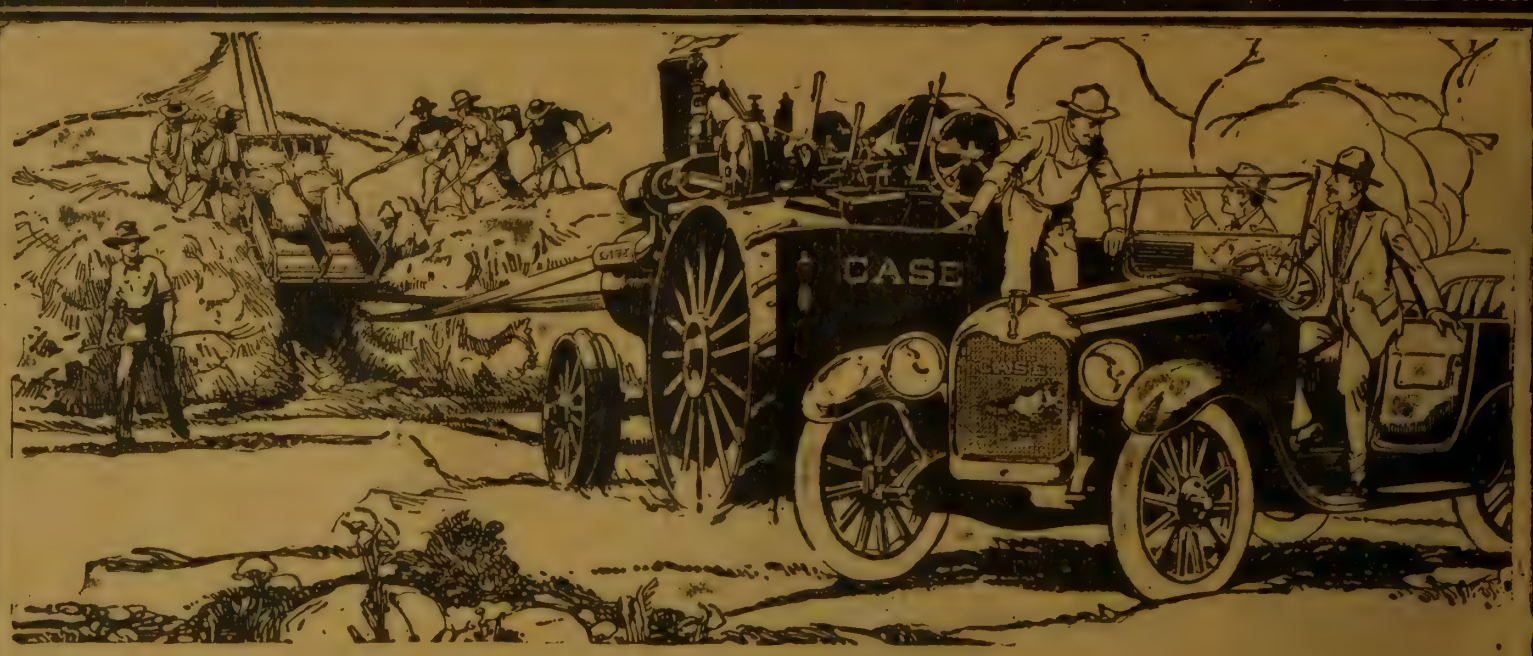

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* * * *

Nowadays it is generally known that **Case steel threshers** are superior. Most farmers want their crop threshed with Case machinery. Many predict the complete dominance of Case threshers. This great demand is the result of only one thing—Case threshers are the *right* threshers. Case principles of construction and Case performance have never been equaled.

Here are a few reasons why Case sells more threshing outfits than any three other concerns:

1. Case threshers get all the grain there is in the crop, and—deliver it *clean* in the sack.
2. They are all-steel; fire, wind and water proof. No warping or rotting of main frame.
3. They are easy to operate—fewest belts—least amount of power needed. Lubricate them while running.
4. The cylinders are big and strong enough to handle damp and long straw. Weed-filled, moldy or stack-burnt bundles don't matter. The grain is always well cleaned and brings top prices.
5. Absence of interior cranks, forks, pitmans, hangers, aprons or other revolving parts back of our concaved beater next to cylinder. Therefore nothing to wrap or wind with straw or twine. *They thresh* from morn till night for weeks, months and years without delay.

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LOS ANGELES May 12, 1917 SAN FRANCISCO

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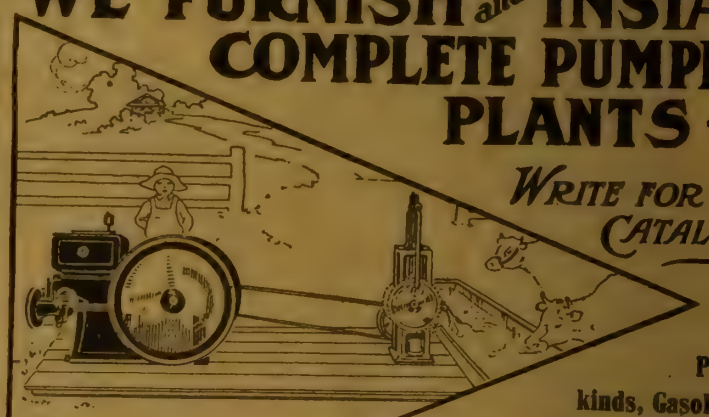

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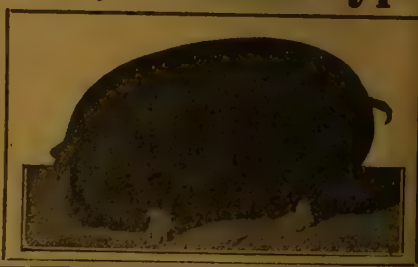

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California Cultivator

Vol. XLVIII No. 19 LOS ANGELES: May, 12 1917 One Dollar Yearly

Meet the Demand for Stock Feeds

Sorghums for Grain and Sorghums for Roughage Invaluable This Year. Growing Hints from University Bulletin

INASMUCH as the grain sorghums are summer grown-crops, making their growth during the dry season of the year, too much emphasis cannot be placed upon the preparation of the seed bed and the care of the crop during the growing season. Especially is this important since the grain sorghums will, in most cases, be grown as a dry land crop. We should not lose sight of the fact that although they are as a class drouth resistant, the yields which will be obtained will usually be in direct proportion to the condition of the soil and the amount of moisture available. It is therefore desirable to handle the soil so that a good seed bed can be prepared and as much of the precipitation conserved as possible.

Preparation of Seed Bed

When possible the land should be plowed in the fall or early winter to a depth of eight or ten inches and allowed to lie in the rough until spring. In this condition the soil will absorb a large proportion of the winter rainfall and will also be materially benefited by weathering action. Unless the field is very weedy no further treatment will be necessary until it is to be prepared for seeding, at which time the seed bed can usually be prepared with a disk and harrow. If for any reason spring plowing becomes necessary it should always be more shallow than fall plowing, otherwise too much moisture will be lost by evaporation and difficulty will be experienced in working the land down properly for seeding. In fact, except on the most favorable soil more work is always required to prepare a good seed bed on spring-plowed than on fall-plowed land.

The seed bed should be smooth and even, with a mulch of two to three inches on the surface, while the soil below the mulch should be firm and moist. This condition is imperative as the seed of most of the grain sorghums is rather soft and rots easily if the soil is too cool or porous or the moisture supply insufficient for prompt germination. As has formerly been stated, such a seed bed can in most cases be prepared on fall-plowed land without difficulty with the ordinary implements found on the farm. Spring-plowed land, however may require more work in order to pack the subsoil sufficiently and to pulverize the surface properly.

Time of Seeding

The time to plant the grain sorghums will vary to some extent with the location and with the character of the soil. Planting should not be done until the soil and atmosphere are quite warm. In the valleys in the southern portion of the state where the warm weather begins earlier in the spring the crop may be planted earlier than in the north. Again, light, sandy soil warms up more quickly than heavy soil and can usually be planted a week to ten days earlier than the latter type. Results obtained at Davis indicate that in that section at least, the best time to plant is from the 10th to the 20th of April. If planted earlier the atmosphere and soil are too cold for the best growth. On the other hand, if planting is delayed until after the first of May the soil is apt to become too dry for prompt germination unless irrigation can be provided. On irrigated land seeding may be delayed until the middle or latter part of June, though the total yield will seldom be as great as when planting is done earlier. In some places, however, this fact is made use of by employing the grain sorghums as a second crop to follow grain, grain-hay, or other similar spring crops.

Method and Rate of Seeding

The most common method of planting the grain sorghums is to use a corn planter fitted with sorghum seed plates. With this implement the seed is drilled in rows three to three and one-half feet apart, spacing the seed from four to six inches apart in the row. In some cases the grain drill has been used for planting the crop by stopping up enough of the holes to give the proper spacing between rows. This implement, however, is not to be recommended as it seeds too shallow

Continued on Page 538

Planting and Pruning Lemons

J. P. Englehart, a Veteran Lemon Grower Who Has Consistently Stayed by His Own Orchards for Thirty or More Years, Has Studied His Trees and Tells Cultivator Readers Some of the Lessons He Has Learned

THE great period of deterioration in citrus fruit trees that has been creeping upon us for 25 years or more has happily been dispelled by our indefatigable government representatives, Mr. Shamel and Mr. Scott, who are insisting on bud selection. Unfortunately, since Mr. Shamel has so wisely called our attention to budding from performance record trees, some of us are again relaxing our vigilance. Others misunderstand and do not carry out his suggestions correctly. In fact it looks as if we were again about to face another such period. To be sure, intelligent people whose attention has been called to this matter are now budding from such trees, but is that enough? No, some do indiscriminate selecting of buds, not being able to tell apart the different kinds of wood.

Select the tree first, then select record bearing wood to bud from. Some budders look for fine looking fruit on a performance record tree and take fruit spurs adjoining such fruit, which, if it should be shipped, might after all prove deficient in keeping quality. Fancy looking fruit on the tree can easily be tested as to keeping quality before shipping. Just lay some of it aside and see how it cures. When we cured our lemons we noticed that after curing some of these very lemons that would have been selected as a guide to budding were soft and pithy, while others that were produced from certain hard, dark wood were ready to ship as strictly fancy. The fruit of shipping quality is the only profitable fruit.

Two Types

Eureka lemon trees, one of shade tree type and one budded from bearing wood.

We believe that this is one of the causes of decay in transit. Oranges have been picked from drone wood and found to decay in transit. How can we tell the good shipping fruit on the tree? Study the wood. Drone trees are found to be made up of sucker wood and white, soft wood; while the performance record tree consists mostly of firm, hard wood and is dark in color. Almost any tree of medium quality can be made a performance record tree by careful pruning year after year, especially if taken in hand when young. Cut out the drone wood. This gives the fruit wood a chance to grow and finally get the upper hand.

The best wood from which it is safe to bud may be found sometimes in mediocre trees, but in limited quantity only. It is hardly safe to use this unless you are a judge of wood. One can tell it by the way it droops as well as by its color and texture. The best wood has an angular growth, but not all fruit wood that grows angularly is the best.

As a rule only the quantity of fruit produced is considered in grading the performance record tree. At present quality is not so much considered. Our observation has been that the two go largely together. Therefor for the present we might let well enough alone, if there were not this danger of deterioration. When the good fruit wood gets the upper hand in a tree its

Mr. Englehart Showing Mr. Teague

"You see this tall almost sucker-like growth? That must be suppressed—cut off—while this shorter fruit-bearing wood is allowed to remain. If this is done all over the tree a fruitful tree will result."

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fruit will not only look fancy but have keeping qualities.

Firm, close-grained wood makes the heavy bearer of firm heavy fruit, which is the good shipper. Certain texture or grain in the wood produces like texture in the leaf and fruit. In fact bud variation can be traced back to wood variation. As the bud wood, so is the bud that springs from it. As the bud, so is the limb that arises from it. As the limb, so are its leaves. As the leaves, so are the blossoms and the fruit. In fact the character of the root affects all of these factors that finally form the fruit.

Let us analyze a drone tree. It will be found to be an aggregation of drone wood, drone leaves, drone buds and drone fruit, all easily identified by similarities. A perfect performance tree will be found to be composed of performance wood, performance leaves, performance buds and performance fruit, all alike in certain characteristics.

Another thing that may be overlooked is the age of the tree that you bud from. Use mature trees only, unless the tree is a thoroughbred, and even then be careful. The young thoroughbred tree, that is, the one budded only from the best fruit wood, matures earlier and has its wood hardened earlier.

If the performance record tree has some drone wood, and you happen to use that for budding, you might not improve your tree at all. Of course, the chances are that the buds you are superior, especially if you look performance wood. Even the ign ant budder will probably stumble better wood than he would find on ordinary tree. Many people make performance tree far more quickly a more satisfactorily by careful pruni year after year according to the wo You do not lose so much time. Th remove all suckers when just starti and all detrimental poor materi Many mediocre trees can be th profitably treated. Pruning accordi

Three Kinds of Growth

Here is a growing tree budded at same time with three kinds of "wood". Th tall lusty growth pointed to Mr. Englehart is sucker or strong growing wood whic should never be used. Then behind the netting is fruiting wood and "white wood" both of much less vigorous growth.

to wood will do more to form a pr ductive tree of quality than to top-bu from anything at random in a perform ance record tree, unless of course, i happens to be a perfect tree.

There is some danger that our orch ards will again deteriorate after short period of improvement. Wh not prevent this by studying budwood Look at the limbs back of the twig from which you cut.

A ten-year-old lemon tree persiste in having curly leaves on certai limbs. We rebudded these limbs yea after year with the very best buds, an again and again they came out curly We dug down to the roots and found the roots curly and knotted. It was form of root called bench root. Our only recourse was to take out that tree and replant. Thousands of such trees, which are drones in part, are at the present day in our orchards. The question is, "Will they respond to re budding?"

County Quarantine Powers

STATE Attorney General U. S. Webb has given his opinion regarding the matter of inter county shipments of trees and plants, or rather the powers of county horticultural commissioners, especially their power of forbidding entrance into one county from another. In a letter to State Commissioner Hecke he says:

"I have before me your communication of April 3 with enclosed correspondence wherein you request the opinion of this office as to the rights of a horticultural commissioner 'to refuse to admit nursery stock to a county without inspection because of its having come from a section where certain injurious pests are known to occur, even though in refusing to do so he is acting under the authority of an ordinance passed by the county board of supervisors of the county in which he is operating.'

"The correspondence which you have enclosed concerns the validity of a county ordinance purporting to vest in a county horticultural commissioner power to quarantine against any district adjudged by him to be infested with injurious insects or diseases. You do not expressly request the opinion of this office upon the validity of this particular ordinance, but I presume that you desire to be advised generally as to the power of a county to provide by ordinance for the establishment of quarantine.

"In opinion numbered 2574, rendered by this office prior to the amendment of 1915 to section 2319c of the political code, this office held that one county may legally pass an ordinance the operation of which will effect a quarantine against the horticultural products of another county and serve to prevent the importation of those products unless they pass the inspection tests prescribed by the ordinance if such ordinance affects those products not because they are the products of a particular county but because they are products which come within the class of products against which the ordinance authorizes a quarantine. In other words, it was there held that such an ordinance and the power of quarantine to be exercised thereunder must not be directed expressly against a particular county or the products thereof but must be general in its operation so as to subject all products to the prescribed test irrespective of the place or county where the same are raised or from which they are imported.

"By the amendment of 1915 to section 2319c of the political code, it is expressly provided 'that no quarantine shall be established, maintained or enforced for the protection of nurseries, trees, shrubs, plants, vines, cuttings, grafts, scions, buds, fruit pits, fruit, seeds, vegetables or other articles of horticulture against contagion or infection by the injurious diseases, insects or pests, except by such commissioner and in the manner in this section provided.'

"This language in 2319c which was added by amendment in 1915 (Statutes 1915, page 79) evidences in the clear est language an intention on the par of the legislature that the power of quarantine be exercised exclusively b the commissioner of horticulture wit the approval of the governor. Suc an enactment is doubtless within th police power which the state enjo and I perceive no constitutional obje tion thereto. A county is vested b virtue of Article XI, Section 11 of th

state constitution with power to make and enforce within its limits all such local, police, sanitary or other regulations as are not in conflict with general laws, and this power cannot, of course, be questioned. Sections 2319c is a general law, and any attempt by a county to enact an ordinance providing for the establishment or maintenance of a quarantine on horticultural products would be in direct conflict with that section and would, therefore, be invalid. This view is fully supported by the opinion of Judge Rogers in Howard & Smith v. Brock, copy of which you have enclosed.

"In our opinion number 2266 addressed to your office we advised that a county horticultural commissioner could not, acting under state laws, reject shipments into his county of diseased nursery stock without inspection and that the state law did not authorize him to quarantine nursery stock shipped from another county.

"In our opinion number 2495, addressed to your office, we advised that the state commissioner alone (with the approval of the governor) could establish a quarantine for the protection of one county against another county or state, and that the county horticultural commissioner had no such power under the laws of the state.

"As the county can neither enlarge or diminish the powers conferred upon the county horticultural commissioner by the laws of the state so as to conflict with general state laws, it follows that no county horticultural commissioner may refuse to admit, without inspection, the nursery stock shipped from another county, not under quarantine by the state commissioner, and no county ordinance can sustain the attempt to exercise such power."

Time to Get the Red Spider

Written for California Cultivator

WHAT is prettier than a clean, thrifty, well kept orange or lemon orchard? He who has such an orchard cannot gather all his profits into his own storehouse, he has to share its beauty with his neighbors and all who come his way.

Even I have been reaping my share of the beauty of the famous citrus orchards adjoining Los Angeles and surrounding towns. From the first of my visit here I noticed that some orchards have less leaves than others and on investigation found that the same little old "red spider" that makes us so much trouble in Fresno County in June, is at work here now. It is doing its worst to spoil the beauty of these famous orange groves and the crops in which the owners have invested their money, time and interest.

Those leaves which the spiders cause to fall are absolutely necessary to enable the tree to produce fruit of the best quality. What is "worse and more of it", the vitality of the tree is lowered by red spider attacks so that it takes it two or three years to recuperate. So you see it affects not only this year's crop but next year's crop also.

Over in my home locality, Reedley, I have seen farmers equipped with knapsack sulphur machines let the red spiders cut their crops in half as well as damage the trees. I cannot see how people can be so careless, or ignorant, for after a fellow sees it happen once, he ought to be able to "get wise".

Here, around Los Angeles, I find the growers are not acquainted with the use of the knapsack type of sulphur machine. Some of these growers who use sulphur for the control of spiders have been accustomed to wait until the trees were literally covered with the pests, then go in with a power sprayer, and, as one grower said, "shoot a ton of sulphur on a 20-acre orchard."

This method of treatment is all wrong. In the first place, by the time the trees are so thoroughly infested that you "cannot help seeing them", the damage is largely already done. Secondly, the extra amount of sulphur used is not only wasted, but is an actual detriment. The little particles of sulphur are so piled up on each other that they cannot vaporize, and when caught and held on the leaves so long interfere with picking and the proper cultivation of the grove. Some of the lemon growers say that pickers refuse to work in a grove that has been heavily sulphured. While not injurious, it is a very unpleasant experience to get sulphur in your eyes.

My experience in the use of sulphur for red spider control began in 1900 For three years I threw it on by hand. This is wasteful and the worst method for getting sulphur on one's clothing and in one's eyes. I have met orange growers, 13 years behind the times, who applied it this way last season. I have used a number of knapsack sprayers also, in the order in which they were offered for sale. I found the European types defective in one way or another. I began the use of an American Beauty last season and with it can reach the tops of the highest trees.

The secret of success lies in taking one of these machines and going through the orchard early, before the spiders have spread all over the trees. Give a puff here and there, where colonies are starting and "nip them in the bud." With a little practice one can locate these colonies in walking by without stopping to examine the leaves for them. You have applied enough sulphur when the particles are one-half to one-quarter of an inch apart on the leaves.

In my own work I begin early and treat four rows as I go. I controlled the red spiders on my 12-acre orchard of eight year old trees with 22 pounds of sulphur last season. Anyone can do the same who is willing to mix a little "horse sense" with his sulphur.

TREE RECORDS

Many plans of keeping more perfect records of the performance of various trees have been devised. One of the best of these was that issued by the Cultivator something over a year ago, as used by A. D. Shamel of the department of agriculture, who has been so active in proving out the worth of bud selection and testing of orchard trees. A few copies of these records are in hand in the Cultivator office for sale.

Now comes an entirely new one, "Dexter's Orchard Hand Book." This is a pocket-size book with four different forms for keeping complete record of every tree in the orchard, this as to production, irrigation, cultivation and general orchard care. The only criticism we have of it is that it is rather complicated for the busy orchardist to utilize. It is put up in neat leather container and may be carried in the daily work.

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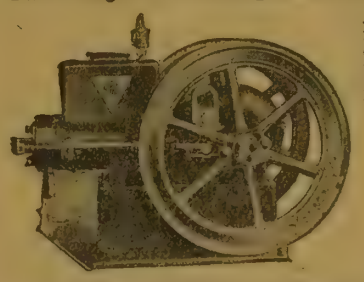

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Sixty dollars a ton for apricots is now being paid in the Hemet Valley, according to recent reports.

Preservation of Vegetables Without Canning

By Wm. V. Cruess, University of California

WE have become so accustomed to using vegetables from cans (or fresh), that we do not realize that they can be successfully preserved in a palatable and nutritious form by other methods. The scarcity of tin cans and glass jars makes it imperative that these other methods be used this season if any great quantity of vegetables is to be kept for use next winter.

The can factories report that no cans are available for home canning and that the large canneries themselves may not have enough for their own needs.

The methods described below are not especially new, but it is believed that they are not all generally known. They are very simple, cheap, effective, and can be used from the smallest to the largest scale.

Drying Vegetables

All root vegetables, such as potatoes, carrots, turnips, beets, etc., can be dried successfully by exposing them on trays to the sun. The vegetables should first be washed, peeled if necessary, cut into pieces about one-fourth of an inch thick, spread on trays or sheets of paper, and exposed to the sun until dry. Potatoes, carrots, turnips, and beets will dry in this way in two to four days. Onions require longer.

The appearance and general quality of all these root vegetables (especially potatoes) can be improved, the rate of drying can be increased, and molding during drying in foggy weather can be avoided if the vegetables are exposed to the fumes of burning sulphur a short time before drying. An ordinary fruit sulphuring box may be used for this purpose. If one of these is not available, the cut vegetables may be sulphured by exposing them on trays to the fumes of burning sulphur in any fairly tight room or box. A box may be constructed of rough boards and covered with building paper to make it fairly air tight. Cleats may be nailed to the inside walls to hold the trays during sulphuring. The box is made without a floor and one side is made into a door to admit trays. A hole about a foot square and 12 to ten inches deep is dug in the ground at one end of the box. A pan of burning sulphur is placed in this hole after the trays have been stacked in the box. The door is closed and the vegetables left until sufficiently sulphured. The time necessary is from ten to 20 minutes. The sulphured vegetables are then exposed to the sun on trays or paper till dry.

Peas and string beans should not be sulphured because of the bleaching action of sulphur fumes. Peas should be shelled and string beans should be strung before placing them on trays. They both dry rapidly.

Corn is cut from the cob and dried on trays very successfully.

The dried vegetables must be kept in covered crocks or tight boxes or heavy sacks to prevent insect injury. Before being used for cooking, the dried vegetables must be soaked in water about 24 hours. They may then be cooked and served in ways similar to those used for fresh vegetables. By proper seasoning and preparation, dried vegetables can be made into palatable dishes. Their nutritive value is not perceptibly changed by drying.

By Salting

Wash, peel, and cut the vegetables into pieces about one-fourth inch thick. Weigh them. Weigh out one pound of salt to each three pounds of vegetables. Place a thin layer of salt in the bottom of a crock or barrel or wooden bucket in which the vegetables are to be stored. Then build the vegetables and salt up in alternate layers until the container is full, using one pound of salt to three pounds of vegetables. Cover the vegetables with a layer of salt. Place a piece of wood on top of the vegetables and a heavy weight on the piece of wood. In 24 hours the vegetables will be found covered with a heavy brine formed by the salt and the juice from the vegetables. The vegetables will have greatly decreased in bulk. More sliced vegetables and salt in the ratio of one pound of salt to three of vegetables may be added to fill the jar or barrel and pressure applied again. Keep the vegetables immersed in this brine by means of a light wooden weight until they are to be used. If they show signs of spoiling add more salt. Before cooking soak out the excess salt as is done with salt fish or parboil a short time for the same purpose.

Do not use metal containers because the metal will dissolve in the brine. Use crocks or barrels or other wooden containers.

In Brine

Make a saturated brine by stirring three and one-half to four pounds of salt in a gallon of water. If it does not all dissolve at once, leave it in the liquid because it will dissolve when the vegetables are added later. Wash the vegetables. Slicing is not necessary. Place them in the brine and keep immersed by wooden weights, until needed. If signs of spoilage are noticed at any time, add more salt.

Vegetables may be kept in salt or brine indefinitely and make good substitutes for the canned or fresh vegetables. The most expensive grade of salt is not needed. It would pay communities to buy salt in ton or half ton lots if any large quantity of vegetables are to be put down in salt or brine. It will cost not more than eight dollars per ton f.o.b. factory if bought in this way. The cost for salt under these conditions would be not more than one-fourth cent per pound of vegetables.

Ornamental Planting Calendar for May

Northern California

Written for California Cultivator By A. R. Gould

THIS month many of the subjects which have been well established will be in flower in the perennial border, and we must also complete the planting of our annuals if possible.

Asters

These should be planted in solid colors and it will be necessary to watch for slugs on these as they appear to have a special liking for them.

Lobelia and Other Edging Plants

These will soon be ready to plant out and provide a rich display.

Begonias

Begonias (Tuberous and Fibrous Rooted) may be planted out during this month. The former will only thrive in the shade in fairly rich soil. Some very charming effects may be obtained by planting them in window boxes and having the trailing lobelia hanging in front. The pendulent type may also be used in hanging baskets in this way.

Dahlias

Tubers should now be planted in the prepared section which is to be devoted to them. Cuttings may be secured of many varieties which have formed strong shoots. Place these in sand in a warm situation and keep shaded. In a few weeks they will be ready to pot or plant in boxes, and they will even flower this year. Solid beds of singles in one color are very effective. The same applies to collarettes.

Roses

At this time aphis are generally giving trouble on the roses. Spray with "Black Leaf 40" or Aphine. You may

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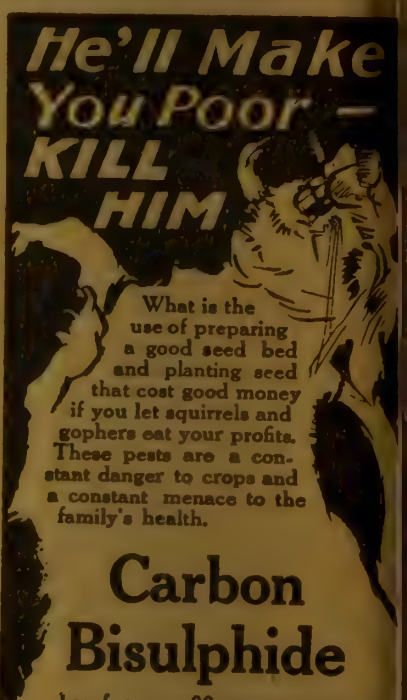
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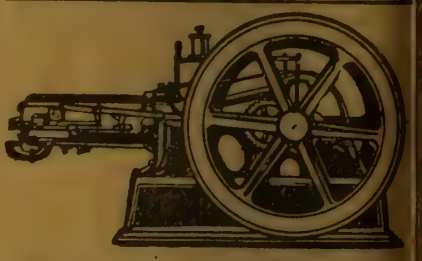

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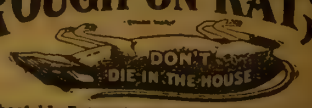

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END THEM ALL TONIGHT WITH a 25c box of ROUGH ON RATS
The Recognized Standard For Half a Century
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lso find mildew present. If so dust ith flowers of sulphur or spray with me and sulphur solution.

ender Bedding Plants

This month after the 15th or so it hould be safe to plant out cosmos and alvia, which will provide a brilliant isplay.

Southern California

Written for California Cultivator

IRISES are in their glory, and this is a good month for using the pencil and making memoranda of varieties to be purchased next fall. Unortunately most of the irises are with us only a few weeks of each year, ut their wonderful beauty compenates for their culture. They may be ad in almost every conceivable color nd shade and range in size from tiny warfs to those with stalks five and ix feet high. Most of the German ype are so hardy that they may even e reset now while in bloom, and that eems to be the prevailing custom with most amateurs, to want to plant hen it is time to harvest. But if ne will be patient and, as suggested, nake memoranda of varieties to be ecured, then in October or Novemer make a planting of some of these eautiful flowers, another springtime will make recompense.

Most of the varieties may be dried off after blooming. In any case, excepting with the Japanese varieties, do not keep the soil very wet during the summer. Some, even the common royal purple, or, more correctly, the Crimson King, if given too much water during the summer will decay, but with the coming of fall abundance of water and fertilizer gives stocky growth which means big, lush flowers in the spring.

Bulbs

Daffodils, tulips, hyacinths, in fact, nearly all the spring blooming bulbs, are now dormant or becoming so. It is a good time to withhold the water and let them dry off and ripen, and by the end of the month, or certainly by the first of June, these bulbs should be taken out and put in sand in the basement.

Gladiolus may be planted for another couple of months, but this is a most excellent month for the more extensive planting for the summer bloom. Those which have been planted should be given abundance of water and fertilizer. Gladioli revel in frequent waterings.

Roses

Give the roses heavy irrigation and force to the limit for three or four months. They are benefited by free cutting of the blooms.

Annuals

The seed of many of the annuals may still be sown where one has sufficient water to grow them through the hot months. This is a good time to remember that there is usually dearth of flowers in the late summer.

Perennials

Besides annuals, there are the chrysanthemums, golden glow, golden rod, Shasta daisies and many other plants which may be divided. Golden glow should be divided and planted at once. It is but a few weeks until blossom stalks begin to start, after which it is too late to get good results with these plants.

Chrysanthemums may be divided or, still better, grown from cuttings. Root in sand or in a very sandy soil. Chrysanthemums are amongst the most wonderful of our fall bloomers. They call for attention all summer through but well repay.

The Lawn

It is perhaps a little late for the starting of a lawn in the interior valleys, but in many sections, with abundance of water and its application two or three times daily until the young plants are well established, new lawns may still be made. At least weekly waterings should be given to the old lawn and thorough and deep raking with occasional applications of fertilizer make the lawn the most beautiful of all home ground ornaments.

This is a growing month and, with plenty of water and California sunshine, will add to the beauty of every home place.

Pest Fighting

Of all the months for pest fighting this offers the greatest opportunities. The slugs are always with us. Still worse are the aphis. Then there are rose beetles and cutworms and almost every imaginable creature which deprives us of much of the garden's beauty unless combated. Tobacco dust, tobacco extract, kerosene emulsion, even strong soapsuds, will aid in control of the aphis and many other pests.

For the rose beetles, cutworms and other eaters be free with the poisons or hellebore. Arsenate may now be had in powdered form which does excellent work. It may be mixed with water and applied with a small garden spray pump or even placed dry in a coarse meshed bag and shaken over the plants.

With bugs of every kind, it is always a question of "Do it now."

Chrysanthemum Culture

Written for California Cultivator By E. Braunton

NOW is the golden time to set out chrysanthemums, though many good growers do not hurry with the planting. I do not know any flower crop that responds more readily to preparation of the soil. One cannot stir it too deeply, nor anon fertilize it too heavily. One of the most successful growers I ever knew was a woman and she dug trenches three feet deep and put six inches of raw stable manure in the bottom before refilling. The trenches were but a foot wide and the young plants were set out on a line above the middle of the trenches.

The rows were three feet apart and the plants were half that distance apart in the row. A post was driven at each end of every row, down as deep as possible. Between these posts were stretched three wires at 18, 36 and 48 inches above the soil. In case of long rows a few light posts or stakes were driven in the rows, to better support the wires. As the plants grew they were tied to the wires, not tightly, with raffia, a material much used by plant growers. Narrow strips of cloth, soft large twine or candlewick will do, but the smaller hard twines are not good as they may cut the stem unless very loosely tied.

While chrysanthemums need a rich soil they do not need fertilizing for some time after planting, nor an abundance of water. Keep them free from weeds and growing slowly but surely, never allowing them to stop and harden the growth, but yet not stimulating them to heavy growth. Only when the buds begin to show should you start to fertilize. Then begin slowly and persistently, increasing the concentrated food as the growth develops, also the water supply. When the first color shows in the buds all feeding must cease or you will burn your buds off. They will die very quickly, turning black and falling off, while the remainder of the plant will grow gayly on. Nothing but over-feeding will produce such results. It is well to keep young plants pinched back by nipping off the tender tips with the thumb nail, but no pinching or cutting back should be done after July. I have known growers to allow plants to grow as they would until July, cut them off a foot or less above the soil, and get splendid crops of fair flowers. Unless the plants have become hard and tough at the base they will at once branch out into sturdy plants. But pinching is best. Disbudding must also be promptly and fully attended to. If plants are staked singly split shakes are a good material to use.

The Jujubes

Among the valuable economic plants having a decided ornamental standing the jujubes should not be overlooked. The common species, Zizyphus jujuba, thrives in all parts of California, even on the desert, for good specimens have been received from Palm Springs in Riverside County, a district possessing a very exacting summer climate. These shrubs also thrive in all soils and with water, except on heavy clays, but will not endure stagnant water. There are large plants in Northern California now 40 years old and 25 feet high, that have borne good crops over a long term of years and still retain fine appearance as ornamentals. They merit more extensive use in all parts of the state, even in the front yards.

The Washington Palms

Lovers of palms and students of plant names may become confused in looking for our common fan palm in cyclopedias and up-to-date plant catalogues. Our common, thick-trunked

Continued on Page 547

Form 813 NOTE: REFER TO BULLETIN BY DATE & NUMBER.

TECHNICAL DEPARTMENT BULLETIN

DATE NUMBER

TO ALL DEALERS:

For your information we wish to advise that in our experiments and tests here at the factory with our new Eight Cylinder car, we have been able to secure uniformly better results with Standard Oil Company's Zerolene motor lubricant than with any other which we have used.

Please understand, however, that we do not wish this to be construed as an attempt on our part to dictate the brand of oil which you should use, but merely to call your attention to the fact that this particular brand has given us better results than any others which we have tried, and are giving you this for your information.

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Across bays or rivers a flat-bottomed boat is used to unreel the message-bearing cables and lay them beneath the water.

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Through dense forests linemen are felling trees and cutting a swath for lines of wire-laden poles.

Vast telephone extensions are progressing simultaneously in the waste places as well as in the thickly populated communities.

These betterments are ceaseless and they are voluntary, requiring the expenditure of almost superhuman imagination, energy and large capital.

In the Bell organization, besides the army of manual toilers, there is an army of experts, including almost the entire gamut of human labors. These men, scientific and practical, are constantly inventing means for supplying the numberless new demands of the telephone using public.

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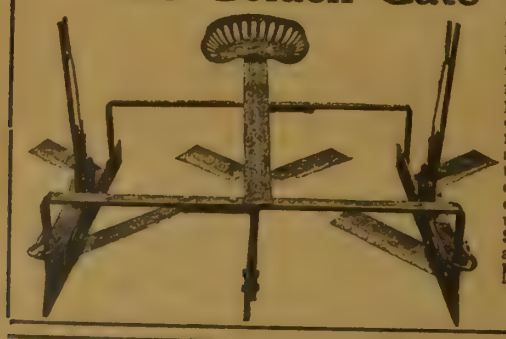
RED CROWN

The Golden Gate Weed Cutter



cuts seven feet or less, weighs 230 pounds and is all made of steel. The Golden Gate Weed Cutter is the greatest of its kind on the market. For workmanship, simplicity and durability it cannot be excelled as it does its work to perfection. Those who are using it say that no money could buy it if they could not get another. It not only cuts all kinds of weeds, but cultivates the ground as well. One user said that it has saved him $200.00, as he did not have to plow after using.

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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Turning Under Cover Crop

Have just finished irrigating walnut orchard growing cover crop. Want to work ground next week. Would you advise shallow or deep plowing, or would disking to preferable?—Santa Ana.

A green manure crop should always be well turned under and should always be well soaked by irrigation before plowing. Deep plowing is preferable to shallow plowing, but if the orchard has not been deeply plowed in other years it will be best not to disturb the permanent roots at this time of year. The ideal method of handling a green manure crop is to thoroughly irrigate the land, then use a disk harrow to cut up the green crop and mix it with the soil, and after this is done turn all under as deeply as can be done without disturbing the permanent roots too much. The disking mixes the green crop with the soil and leaves it in a condition to decay readily, which is what is needed as the crop does not become of any value as manure until well on the way to decay. If the orchard has been plowed deeply once a year and the ground is well irrigated before plowing there will be no harm done by plowing at any time. All late plowing should be followed with a disk harrow having the disks set straight, and after the disk a drag harrow should be used to further pulverize the surface and fill the cuts made by the disk. This prevents evaporation and hastens the decay of the green material.—J. B. N.

Limas After Barley

Is there any ground for the statement that limas will not make a satisfactory stand if planted after barley? My land is sandy loam and is well fertilized. The stubble will be turned under and the ground irrigated by about the middle of May. Would this stubble in the soil stand in the way of planting the limas by the middle or last of June? The barley on the land mentioned is remarkably fine.—Subscriber, Downey.

We can see no reason why the stubble ground should not be the finest for the lima beans where it is to be properly irrigated and the ground put into good condition before the planting. Stubble lands or manured lands used to be considered "poison" for crops under dry farming, this because there was not sufficient moisture to cause decay, and the straw remaining during the summer permitted more drying. If possible to plow, plow deeply and then irrigate very heavily.

One-Horse Garden Implements

A proposed five-acre truck garden for a man of limited experience offers a labor problem that will discourage any but the most husky. Can you not give me information on the most up-to-date, one-horse tools for increasing one man's efficiency? Are any one-horse riding tools made? If not, why not? Many men would undertake a good sized garden if they felt they would not be swamped by scarcity of labor.—Subscriber, Chula Vista.

There is no one-horse riding cultivator, and there hardly could be, for the traction would be altogether too heavy in properly prepared soil. It would be impossible for the horse to handle more than a one-row cultivator, and it would be impossible to arrange the wheels so that they would run without injury to the rows on either side. As to labor saving a pliances for the garden, there a hand cultivators, cultivators direct by hand with gasoline for motor pow —we have never seen this latter wo and do not know as to its efficien —one-horse cultivators, and one-hor planters. But the best place to g information is from a practical ga dener or, better still, from a visit a number of implement houses whe you can make inspection of the ne est.

Fertilizing Apricots

Have an apricot orchard of abo 750 trees, set 25 feet apart each wa About 500 of the trees are very heavi loaded with cots. Would you recom mend the use of a commercial fert lizer to increase size of fruit? If s please advise whether it should b used in furrow before or after irri tion.—Subscriber, Hemet.

First we would apply nitrogen i some quick-acting form like nitrate o soda or nitrate of lime or sulphate o ammonia, then any complete fertilize Either of the nitrogen fertilizers re ferred to at the rate of 200 or 30 pounds per acre and the complete fe tilizer at rate of 500 or possibly 80 pounds per acre.

Aphis

Please advise best means of contro of black aphis on orange trees. Wil the same spray used for the contro of black aphis prove effective with green aphis? When is the proper time to spray, and will eggs, larvae and adult aphis be destroyed with one ap plication?—Subscriber, Exeter.

Spray with tobacco extract or kero sene emulsion, which are probably the best remedies for control of this pest It may be necessary to repeat a time or two until all the aphis have disap peared.

Painting Trees

Have painted parts of trunks and limbs of orange trees having scaly bark. A neighbor tells me I will lose the trees, while another claims tha paint is an effective cure for scaly bark. Which is right?—Subscriber.

Linseed oil is not beneficial to the bark of many growing trees. The paint is often used to cover wounds where large branches are cut but the warning is usually given to prevent the paint from running down over the bark if possible. We canpot say what the result will be where you have applied it over the entire trunk but would strongly recommend that instead of paint you should use, in any future treatment, the Bordeaux paste according to formula given in the Cultivator of November 4, 1915.

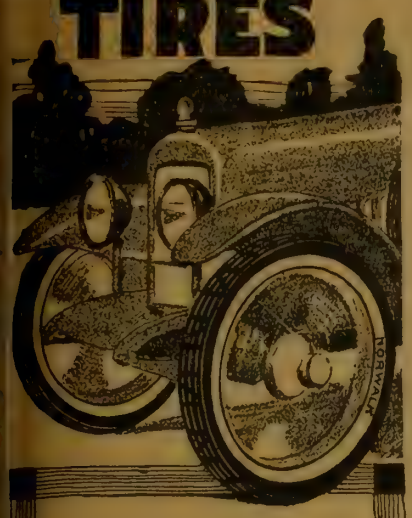
Corn Ear Worm

A Yuba City inquirer wishes to know as to the formula for corn ear worm, referred to some time ago as having appeared in the Cultivator of a couple of years since. We do not have the inquirer's name on the letter which contained stamp for reply but would refer to page 485 of the issue of April 28, which describes the same method. The same subscriber referred to having an excellent method of drying sweet corn. We would be glad indeed to have this information for our subscribers.

Trees Near Line

I have a lemon grove planted 20 feet between the rows and set ten feet from the property line. My neighbor has planted a single row of eucalyptus trees about two feet from the line. The eucalyptus will destroy my first

NORWALK TIRES



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row of trees and injure my pipe line. What recourse have I, and what are the laws governing the same?—Subscriber, Whittier.

There is no law touching this particular point. Plainly such a row of trees will, as subscriber intimates, cause serious injury for several feet from the line, but that injury cannot be anticipated in a court of law. After it has occurred, however, it is probable that a suit for damages would result in court giving judgment for such damages as are proved.

Jack Rabbit Pest

We farmers are urged to raise crops and I am trying to do my share, but how about the jack rabbits? Did you people at the desk ever take them in consideration? Of course I will raise beans, at least I will plant them in the ground; but there are thousands of acres idle here for a jack rabbit breeding pen. As soon as the beans appear above the ground, along comes Mr. Rabbit when I am asleep and eats them down to the ground, and there are no beans left to feed the nation with. Mr. Jack got them before the hungry people had the smell of them. Hay is scarce. I planted enough this winter to feed several cows with, intending to make milk and cream and butter to feed the people with, but Mr. Jack is getting hold of the young tender plants, already. If I don't get hay, I will go broke, and the nation will have that much less milk, cream, butter and pork. What is to be done about it?—Subscriber, Wasco.

Some day we will conserve this waste by doing as Australia does and putting these pests in tin cans and selling them as chicken or something else for the consumption of Easterners. Then we can have our rabbit drives and turn the profits of the day's fun over to war sufferers. For the time being fences or poisoning are about the only remedies. Fencing is very expensive but at this time of the year with feeds drying up, fruits poisoned with strychnine will cause the death of thousands of these pests. The entire neighborhood should unite in the campaign.

Ration for Broilers

Please give formula for fattening ration for growing chickens so they can be marketed for broilers as soon as possible.—Subscriber, Tulare.

Chicks that are intended for broilers may be fed a mash of equal parts bran, middlings, corn meal and rolled oats moistened with sour milk as early as the end of the first week. As they grow older gradually substitute ground oats for the rolled. Until they are six or eight weeks old feed the moist mash once a day, keeping a dry mash before them and giving a feeding of scratch grain at night. If milk is not available the mash may be moistened with water, a little beef scrap being added to take the place of the protein in the milk, but must be fed more carefully lest it cause bowel disturbance. At eight weeks of age, or whenever it is possible to distinguish between the sexes, separate pullets from cockerels and confine the latter in a small pen. They may now have two meals of moist mash daily, and need little, if any, hard grain. A good formula for the mash from this time on is: Two pounds corn meal, one pound middlings, one pound ground oats, eight pounds sour milk. Another good ration consists of ground oats, ground barley and middlings, equal parts. Sour milk is an important part of every fattening ration. If it is not available, about ten per cent of beef scrap or blood meal should be added. The mash should be quite soft during the fattening period, but when fed to young chicks should be just crumbly, that is, as dry as it can be made and still stick together.—J. A. K.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.
Unsigned communications receive no attention.

Ditch Right

A has a vested water privilege across the land of B, not deeded. He has not run water for four years. Now he thinks he has a right to dig out the ditch and run water without getting permission from A. Would he be liable for damage if he digs on A's land?—Subscriber, Lemoore.

Mere non-user for a period less than five years raises no presumption of an abandonment, but a cessation of use coupled with any act clearly indicative of an intention to abandon the right will have the same effect as an express release, without reference to the time. It has been held that mere non-use of a vested easement is not sufficient to defeat the right even though it be for 20 years or more. The intention to abandon or abandonment itself is required.

Buildings on Leased Land

I have leased land on which I have placed temporary buildings without any provision in the lease. Could I be prevented from removing these prior to the expiration of the term? If so, what is the provision of the law in such cases and could the landlord give written consent for the buildings to be removed at the tenant's election?—Subscriber, South Pasadena.

A tenant may remove during the continuance of his term anything affixed for the purposes of trade, manufacture, ornament, or domestic use, if the removal can be effected without injury to the premises, unless the thing has become an integral part of the premises. Articles attached to realty only by their own weight, such as would be the case with temporary buildings, are prima facie personalty and articles affixed to land in fact, although only slightly are prima facie realty. In general the presumption between landlord and tenant is that annexations by the tenant are fixtures and belong to the owner, except as first hereinabove stated. The landlord can, of course, give his written consent for the removal of the buildings, unless a subsequent mortgagee has acquired an interest in the land.

Inheritance

An unmarried man over 21 years, owning considerable property in California, has brothers, sisters, and both parents living. If he should die without a will who would inherit his property?—A Rancher.

In the above case the whole estate would go to the father and mother in equal shares.

RIVERSIDE FAIR

Believing in the old saying that "the early bird gets the worm" officials of the Riverside County Fair have started preparations for the next agricultural exhibition. The Riverside fair, which is the second largest in California, will this year be held on October 9-13. The premium lists have just been issued. A copy of this book will be mailed to anyone addressing a card to Secretary Robert L. Taber, Riverside.

The Riverside fair this year will contain many new departments. The scope of the educational work among the children will be extended. Attractive cash prizes are offered boys and girls under 20 years of age exhibiting the best samples of their school work, the best cattle, the largest pumpkin, the best formed two dozen ears of corn. For the girls alone $10 awaits the juvenile preparing the best exhibit of five jars of canned fruit.

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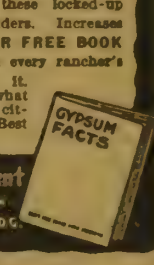

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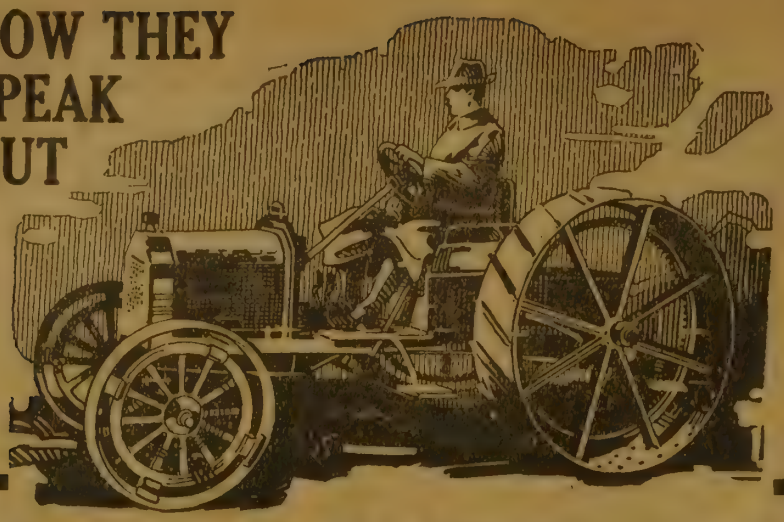

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two of us Mr Frear (expert Machinery buyer for the Count and myself Shorty Mackey pullled 388 gallons of gasoline 20 gallons of oil and 20 pounds of grease with a standard oil tank as the trailer containing the above 6 miles ou out to my ranch. That work horse is sure one pulling fool and if held the ground like a tractor many times its weight and done better than I expexted. Both of us are practical macnery men and every test giv n the Universal Trase has proven very good ind eed. I am wondering how much the blamed thing will pull

Youre truly
F.H. MACKEY (SHORTY)

WESTERN UNION TELEGRAM

Spokane, Wash., Jan. 23, 1917.

H. Larson, 818 Central Bldg., Los Angeles, Cal.
Your wire this morning. We think enough of Universal Tractor Attachment to contract for seven hundred fifty this season. Interest manifested wonderful.

SEVEN SEVEN COMPANY,
(Agents Universal at Spokane.)

WESTERN UNION TELEGRAM

Rigby, Idaho, Feb. 27, 1917.

Gerlinger Motor Car Co., Tacoma, Wash.
Hold the five counties for us. Wire your field manager to get in touch with us. Could meet him in Pocatello. Our organization will satisfy you and make the territory active.

RIGBY GARAGE.

The above letter alone is CONVINCING PROOF OF THE PULLING POWER AND ALL-AROUND USEFULNESS OF THE

UNIVERSAL TRACTOR ATTACHMENT $275

1500 lbs. of all-steel Powerful Driving Tractor Rear Wheels, Front Wheels with Non-Skid Center Flange, Heavy Tubular Steel Strain and Weight Axle, Perfect Hitch. All ready to attach without mechanical change whatever, to most any car chassis, Studebaker, Ford, Dodge, Maxwell, Overland, converting same to powerful light highly mobile Tractor, for Farm, Orchard and Road use.

Saturday Night, a Big Week's Work Done.

Sunday Morning, Ready for Recreation's Fun

"Tractor Facts" Free"
Please send me above:

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Farm (Kind of).....
Other business .....

Address C. H. Mellen Tractor Sales Co., or Gerlinger Motor Car Co.

AGENTS
Some Territory Still Open for Representation

Responsible men or firms wanted to sell UNIVERSALS. Without doubt this will lead all Tractor sales in the Northwest in 1917. Far more practical for all kinds of soil and all kinds of work than anything in the market. For any man, alternate use of pleasure car or not.
Wire or write Gerlinger Motor Car Co.

C. H. MELLEN TRACTOR SALES CO.
315 W. Pico St., Los Angeles, Cal.
Distributors for Southern California.

GERLINGER MOTOR CAR CO.
Manufacturers of "Universal" Tractor Attachment and Gersix Trucks
Tacoma, Wash.

GRAIN SORGHUMS

Continued from Page 531

and too heavily for any but the most favorable conditions.

The distance commonly allowed between the rows is three and one-half feet, since this distance provides ample room for the development of the plants and for cultivation.

The distance between the plants in the rows will be governed by the character of the soil and the supply of moisture, and also by the variety employed. On fertile loam soils abundantly supplied with moisture, the heavier rates of seeding may be employed, while on sandy soils with a limited supply of moisture it is often advisable to allow a distance of even ten to 12 inches between the plants in the rows. Again such short varieties as dwarf milo and others of the durras can ordinarily be seeded heavier than such large leafy types as the kafirs, since the individual plants do not require as much moisture or as much space for development as do the plants of the latter type. In the case of the Milos especially, it is usually advisable to seed as heavily as conditions will permit, otherwise the plants stool profusely, causing uneven development of the heads as well as uneven ripening. All of the durras and some of the kafirs, if provided with ample room, will stool to some extent, but none of them stool as prolifically as the milo.

The amount of seed ordinarily required per acre will be from two to six pounds. When planting the sorghum crop care should be exercised to see that the seed is placed below the surface mulch in contact with moist soil where it may quickly absorb the water needed for germination. This will usually be at a depth of from two to three inches. If the seed bed is rough and open, however, as is often the case on spring-plowed land, deeper planting may be advisable, though the maximum depth on ordinary soil is probably about four inches. If planted too shallow, the seed will be placed in the dry mulch, where germination will be delayed, which will often result in a poor, uneven stand.

When the surface of the soil is rough and open or the layer of dry soil so deep that it is difficult to get the seed down to moisture, good results have often been obtained by attaching shovel furrow openers on the shoes of the planters. These shovels provide small furrows by pushing the clods and dry soil aside, thus making it much easier to get the seed down to the moist soil below. This provides a condition much the same as that obtained by listing, except that the furrows are smaller and much shallower, being no deeper than necessary to get the seed below the mulch.

Listing sorghums has not been practiced to any great extent in this state, though it probably could be employed to advantage especially on light soil or for late planting. When planted with a lister the seed is planted in the bottom of a furrow several inches below the normal level of the ground. This furrow is allowed to remain open until the plants attain some size, when it is gradually filled in by the successive cultivations. When planted by this method the main roots of the plants are forced to develop several inches below the surface of the soil, making it possible to maintain a deeper mulch without injuring the roots.

On soils that are heavy or wet, however, listing may be a disadvantage since the soil in which the seed is planted may be too cold for rapid germination, or the bottom of the furrow may bake so hard that the young plants will be unable to force their way through.

Care of the Crop

The attention necessary after the crop has been planted will depend wholly upon the condition of the field and the season. The sorghums grow rather slowly at first, and it often happens that the field becomes foul with weeds before the plants are large enough to permit regular cultivation. When this occurs the weed growth may be destroyed by the use of a harrow without severe injury to the crop, provided the teeth are set at an angle of 45 degrees. Again, if the soil becomes crusted due to rains, as frequently occurs on heavy soils, the crust must be broken as the young seedlings are often too weak to push their way through. If the crust is not too thick it may be broken with a harrow, though it is usually better to use a corrugated or dunham roller, as this implement breaks the crust without injury to the plants. In general it may be said, however, that either the harrow or the roller can be employed with safety until the plants attain a height of four or five inches.

As soon as the plants are large enough so that the rows can be plainly seen the field should be cultivated, using an ordinary two-horse corn cultivator. This cultivation should be at least four inches in depth as the main object beside the destruction of weeds is the establishing of a deep mulch. For this purpose an implement with rather small shovels is to be preferred since it pulverizes the soil more thoroughly and leaves the surface relatively smooth and even. Two or three similar cultivations should be given at intervals of from two to three weeks or until the plants attain a height of about three feet, after which no further cultivation will be necessary. Normally the crop will continue growth and mature without further attention.

Irrigation

While the larger proportion of the grain sorghum crop will probably be grown without irrigation, occasions may arise under which irrigation may be advisable. Especially is this true when the sorghum is to be grown as a second crop following grain hay or similar spring crop. In such cases it will nearly always be necessary to irrigate the land before seeding.

The time of irrigating and the number of irrigations after the crop has been planted will depend wholly upon local conditions. Water should be applied when the plants appear to be affected by drouth. Except when the natural precipitation is very low one irrigation will usually be sufficient this being applied when the plants start to head.

For irrigating the sorghums the furrow method may be employed, but if the land has previously been leveled and checked flooding is usually preferred because of the smaller amount of labor involved. After irrigation the field should be cultivated as soon as the soil is dry enough to work properly.

Book Review

"THE POTATO"

"The Potato," by Arthur W. Gilbert Ph.D., professor of plant breeding New York State College of Agriculture, assisted by Mortier F. Barrus Ph.D., professor of plant pathology New York State College of Agriculture, published by the Macmillan Company, New York, $1.50.

This is one of Bailey's Rural Science Series and gives a most complete presentation of the potato from its history, description, planting and cultural methods to harvesting and even marketing. In the preface we note:

"This book is intended to give brief and practical suggestions on the growing, breeding and marketing of potatoes. It is written especially for the practical farmer and the student who may wish concise information on the potato without having to read many miscellaneous sources of information especially experiment station bulletins which, although highly valuable, are likely to contain much detail."

Again, in Chapter I:

"The potato is one of the most widely cultivated of the agricultural plants. The esculent tubers, which are developed underground on slender leafless shoots or stems, are used for food and also industrially. The plant is allied botanically to several powerful narcotics, such as tobacco, henbane and belladonna, and also to the tomato, eggplant and capsicum.

"The potato comprises about 25 per cent of the food of European and English-speaking peoples. Only the Oriental peoples exist without it. A greater weight of potatoes can be produced to a unit area than any other food crop. In potatoes we produce 161,000,000 tons, corn 128,280,000 wheat 106,000,000, oats 65,600,000, rice 55,600,000, rye 57,000,000, barley 33,410,000."

The book has 318 pages covered by 15 chapters touching upon acreage history, classification, potato breeding climate, soils, manures and fertilizers planting, care, insects and control, diseases and control measures, harvesting, marketing and storage, uses of the potato, cost of production.

How to Raise Lettuce

IN the bulletin, "Lettuce Growing in California," by Stanley S. Rogers, published by the University of California, we note that Prof. Rogers predicts great development of the lettuce industry, since so heavy a demand for California-grown lettuce is growing up that it is often difficult to supply the Eastern demand. Last year more than 2000 acres were planted to lettuce in California.

The cost per acre of growing lettuce is estimated by the university at from $75 to $100. Experienced growers under favorable conditions can produce 2000 dozen heads per acre, and at an average price of 12½ cents per dozen, this means, for skilful farmers on good land, a gross income of $250 an acre and a net income of $176.80, with the land in use for lettuce only three or four months.

Lettuce is very exacting as to soil requirements. It is best suited to a rich, light loam, and should never be planted on soils of poor quality. Irrigation is necessary throughout the entire growing period, except during the rainy season, but the crop is easily ruined by an excess of water. The crop stands cold better than heat, and in many of the interior valleys of the state it is impossible to raise lettuce of good quality during the summer.

At the time of planting, the soil should be in the finest possible condition. Many growers apply from 15 to 25 tons of manure per acre. The plants should be grown on raised beds or ridges, 12 to 18 inches wide, four to six inches high, and ten to 15 inches apart. The seed may be planted directly in the field or the grower may use seed beds, transplanting the plants when they are from two to four inches tall, the larger size being preferable during the warm weather. The best size of plant for transplanting has a top three inches tall and roots two inches long. The field should be irrigated a few times before planting and again after transplanting the plants. The water should be run between the beds and not flow over the tops, and should never be allowed to cover the plants. There should always be an adequate amount of moisture in the soil from the time the plants have commenced to head until they have matured. The hoeings necessary on raised beds will vary from one to five. The earth around the plants should not be allowed to harden.

In the interior valleys and especially in Central California, plants set in the field during September should mature during November and December; those set in the field during February, from February to April; and those transplanted during February and March, from April to June. In warm weather the lettuce should be cut early in the morning and never when the heads are wet, as in that condition they will heat and quickly rot. The field is gone over from two to five times during the cutting season. The crop is packed for shipment in crates, the crates being lined with heavy paper and iced with cracked ice, and then shipped in iced or refrigerator cars.

At the university farm vegetable garden, 80 different varieties of lettuce were grown during the past season, and most of them did well. The four varieties, however, now most in favor in California are the Los Angeles or New York Market, which is best adapted for long distance shipments and which withstands cold weather injury but is not adapted to maturing during hot weather; the Iceberg, especially adapted to maturing during hot weather; the Hansen, a desirable variety for local market; and the California Cream Butter, with outer leaves slightly spotted with inconspicuous brown spots, this variety having a rich, creamy taste.

The chief difficulties the lettuce grower meets are lack of a satisfactory stand, due to unfavorable weather, seed of poor germinating power, or to over-irrigation or under-irrigaton; or diseases, such as "stem rot", a fungus disease controllable by good drainage, and "sunburn," a blackening of the edges of the leaves inside the heads, caused by a period of excessively hot weather from the time the plants are half grown until they have commenced to head, and preventable by planting in the fall or early spring and by frequent irrigation during the spring if the weather is very hot and dry; and failure to produce solid heads, caused by poor seed, too little moisture, or excessively hot weather while the plants are maturing, and controllable by using well-selected seed, applying sufficient moisture when the heads are maturing, and harvesting immediately after the heads are matured, in case the weather is hot during the late spring.

Plant Dahlias

Alfred D. Robinson writes in California Garden regarding dahlia planting:

"Although a dahlia will grow under almost any treatment there are a few things worth remembering when planting them. As they make an immense growth in a short time they require a commensurate development underground. Provide for this by making a large hole. Unless the soil is quite crumbly it will not readily fill it under and around tubers, where these are large, and dangerous air spaces are apt to be left, especially in stiff soils, so that in these latter it is safe and sane to bed the tuber in sand or light soil. Failure to properly compact in planting is a frequent cause of the loss of plants that start to grow and then wilt and die. It ought not to be necessary to say once more that dahlias sprout from the crown and not from the tuber eye like a potato, so that a tuber broken off short with no neck is hardly worth planting, no matter how large and solid, but these can be placed in the shade on damp ground or planted with a portion projecting and used after they really sprout.

"It is not good practice to leave or plant large clumps; they should be divided into portions not exceeding three tubers. The division is best done with a large sharp knife or little saw, and the cutting should be done from the top through the crown. A good sized clump with only one old stalk can be made into three or four good divisions by cutting right through the old stalk and leaving a piece on each division.

"I hope there will be many trials of dahlias in boxes this year; pots are liable to prove too hot for the roots. Ample drainage should be provided and some charcoal incorporated with the soil to prevent souring. Rather small and compact growers should be used and considerable pinching back practiced. Possibly it would be best to sink the boxes in sawdust or coarse sand and then the growing might be done in full sun. If at all successful some wonderful decorative units would be furnished. I would use a very clean sandy loam if I could find it, expecting to provide liquid fertilizer at the blooming period. I should not imagine that this experiment offers any hope of success when tried in shade or lath houses or in the sun unless precautions are taken to keep the box cool. Think of a dahlia show of specimen plants full of bloom."

USE CARE IN GARAGE

While the hint may not be of value in California, yet on the safety-first plan it may be well for every auto owner, even in this state, to see to ventilation in his garage. The Farmers' Review remarks:

Every winter we read of several deaths from asphyxiation in garages. The trouble is that the gas from the exhaust pipe of any gasoline engine contains a varying percentage of a very deadly gas that may accumulate in a small, closed room in amount sufficient to kill. A man goes to his garage to work on the machine, shuts the room up tight because it is cold, starts the engine—and is found dead. Ventilation is the simple and sure preventive and is a precaution all should take who keep their autos or other gas engines in small, close quarters.

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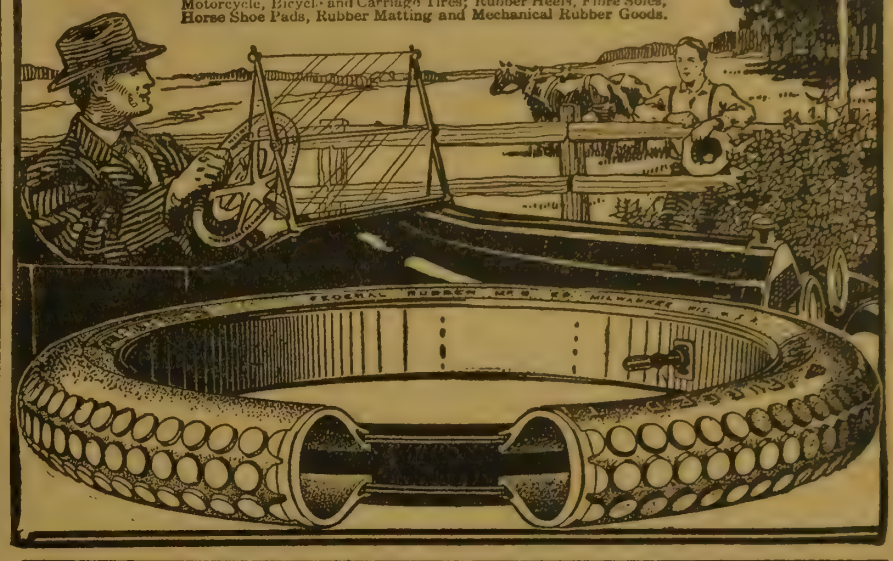

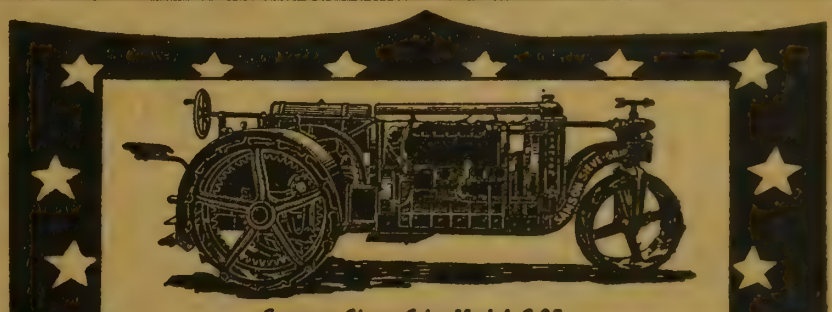

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The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, May 12, 1917

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Semi-arid California has many spots by cooling streams as indicated by our cover photograph this week. It will soon be time to seek out such spots and take a moment's rest. This is a year of labor shortage and valuable moments, but rest is just as essential as in a less busy year.

FRANCIS P. SOUTH

Francis P. South, secretary and treasurer of the Kirkman Nurseries at Fresno, died last week. Mr. South was 46 years of age, and has been a factor in the building up of a great horticultural interest, and the state suffers a great loss in his passing.

ATTACKING TORRENS

The California Torrens title act is to be tested as to its constitutionality in the United States supreme court. It has been carried up by Pasadena parties on the ground that the registration sought is a violation of a portion of Section 10 of Article 1 of the constitution. The state supreme court has held that the Torrens land registration act is constitutional.

We sincerely hope it will stand before the federal court.

GET BUSY

It seems impossible for us to realize that our nation is a participant in the greatest war in history. In fact, we are altogether too indifferent, or at least it appears that we do not have full appreciation of the situation. For weeks congress has been laboring to get our country into a position where it can call an army. This is not a time to be over-critical, but it is a time when we may well urge each other to greater endeavor.

We have seen the statement that in Germany strong pressure is being brought to bear against the government to secure swifter action, and even after nearly three years, severest criticism is directed against it because it is charged that had mobilization of the German troops been hastened by only four days Paris would have been entered before the battle of the Marne, and the war ended.

If those four days could have been made so valuable to Germany, America's delay of months in getting ready to mobilize may be serious.

$'S

How much is a dollar? is an interesting question this year. We used to carry home an arm-aching load of sugar when we yielded up one of "Uncle Sam's iron men", but now we slip the dollar's worth in a side pocket and swing along home without inconvenience. It's not a comfortable feeling.

The Taxpayers' League is investigating as to how many cents there are in a dollar in a purchasing way, and it finds that its value in 1916 was only 56.6 cents as compared with 100 cents in 1900, and that its purchasing value today is only 40.3 cents compared with 1900. These are food values, but we doubt not clothing, shoes and other personal necessities are approximately on the same ratio. True, the farmer is also receiving more for his labor, but on the other hand most of the salaried workers are receiving no increase.

We are all paying the cost of submarining and other practices of war. While dollars may be increasing in number they are decreasing in size.

WHEAT SHORTAGE

More and more of good American grown wheat is going to the bottom of the Atlantic, and even without taking into consideration this destruction, the prospect of the world going somewhat hungry is becoming more serious. The statistical notes on cereals published by the International Institute of Agriculture at Rome report a deficiency in the northern hemisphere of 63,000,000 quintals, and to cover this a possible supply of about 50,000,000 quintals from the southern hemisphere. The institute says:

"We ought to add that this deficiency seems all the more serious when it is remembered that a balance of supply and requirements was only approximately attained by dealing with a remainder of 100,000,000 quintals, the result of the extraordinarily plentiful crop of 1915 and 1915-16."

Should the war end Russia and Roumania may possibly release enough to avert disaster, but in any case we are banking on right weather conditions and most rigid economy of supplies now in hand, and on substituting corn, other grains and beans so far as possible. As a rule Americans will not go hungry, but every consideration demands production to the utmost.

Coming closer home, May wheat sold in Chicago on Tuesday at three dollars per bushel, and on the same day a wire from Washington stated that there has been abandoned by the farmers of the Middle West 12,437,000 acres, of practically one-third of last fall's planting of winter wheat. This leaves still standing, 27,653,000 acres, more or less indifferent as to condition, and 7,000,000 acres short of last year's harvest. Numbers of fields will be planted to spring wheat, oats or other spring crops, and will produce some food. The department of the interior is urging appropriation of $5,000,000 to bring vacant land under irrigation projects under production this season if possible.

CONSERVE

Use more horses; save more men. The labor situation as well as the food situation is a serious one for the producer. In the feeding of animals shred the coarser fodders and induce the animals to consume every straw. Study rations, study market reports, and secure nutrients at lowest possible expenditure. Don't slaughter or market too early. Thousands of pigs from 75 to 150 pounds are going to market today at lower prices. These should be fed—if possible to secure feed—until 50 or 100 more pounds are added. This will increase the world's food products; it will increase the profits. Increase the number of animals; better, increase their quality by using only sires of highest productive power. Eliminate disease. In other words, be as careful in the sanitation about the animals' quarters as one should be about the home. Irrigate less and cultivate more. Every drop of water in this state this year should mean production of beans or of some product which will help us to feed ourselves or our stock.

Fire loss should be reduced. We have often talked of forest fire prevention, and in this respect the necessities are intensified. But not only forest fires; be sure that home and farm buildings are protected and cared for in this respect as well as possible.

Last, and perhaps most important, conserve in the home. It is worth while to call special attention to the articles which have been appearing in the household department of the California Cultivator for several weeks. They have had to do with canning and drying of fruits, vegetables, meats, in fact, every kind of food. There are other articles coming along the same line. In the shortage of cans this year how may we dry or cure fruits and vegetables and save the cans? This is answered by Prof. Cruess' article on another page and will be answered by articles to appear in later issues.

Last week the Cultivator asked on this page for suggestions from readers who had been successful in drying fruits and vegetables. This is to repeat that request. We, all of us, need all the help we can get along this line. Pass on your experience.

LABOR EXCHANGE

The California Cultivator will be glad to aid in the campaign to secure more efficient helpers on the farms. The next few months will be busy ones and some crops may be lost because of lack of help. We believe, howver, there is abundance of help if employer and employe can be brought together at the right time. The schools will soon be closed and thousands of husky young men, because of the advantage of being employed, and for the better reason—patriotism, will be glad to secure work. Mr. J. B. Lilliard of the Gardena Agricultural School has written asking how he can secure the names of farmers who may wish helpers. Will not our farmers who may later wish these helpers send their names to the Cultivator? This Gardena school is only one of hundreds. The state university is also seeking the opportunity for some of its brightest young men. While we realize that often these are not experienced farm hands they are willing and with a little patient instruction will prove most excellent helpers. Send in the names.

FRUIT CONDITIONS FAIR

Sacramento, May 12, 1917.—Reports coming to State Commissioner G. H. Hecke, from the county horticultural commissioners of the 44 most important fruit producing counties of California, results of a careful inspection and compilation, indicate a smaller crop than many had anticipated, although the increased acreage coming into bearing may overcome the shortage.

Apricots have suffered most from the enemy frost, although almonds are a close second.

Almonds

Butte, one of the greatest producers of almonds, reports a 15 per cent crop; Contra Costa, 60 per cent; Yolo, 40 per cent; Stanislaus, 100 per cent; Sutter, 65 per cent; Sacramento, 35 per cent; Solano, 10 per cent; Los Angeles, 50 per cent; Riverside, 70 per cent; San Joaquin, 100 per cent.

These counties produce 78 per cent of the entire almond crop of California.

Apricots

The following counties grow 91 per cent of the apricot output, the reports vary from 35 per cent to a full crop.

Alameda, 45 per cent; Fresno, 60; Kings, 60; Los Angeles, 45; Monterey, 80; Orange, 100; Riverside, 50; San Bernardino, 100; San Benito, 75; San Joaquin, 90; Santa Clara, 35; Santa Cruz, 85; Solano, 50; Ventura, 70; Yolo, 45 per cent.

Santa Clara produces 55 per cent of California's apricots and reports a 100 per cent crop, while Sonoma produces 12 per cent of the total, reports a 60 per cent crop. Solano, 75 per cent and Tulare 100 per cent.

Other Fruits

Peaches show a crop ranging from 30 per cent in Butte and Alameda Counties to 80 per cent in Placer and Santa Clara, and 100 per cent in San Joaquin Counties.

Plums and cherries got a pretty stiff jolt from Jack Frost, showing a percentage of 60 and 68 respectively.

Prunes were uncertain at one period but came through with an average of 91, and walnuts stand out for 94 per cent.

Averages, state wide, on the different varieties of fruits, including almonds and walnuts, are as follows:

Almonds, 58 per cent; apples, 93; apricots, 57; cherries, 68; figs, 94; lemons, 91; olives, 96; oranges, 94; peaches, 83; pears, 99; plums, 60; prunes, 91, and walnuts, 94 per cent.

BREEDERS OF HEREFORD CATTLE TO FORM AN ASSOCIATION

A meeting of all the breeders of Hereford cattle in California has been called for May 29 to June 2 at the University of California farm at Davis, for the organization of a Coast Breeders' Association. Because of the present high prices of market animals of the meat classes, there is a great revival of interest all over the Pacific Coast in better beef cattle. The California Shorthorn breeders have recently organized, and the response of the Hereford breeders to the invitation to meet during farmers' week at the university farm indicates that a strong new organization will result.

BULLETIN ON THE GARDEN

Congressman H. Z. Osborne writes that he is able to send copies of Bulletin 118, "The Small Vegetable Garden," which has a fund of valuable information for gardeners. Write to him, House of Representatives, Washington, D. C.

Agricultural News Notes of the Pacific Coast

Northern California

A railroad is assured from Hopland to Lakeport.

Yolo County is boosting for a good roads campaign.

The trout season opened May 1 with many fishermen present.

The alfalfa mill at Orland, Glenn County, is being enlarged.

Live stock men of Tehama County met at Red Bluff last Saturday.

A cheese factory has been established at Upper Lake in Lake County.

Arbuckle, Colusa County, reports no injury to almonds because of April frosts.

The rice mill at Woodland, Yolo County, is running on a 40,000-bag lot of paddy rice.

The grape crop of Sutter County is reported to have been cut about one-half by spring frosts.

Hop growers are much exercised over the continual rumors of possibility of cutting out beer manufacture.

Fig buyers are said to be keeping their eyes even on back yard trees so they may get as large a supply as possible.

Rice growers of Yolo County will be addressed by Market Commissioner Weinstock at their carnival to be held today at Madison.

Orchardists of Yolo County were given demonstrations in pruning, grafting and pollenizing at the university farm recently.

The university farm picnic at Davis last Saturday brought thousands of farmers from all sections of Central and Northern California.

The Sonoma Valley will hold a three days' celebration because of the completion of the Black Point cut-off bridge. Its cost was $90,000.

A large acreage of Butte and Glenn County lands has been exempted from the Sacramento-San Joaquin drainage district by the state legislature.

The bean crop of the Sutter Basin this year it is estimated will be double the crop of 1916. Twenty-five thousand acres are to be planted.

Farmers of Humboldt County are suffering from labor shortage. Almost every one of the younger orchards are being planted with intercrops.

The board of supervisors of Tuolumne County is joining with the government in building a good road, a lateral from the present Sonora-Mono state highway.

The Sierra Valley Cooperative Creamery at Loyalton is a complete cooperative institution, and in addition to serving members, has, as a side line, 250 hogs.

Farmers near Grass Valley are profiting because of "unwatering" of a great mining property and are giving copious spring irrigations with the water from the mine.

Hop men of Sacramento and Yolo Counties are contemplating substituting staple crops for the regular hop crops this year because of the greater demand for the former.

Peach growers of the Wyandotte and Palermo districts are reported to have sold a large part of their crop at $27 a ton. The greater part of the tonnage consists of Muirs.

At the last meeting of the California Cattlemen's Protective Association in San Francisco a resolution was adopted calling upon the government to open the national parks and forests to unlimited grazing.

Central California

Santa Clara is to have another cannery.

Kerman is to have a picnic day today, May 12.

A carload of beans has just been shipped to Havana from Ceres.

Kings County fruit planting was increased by over 300,000 acres this spring.

Great quantities of tomatoes will be grown in the section around Hanford this season.

Stanislaus County is planning for its second annual live stock show to be held this fall.

Malaga grape growers of the Kerman district are urged to form a pool of their 1917 crop.

Mountain lions are reported destroying much stock in Sargent's Canyon in Monterey County.

Twelve hundred acres in the Reedley district of Fresno County have been planted in new orchards.

Orange districts of Porterville are reported in the best condition with heavy bloom evenly distributed.

It is reported that grapes will be canned by the California Fruit Canners' Association plant at Hanford.

Hollister, San Benito County, is shipping 12 to 15 carloads of hay daily, the bulk of it bringing around $30 a ton.

The Stockton municipal free market is open every day in the week except Sunday from five a. m. to 1:30 p. m.

County Bee Inspector Henneken of Monterey County states that honey is bringing the highest price in his knowledge.

At the last meeting of the Visalia grange the discussion of crop planting and conservation of foods was very animated.

There is eight feet of snow in the Giant Forest, insuring plenty of irrigation water to Tulare farmers late into the season.

Creameries in Tulare County paid 40 cents average for March butterfat. The March payroll was the largest on record, being $118,000.

Turlock's cantaloupe crop this season is still an unknown quantity as growers are waiting to see what transportation facilities will be.

A committee has been appointed by irrigationists of Tulare County to investigate as to the construction of a dam on the Kaweah River.

Thirty to 36 inches of irrigation water a year is enough for alfalfa according to recent report issued by Irrigation Expert Frank L. Adams of Berkeley.

F. H. Wilson, president, and A. J. Sturtevant, sales manager of the Associated Raisin Company, are now in the East looking after the coming year's sales.

Trustees of the California Prune and Apricot Growers' Association announced on May 1 that since 75 per cent of the acreage had been signed up by the association its success was assured.

Former Manager and Vice President of the Associated Raisin Company James Madison was recently presented with a gold locket and expressions of good will from employes of the company.

Southern California

Large bean plantings are being made at Beaumont.

Coachella Valley farmers will ship over 700 carloads of onions.

One hundred dollars to $110 a ton for cabbage is reported from Fullerton.

Imperial Valley, it is stated, will need 10,000 laborers for the cotton and milo crops.

J. E. Ross of Alamorio recently lost 100 hives of bees by fire. A ton of honey was also burned.

Within another week it is expected that the first shipment of cantaloupes will be made from Brawley.

The Riverside Press states that 10,000 apricot trees have been planted in the Hemet Valley this year.

Water companies supplying water to Beaumont have announced a low rate for water used in garden growing.

Planting of limas has begun on the Irvine ranch in Orange County. The acreage will be approximately 18,500.

The Covina district of Los Angeles County has 4000 acres in bearing oranges and 1000 acres in young trees.

Manufacturers of cyanide announce that a plentiful supply will be available to growers in this section by June.

Apple growers of the Yucaipa Valley of San Bernardino County expect to harvest 100,000 boxes of apples this season.

The manufacture of grape sugar and syrup will take a large part of the grapes usually sold to the wineries.

Beet sugar companies announce an increase in prices for sugar beets, to be regulated by net prices received for sugar.

Captain Webster of Anacapa Island is in Ventura to secure a crew of sheep shearers for his big flocks on the island.

Covina orange growers are very seriously considering the economy of heating their orchards with cheap gas instead of oil.

Anaheim expects to begin shipping Valencias within another month. The navel season is entirely over and packing houses are closed.

Farmers in the San Jacinto district are rapidly signing up for sugar beets. It is hoped to secure 10,000 acres to assure the establishing of a factory.

The first carload of freight from Fallbrook over the rebuilt line of the Santa Fe was a carload of lemons from the Fallbrook Citrus Association.

Fullerton reports the walnut crop in the very best of condition, there being practically no signs of blight and the fruit setting uniformly over the trees.

Directors of the farm bureau of Riverside County held a formal meeting at Riverside May 5, when W. B. Parker, the newly appointed farm adviser, was present.

Manager Palmer of the Orange County Fruit Exchange estimates the Valencia crop of the southern end of Orange County at 400 carloads more than the crop of 1916.

Hemet apricot growers estimate their crop at 50 per cent of normal this season. Some portions of the valley report a full crop while in others there is practically nothing.

The Coast

The Western Washington fair will be held at Puyallup October 2-7.

Morrow County, Oregon, will hold its county fair at Heppner, September 13-15.

A new cheese factory is to be built at Harwood in Yakima County, Washington.

Grant County, Oregon, farmers report the past winter as "the worst in 40 years."

Farmers of Whitman County, Washington, plan to build six grain elevators.

The Palouse, Washington, Harvest Fair and Live Stock Show will be held October 4, 5, 6.

Elaborate preparations are being made for this year's corn show at Spokane, November 19-24.

The Farmers' Union of Heppner, Oregon, has decided to erect an $18,000 grain elevator.

Sixty thousand pounds of Oregon prunes recently went down in the Atlantic in a torpedoed ship.

A new beet sugar factory is to be erected at Independence, Oregon, by the Utah-Idaho Sugar Company.

One hundred dollars a ton for potatoes is reported from Seattle. This is to the farmers at shipping point.

At a sale of horses at the Spokane stock yards 100 horses were sold, teams averaging from $375 to $567.

The annual meeting of the Washington state grange will convene for four days at Wenatchee, beginning June 5.

The MacMinnville, Oregon, Fruit Growers' Association has elected M. F. Kenyon president, and Owen MacGill, secretary-treasurer.

The big fruit evaporating plant at the Dalles is adding $20,000 worth of new equipment, to be ready in time for the cherry season.

The cooperative cheese factory owned by farmers of Willapa Valley, Washington, was recently burned. It probably will be rebuilt.

The third annual meeting of the National Park Highway Association held its sessions in Spokane, Washington, beginning April 27.

Plowing in Okanogan County, Washington, which sometimes begins as early as March 15 was not started this year until after April 15.

The Arizona Pioneer Cow Testing Association and the Madison-Scottsdale Cow Testing Association have been reorganized for another year's work.

Live stock men from a district 100 miles about Okanogan, Washington, convened last week to discuss live stock problems. Three hundred were present.

The Valley View Farmers' Club of Oregon has decided to merge into a grangers' association and will market its products with local and state granges.

The feeding value of the mesquite bean is being urged by the New Mexico college of agriculture. Experiments have been made by the college since last fall.

Powell-Butte, in Crock County, Oregon, believes in cooperation. It has a wool growers' association, a potato growers' association, a bull association and a horse breeders' association.

GOOD Holstein Cattle Percheron Horses

If you are looking for registered Holstein cattle or registered Percheron horses of real merit, you will serve your own best interests if you are present at

Rosamond Farm Sale

Stalder Bros.

Riverside, California
Tuesday, May 22, 1917

when we will sell at public auction, to the highest bidder, absolutely without reserve or limit

60 REGISTERED HOLSTEIN COWS, HEIFERS AND BULLS.

16 REGISTERED PERCHERON MARES, STALLIONS AND COLTS.

60 GRADE HOLSTEIN AND JERSEY HEIFERS.

The Holsteins will include A.R.O. cows with official records up to 28.07 lbs. butter in 7 days; 15 daughters of a 28-lb. son of Prince Gelsche Walker, out of great dams; 20 great cows and heifers in calf to a 34-pound grandson of King of the Pontiacs; 10 splendid cows and heifers in calf to a 28-lb. son of Prince Gelsche Walker, and the dam of this sire was formerly California champion in the yearly division of the junior 2-year-old class, and she in turn is out of a former world's record cow in the yearly division.

AND SOME REAL BULLS WILL BE SOLD—The big attraction being a son of the great 34-lb. cow, Gerben Abbekerk Maid, sired by one of the best sons of Prince Gelsche Walker. By the same sire and out of dams having records of 28 and 27 pounds butter in 7 days, two other fine young bulls will be offered.

FIVE SONS OF A 34-LB. SIRE will be sold, and they are all out of good dams.

PERCHERON HORSES—The offering will consist of proven brood mares, high class young stallions, fillies that will grow into great brood mares.

GRADE HEIFERS—The 60 head of grade heifers are a good lot that look like real dairy cows, and they should please you.

Catalog now ready. Write for one.

Sale will be held on Stalder Bros.' ROSAMOND FARM, 13 miles west of Riverside, 3½ miles south of Wineville, Cal., on the date mentioned above, beginning promptly at 9 a. m. Parties arriving at Riverside by train will find free conveyance to the sale at Mission Inn Garage.

Sale under management of

California Breeders' Sales and Pedigree Co.

C. L. HUGHES, Sales Manager
Sacramento, California

Auctioneer: COL. BEN A. RHOADES, Los Angeles

CALIFORNIA BREEDERS' SALES AND PEDIGREE COMPANY — PUBLIC SALES OF SOUND DAIRY LIVESTOCK

DEEP WELL TURBINES

No valves to pack or plunger rods to get out of order. For use in any well ten inches in diameter or over.

A complete line of irrigating pumps of all descriptions, horizontal and vertical for belt drive or direct connection to electric motor.

Prices as low as are consistent with good quality and workmanship.

"Write for Catalog No. 48."

BYRON JACKSON IRON WORKS, Inc.

SAN FRANCISCO

LOS ANGELES VISALIA

Security Calf Food

Will Bring You $27.80 Estimated Profit on Each Calf

Same Principle as Baby Foods are Used

The Old Way		The New Way	
Cream Used in Six Weeks,	$16.80	Cream Saved in Six Weeks,	$16.80
Veal Calf Sells for	15.00	Veal Calf Sells for	15.00
Loss	1.80	Total	31.80
		Cost Security Food	4.00
		Profit	27.80

These are figures you can depend on and we absolutely guarantee you satisfaction or money refunded. Ask your dealer or write

SECURITY REMEDY CO., MINNEAPOLIS, MINN.

California Cultivator
Costs Only $1.00 Yearly

The Army's Requirements in Horses and Mules

Wayne Dinsmore, Secretary Percheron Society of America

THE passage of the selective draft measure by congress makes certain the immediate preparation and equipment of an army of at least a million men in 1917. All preparations are being made for a war that will last three years, for regardless of what civilians may think, army officials do not expect an early ending to the war into which the United States has been drawn.

The requirements of cavalry, infantry and artillery regiments in horses and mules are set forth in a letter just received by the writer from the war department, Washington, D. C., to be as follows:

Cavalry Regiment.—1541 horses, 152 draft mules, 29 pack mules, 6 riding mules.

Infantry Regiment. — 69 riding horses, 112 draft mules, 25 pack mules, 6 riding mules.

Artillery Regiment.—1097 horses, 88 draft mules, 4 riding mules.

These are minimum requirements and do not take into account transportation trains required to forward supplies from terminal points to field bases. In other words, the number of animals specified above refers only to those actually needed with the troops.

The war strength of a regiment of infantry is approximately 1500 men; of a regiment of cavalry approximately 1300 men; of a regiment of artillery consisting of six batteries of four guns each, approximately 1146 men. While definite information as to the proportion of infantry, cavalry, and artillery to be included in the new army is not yet forthcoming, it is generally understood among army officials that an artillery battery of four guns will be allowed for each 1000 infantry. It seems probable therefore that the first million men placed under arms by the United States will be composed of 500 regiments of infantry totaling 750,000 men, 125 regiments of artillery totaling 143,250 men, and 100 regiments of cavalry totaling 130,000 men, making a grand total of a little over 1,000,000 men. The proportion of artillery certainly will not be less, and may be more, as actual warfare on European battlefields has demonstrated that overwhelming superiority in the artillery branch of the service is essential to efficient operation by the infantry.

It may be argued that there is no probability that the United States will prepare 100 regiments of cavalry, but in view of the danger from the Mexican situation, it appears to be the belief of well informed army officers that at least that many cavalry regiments will be provided for in this year's mobilization.

To equip 500 regiments of infantry will require 34,500 riding horses, 56,000 draft mules, 12,500 pack mules, and 3000 riding mules. One hundred and twenty-five regiments of artillery will require 137,025 horses, 10,000 draft mules, and 500 riding mules. The equipment of 100 regiments of cavalry will necessitate 154,100 horses, 15,200 draft mules, 2900 pack mules, and 600 riding mules. The total number therefore required for the equipment of 500 regiments of infantry, 125 of artillery, and 100 of cavalry, will amount to 325,625 horses and 100,700 mules.

The army has at present only 70,000 head of horses and mules. This means that approximately 350,000 head of horses and mules must be bought within the next six months. No information has yet been received from the army authorities in regard to how the purchase of these horses and mules will be made. In the judgment of experienced horsemen, however, the purchase of so large a number of horses and mules within the limited time available can best be accomplished by setting a definite price to be paid by the army for the different animals that will pass inspection for their respective classes, and by establishing ten or 15 inspection points where horses and mules may be tendered for inspection. This will permit dealers, large or small, or even farmers, to consign their horses directly to inspection points with definite information in regard to what they will obtain for them if they pass inspection. There seems to be no good reason why the producers of horses should not be permitted to sell them directly to the government, if they pass inspection, instead of being obliged to sell them through some intervening contractor. It is earnestly to be hoped that the army officials will decide on some general plan.

It must not be forgotten that the allied nations are still in the market, and will continue to be. Their need for horses and mules is as great as for guns and ammunition; indeed, even more so, because they can manufacture the guns and ammunition in their own countries, but their resources in horses and mules have already been exhausted, and the United States is the only source from which they can obtain additional supplies. 853,116 head of horses and 289,062 head of mules have been exported, practically all of them for war purposes, during the 30 months ending March 1, 1917. In spite of the shortage of ships, 40,000 head of horses and mules were shipped in January, 1917, and more than 27,000 head in February, 1917.

Recent accounts from the battle-front relating the loss of hundreds of pieces of artillery by the Germans in recent operations state that the loss of these pieces was due recently to the lack of artillery horses.

It is fortunate that the United States is well supplied with both horses and mules at the present time, but it is incumbent upon us, if we are to maintain our resources so as to effectually back up our armies and maintain maximum production on our farms, to see that every good mare is bred to a first class stallion this season, and that every effort is made to save the foals that will be coming within the next six weeks. The war may yet be decided by the number of horses available to the respective belligerents, for on the far-flung battle lines and in the reserve made up of our farm forces, the horse is the most important single factor aside from man.

Northern California Live Stock Notes

Written for California Cultivator By W. S. Guilford

BARNYARD SUGGESTIONS

NOW is a good time to be thinking about the mud that was knee deep in many barnyards last winter. A few loads of gravel hauled now may prevent a great deal of misery and loss of condition and waste of feed among the animal population of the farm.

In some cases it will pay to make a concrete platform in one corner of the barnyard, in a place where a fence can be put around it. When the heavy rains come, the stock can be kept closely penned in this concrete floored yard and can be fed there. "But what about exercise?"

The periods of bad weather are not generally of long duration in California, and by keeping stock off the earth yards and fields these will dry off more quickly than if they are tramped and puddled, so that all the exercise that would be missed would be that which the animals would be compelled to take in kneedeep or belly deep mud, and the case would be a rare one where stock would not be better off out of the mud without exercise for a few days than in the mud with it.

And right now is a good time to attend to this matter.

"GOOD STOCK HAY"

It may have been allowed to get pretty ripe and dry before it was cut,

and then after cutting it may have been put into small bunches and left for weeks or even months until it is bleached out and dried from top to bottom. It will then have become worthless to bale and sell as hay to ship, yet some one will say, "Well, it's good stock hay."

This is because stock will eat it rather than starve. But what a waste of the natural resources of a country to treat hay in that way.

This is one case where nature is too good in California. If this hay was in the corn belt the rains would compel the owner to take care of it in better shape or it would rot. Here there is no such compulsion, so instead of stacking it or putting it in big bunches, it is allowed to weather from May until October. Every year hay that has been cut in May is ruined by the fall rains.

It is easy to abuse a "good thing"—and our long dry summer certainly is good for many farming operations.

Keep Out Tuberculosis

THE department of agriculture is mailing large hangers to live stock sections with big type heading, "Keep Tuberculosis Out of Your Swine." After referring to the great loss incurred because of certain packing houses and buyers determining to avoid districts where tuberculosis is common, or else insisting upon buying hogs subject to post mortem examination with the loss falling on the producer, it gives the following regarding prevention:

"Raw milk from a tuberculous cow will sooner or later certainly carry the germs of tuberculosis to your hogs A little care will prevent this.

"Scald all skimmed milk, buttermilk, or whey. Even boiling will not lessen their feeding value. Either scalding, boiling or pasteurizing—that is, heating to 145 degrees Fahrenheit and holding at that temperature for 30 minutes—will kill all germs of tuberculosis and also render harmless stray germs of many other animal diseases. No farmer, unless his herd is tuberculin tested and free from tuberculosis, should feed his skimmed milk raw to his swine. He is taking an unnecessary risk of having them rejected at the slaughter house.

"Raw skimmed milk and buttermilk from creameries and whey from cheese factories are particularly dangerous. If there happens to be only one tuberculous herd on the creamery route, the skimmed milk from that farm may spread tubercle bacilli through all the milk in the skimmed milk tank. Cook all raw milk taken home from the creamery. Better yet, join with your neighbors in insisting that the creamery shall pasteurize skimmed milk before it is delivered. Such pasteurization prevents the creamery from becoming a distributing point for animal diseases, the germs of which get into milk. If your creamery delivers pasteurized skimmed milk, see that your own cans are sterilized before you take your share. The little raw milk left in your own cans may contaminate the pasteurized milk furnished by the creamery.

"Raw garbage, raw slaughter house offal, the raw flesh of dead chickens, or other carrion also are very liable to contain germs of tuberculosis that will infect your hogs. Cook all raw garbage or meat before you give it to your animals. Garbage so prepared is excellent food for hogs, provided it is not decomposed before it is cooked. Keep garbage containers clean, and construct piggeries where sterilized garbage is prepared and fed, so that they may be cleaned readily. Prepared tankage from slaughter houses is free from danger, as its preparation involves thorough cooking or sterilization.

"The dropping of tuberculous cows, especially of those in which the disease is of long standing, are almost certain to contain large numbers of tubercle bacilli.

"Hogs having access to manure or bedding from such cows are almost certain to get the disease. The safest plan is to keep your hogs absolutely away from your dairy cattle unless your herd has been tuberculin tested and is known to be free from tuberculosis. The risk more than offsets any feeding advantage.

"In the case of steers or other cattle known as 'feeders,' it is comparatively safe to allow hogs to follow, them, as the disease is not very common among these animals, and they usually are sold off the farm before the disease, if contracted, develops to a point where their droppings would be infected."

Field Notes From the Live Stock Men

D. F. Conant reports sale of a bull to Geo. Scott.

N. H. Locke reports sales of a bull to W. F. Smith of Cottonwood.

Guy Miller has recently sold bulls to J. H. Holgate and F. E. Robinson.

W. J. Hackett has sold a bull to J. R. Widict and a cow to D. Hackett.

C. D. Hayworth reports sales of bulls to S. Montgomery, O. R. McGee and Henry Knightland and to Robert Rupp.

All cows in the N. H. Locke herd are being tested. Among others worthy of note are La Valets Adelaide of L. Her sire is Kings Valet and she is out of Golden Adelaide Smith. She started on test as a yearling weighing less than 600 pounds, making a yearly record of 8122 pounds of milk and 370.2 pounds butterfat. In May, 1916, she produced 816 pounds of milk, which was over 216 pounds above her own weight. Golden Leader is a daughter of Kings Valet and Stockwell's Cousin Imp. She was first prize calf, yearling, two-year-old, three-year-old and grand champion at the California state fair. She has produced 433.7 pounds fat in a year.

Golden Leona of L., a two-year-old daughter of Kings Valet and Golden Lemola of L., has, starting as a yearling, made a record of 6356 pounds of 5.1 test and 323.5 pounds of fat in a year. She took second prize in her class at the P. P. I. E. Her first month's record as a two-year-old was 45.1 pounds fat and 878 pounds milk with a 5.2 test.

Kings Leader, another daughter of Kings Valet and Golden Leader, as a two-year-old has produced 6796 pounds with an average test of 5.2. The fat for same time (one year) was 355.6 pounds. This cow also took second prize in class at P. P. I. E.

The ten highest producing cows in the Locke herd, two two-year-olds, four three-year-olds, four four-year-olds, made an average production for March of 52.99 pounds of butterfat.

Book Review

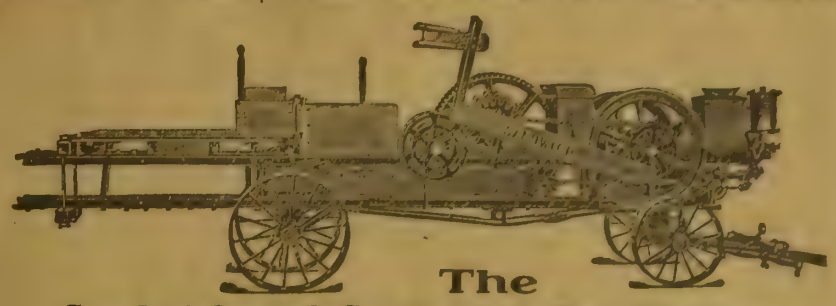
"DAIRY CATTLE FEEDING AND MANAGEMENT

"Dairy Cattle Feeding and Management," by Carl W. Larson, M.S.A., Ph.D., formerly professor of dairy husbandry, Pennsylvania State College, and Fred S. Putney, M.S., professor of experimental dairy husbandry, Pennsylvania State College, published by John Wiley & Sons, New York.

"The book is written for students of dairy cattle feeding and management. It is the outgrowth of several years of experience in teaching this subject. The authors believe that the lecture system alone does not give the greatest efficiency in teaching. A broader field will be covered and more accurate information will be gained by the student if the lecture is combined with a text book. This volume is therefore prepared to meet that need."

It is a book of 472 large pages with many half tone illustrations and pen drawings, and while it is to an extent a text book it gives a fund of valuable information to the practical dairyman. There are 29 chapters and an appendix. These 29 chapters touch upon the relation of dairying to agriculture, the principles of nutrition of dairy cows, feeding standards, methods of balancing, selection of feeds, systems of herd feeding, silage, silos, soiling systems and pastures, raising the dairy calf, care and development of the dairy heifer, feeding and care of the sire, principles of dairy cattle breeding, se-

TONS TELL THE STORY OF PROFITS



The Sandwich and Southwick Hay Presses

Are Reliable. Small Upkeep, Large Capacity. We have them in Gas Power, Belt Power and two styles Horse Power. Actual capacity 25 to 87 tons per day. 375 sold in Southern California.

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146-148 No. Los Angeles St. Los Angeles, Cal.

Santa Anita Rancho

Anoakia Breeding Farm

ARABIAN-THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Iba Mahrusa, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Iba Mahrusa, world renowned imported desert saddle stallion, and Don Cartano, a five-gaited Kentucky saddle Stallion. These horses are mostly three-year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars, Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 8th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent Santa Anita, Cal.

WE MAKE LOANS

on beef breeds of cattle in amounts from $5000 up, and invite you to correspond with us.

Southwest Cattle Loan Company

JNO. L. KNORPP, Pres. and Gen. Mgr.

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FOREST GROVE LAUREL 8TH
First and Reserve Grand Champion
California State Fair 1916

The Type We Are Breeding For

Hardy, prolific sows of best blood lines and breeding. Strong, upstanding, prepotent boars. In short the best possible specimens of the Berkshire breed. We plan to do this by breeding large numbers and from them making a rigid selection.

James Mills Orchard Corporation

Hamilton City, California

Use Tuberculin Tested Sires in Your Herd

WE HAVE A NICE LOT OF SHORTHORN BULLS and HEIFERS THAT WILL SELL FAST WHEN THE SPRING FEED COMES. SELECT YOURS NOW FROM THE BRIGHTON FARM HERD.

H. L. & E. H. Murphy, Perkins, Cal.

Shorthorns---Paicines Ranch Company

Offers for summer and fall delivery both registered and unregistered weanling bull and heifer calves. For prices and particulars apply to

David J. Stollery, 320 Sharon Bldg. San Francisco, Cal.

The Quality Holstein Sale

100 Registered COWS, HEIFERS, BULLS **100**

State Fair Grounds
Sacramento, California
THURSDAY MAY 31, 1917

The offering consists of carefully selected consignments from the following high class herds:

Bridgford Company, Knightsen Toyon Farm, Los Altos
J. S. Gibson Company, Williams Frank Hatch, Modesto
Henderson Company, Sacramento
Palo Alto Stock Farm, Palo Alto

This is essentially a sale of high class foundation stock, good individuals, splendid blood lines. There will be sold an unusually high percentage of heifers, both bred and open, the kind that have their whole useful lives before them and that grow into money fast. Those in calf are bred to some of the greatest sires in California today.

Bulls of outstanding breeding and individuality will be sold. The breeder in need of a sire with real herd heading breeding and quality will find him in this sale.

THE OFFERING OF FEMALES WILL INCLUDE:

A DAUGHTER OF SPRING FARM PONTIAC CORNUCOPIA, son of the first 44-lb. cow. The dam of this heifer, at just past 5 years of age, made a record of 31.70 lbs. butter in 7 days, shortly after being shipped from the East to California. The first four dams of this heifer average 84.41 lbs. butter in 7 days, and she is eligible for prizes of $100 for a 20-lb. 2-year-old with first calf, and $200 for a 30-lb. record at any age, offered by the owner of her sire.

A DAUGHTER OF KING KORNDYKE SADIE VALE, the only 40-lb. sire that has sired a 40-lb. daughter. Her dam is a good granddaughter of Pontiac Korndyke and De Kol 2nd's Butter Boy 3d.

A DAUGHTER OF KING SEGIS PONTIAC, out of a granddaughter of Hengerveld De Kol.

A 20-LB. DAUGHTER OF MILK AND BUTTER PRINCE, out of a daughter of De Kol Admiral Paul.

AN 18.60-LB. JR. 2-YEAR-OLD DAUGHTER OF DUTCHLAND COLANTHA BELLE BOY, in calf to King Pontiac Segis Korndyke.

A DAUGHTER OF SIR SKYLARK ORMSBY HENGERVELD, sire of the great 34-lb. cow Gerben Abbekerk Maid and the 31-lb. 4-year-old, Cristeria Overton Mechthilde 4th.

A DAUGHTER OF FINDERNE HENGERVELD KORNDYKE, out of a good dam.

A SPLENDID YOUNG A.R.O. COW out of a 27-lb. daughter of King Mead of Riverside, sire of Aaggie Acme of Riverside 2nd, the 35-lb. California champion cow.

A 20-LB. COW that has a semi-official record of over 15,000 lbs. milk and 644 lbs. butter in 320 days.

A GREAT COW with semi-official records of over 19,000 lbs. milk and over 800 lbs. butter in one year, heavy in calf to King Segis Alcartra Abbekerk, a 30-lb. son of the $50,000 bull, King Segis Pontiac Alcartra.

AND MANY OTHER high record cows, daughters of high record cows, and cows and heifers in calf to great sires.

THE OFFERING OF BULLS WILL INCLUDE:

A SON OF A GREAT 33-LB. COW, sired by a grandson of King Segis De Kol Korndyke.

A SON OF FINDERNE PRIDE FAYNE, whose sire is half brother to the world's only 50-lb. cow, and whose dam is the former world's record cow, Finderne Pride Johanna Rue. The dam of this great young fellow made an official record of 19.16 lbs. butter in 7 days as a yearling, and she is out of Valdessa Scott 2nd, the first 40-lb. cow. The dam's sire is King Pontiac Segis Korndyke, son of King Segis De Kol Korndyke and a 30-lb. cow. The dam is a great individual, and a candidate for a very large record.

A GRANDSON OF TILLY ALCARTRA out of a 28-lb. daughter of Johanna McKinley Segis.

A SON OF JUDGE LYONS, son of King Lyons and a daughter of King Walker. The dam of this royally bred youngster is a 21-lb. 2-year-old daughter of King of the Black and Whites and Lillian Walker Spofford, who has made five official records above 30 lbs. butter in seven days.

A SON OF JUDGE LYONS out of a 24-lb. junior 3-year-old of splendid breeding.

A SON OF PRINCE GELSCHE WALKER out of a 25-pound 4-year-old daughter of Beryl Wayne Korndyke of Riverside, and she also has semi-official records above 18,000 lbs. milk and above 800 lbs. butter in one year.

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Auctioneer—Col. Ben A. Rhoades

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lection of the sire, dairy herd development and management, production of high grade milk, common diseases of dairy animals, methods of keeping herd records, cooperative cow testing, dairy barns, equipment, marketing milk, advanced registry feeding and management, milk production, cash accounts, fitting animals for show. The appendix is devoted to a table of dry matter and digestive values of various feeds, amount of different feeds required to equal one feed unit, and other valuable material. The index is very complete.

The Carruthers Shorthorn Sale

Written for California Cultivator By M. C. Holman, Manager of the San Francisco Office

HAVING established himself as the inaugurator of the first Berkshire sale at a private breeding farm in California, Mr. Carruthers further added to his laurels on the second of May by holding the first sale of Shorthorns ever held in the state. The day was ideal—just the kind for good display and good buying, and everyone who has attended auction sales of live stock knows that it is desirable to have favorable weather conditions in order to carry off a good sale to the credit of the animals and the auctioneer.

At the Carruthers Sale

At the left standing in the box is Prof. Van Norman, making speech at opening of the sale. The other picture shows Auctioneer Jones making first sale.

With the coming of the first train from San Francisco the vanguard of the buyers began to arrive, and with each succeeding train, both from the north and the south, the number was heavily increased until the hour of the sale saw an immense crowd in anticipation of the afternoon's events. With book in hand the buyers had canvassed the situation, making notes upon the animals they considered bidding on, and when the sale opened one hour late the buyers were fully alive to the merits of the various animals.

Colonel Carey M. Jones, the auctioneer, opened the sale with a brief address in which he touched upon the desirability of raising pure bred cattle and of the particular aptitude of the Shorthorn for furnishing the juicy steaks that command such exceedingly good prices at this time and which will command good prices for many years to come. Desiring to have a talk from one who is particularly familiar with the local situation Mr. Jones presented Dean Van Norman, of the state farm at Davis. The dean urged the raising of all the cattle we possibly can and assured the prospective buyers that there is a big demand for pure bred cattle. He called attention to the excellent qualities of the stock about to be offered and earnestly recommended that fair prices be paid for them. He also recommended that breeding animals be not disposed of, but that they be kept to the full time of their usefulness, that we may have more of the better grade of cattle. He invited attention to the wonderful opportunities which are before the breeder of pure bred cattle and stated that it was his belief that favorable conditions would prevail for many years. The dean was especially optimistic in his outlook upon the possibilities of the cattle business in California. Added force was given to the speech making by the presence of Count Glory, the massive Shorthorn at the head of the great Carruthers herd.

By way of introduction a beautiful white cow, White Briar, and her calf were brought into the ring. Previous knowledge of the Shorthorn was not necessary in order to recognize that these two animals would be well up in the money. "How much for this cow and calf?" called out the auctioneer. Quick as a flash came the reply from T. T. Miller, of Los Angeles. "I bid $1000." There was a moment of silence, for the crowd realized that some big money was going up for the pair. The bid was raised to $1100, and they were not disappointed, for Mr. Dibblee of San Francisco ran the bidding up to $725 for Rookwood Ury, sired by Count Avon, and he followed this up with Mayflower at $750, sired by the great Sultan Mayflower. Another purchase by Mr. Dibblee was Ruby Queen and calf, which he secured for $900.

The loss of a horn having incapacitated one of the cows for the sale, a particularly choice cow, Golden Queen, was substituted. The bidding

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Some Attendants at the Sale

In upper picture: T. S. Glide with pipe, while T. T. Miller is carrying away a sandwich. Next below in derby hat is Harry L. Murphy, who grows some Shorthorns of his own, while the sturdy Scotchman at his left is Alex McDonald, feeder at university farm, who conditioned both California Jock and California Favorite which surprised the world at the last International. Below, at left, Mr. Carruthers, with hands behind him, is talking with Col. Carey M. Jones, with cane, who was the auctioneer of the sale. The three men under the oak tree: With paper in overcoat pocket, Prof. Van Norman; center, A. W. Foster; white hat and cane in left hand, A. J. Lovejoy, usually called "Andy." At bottom, hands in pockets, Charles Rule with S. B. Wright, who looks good natured enough to have just made a satisfactory purchase.

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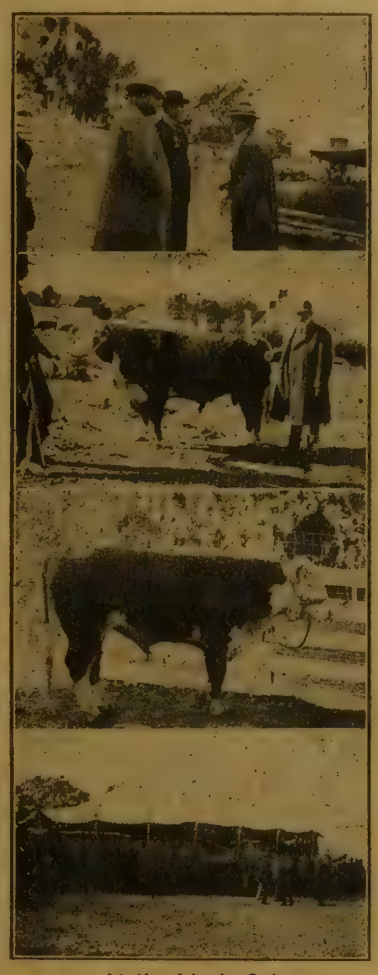
Hereford Sale at the Lively Stock Farm

Written for California Cultivator By M. C. Holman of the Northern Office

COMING so swiftly upon the heels of the successful Carruthers sale, one would scarcely think that a second auction of beef cattle could be held in the same town in the same week. But all precedent and conjecture were swept aside, for there was an even greater crowd at this second sale.

That there is a big demand for beef cattle cannot be denied. The stock raisers are coming to know that it is



At the Lively Sale

Messrs. T. S. Glide, Harris Weinstock and F. G. Smith in the top picture are discussing the sale; the next below is Mr. Newhall and his prize bull; next to the bottom a $750 youngster, Panama 33rd. At the bottom, the sale tent at time of one of largest sales.

beef that is wanted, and they have set out to produce it. The best that can be found is readily purchased and at prices which mean much for the pure bred industry of the state.

At the Lively sale we had a special opportunity of seeing the working of a celebrated eastern auctioneer, and the palm for excellent handling of cattle in every detail of management must be given to Colonel Fred Reppert. He was master of the situation and his wonderful sallies of wit and humor, coupled with forceful logic upon the fundamental necessity for the purchase of good live stock brought in the money in splendid bunches.

The Hereford cow and bull are to be greatly admired and they came in for a good average at this sale. Their rustling qualities, meat producing abilities and general bearing are such as command the best prices. They are breeders of particular excellence. With white face, broad forehead, short neck, and even, well filled frame the Hereford is a picture one may stand and admire.

In his introductory remarks Colonel Reppert told of these animals in their Montana home, and of the good prices they had brought where former sales had been held. Ex-Governor Porter noted the particular significance of having a sale of Herefords in California. He declared that it meant the bringing of some of the best animals of the breed into the state and the opportunity of diffusing that high grade through the herds of California, thus rendering them greater in flesh and of more money value for the same amount of feed and the same amount of care. One could not fail to realize the truth of these statements when the ages were known and the size and condition of the animals were seen.

The cattle that were sold at this sale would have brought from $300 to $1400 in the East. But this was a missionary sale, just a feeler, as it were, to test the buying power and willingness of the California breeders. It is to be remarked that in the missionary days in the East it was not possible to secure the prices that were paid at this sale. We are starting in California with payments much larger than the East started with and with improvements coming continually we may be expected to show a willingness to pay even higher prices, whether the animals are eastern or western.

It was a rather remarkable fact that at both sales the best of the offerings were taken by men from the south. Mr. Newhall of Los Angeles purchased a magnificent bull, Satin, for $900. This was considered a good price, but the animal is well up in prize money and will make for Mr. Newhall an enviable reputation, whether in the show ring or as a breeder. The cows held well in the buying, but the bulls topped above any figure that was expected. There were bull buyers at the prices necessary to get the best of the sale and they were willing to pay the offerings. And while Mr. Newhall secured what was likely the best purchase there were a number of other bulls that brought figures from $500 to $750.

Continued on Page 547

Some of Those Present

A. B. Cook, man with stick, one of consignors. Next picture below in the center is Mr. Nickoll. At the bottom is Col. Reppert, the auctioneer, and his secretary.

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20,000 Valencia and Washington Navel orange trees, some lemons, 3 years old, at a bargain. Inquire No. 2116 Cedar St., West Alhambra, Cal. Telephone Alhambra 332-R.

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For Sale—All kinds citrus nursery stock. 1-year buds, fine roots. Y. Yamaguchi, Box 574, Phone Sunset 470R Upland, 10th St. and Cucamonga Ave., Upland.

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Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Quality Trees—Prune trees 10c each. Cash Nurseries, Sebastopol, Cal.

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Wanted—Man in each California county to represent established California company. Should have rig or auto to get around. Good pay and several weeks' work to right parties. Address J. H Yetter, Sales Department, 810 Santa Marina Building, 112 Market St., San Francisco, Cal.

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Wanted—Sweet Potato Plants by Imperial Valley Nursery & Seed House, El Centro, Cal.

Wanted—Sweet potato plants in quantity. State varieties and price per 1000. Park Hill Nursery, Hemet, Cal.

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Have a Nice Registered Holstein bull calf from dam with 18.025 lbs. record. Is 3 years old. J. W. Benoit, Route C, Modesto, Cal.

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N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

FARM LANDS FOR SALE

For Sale—Orange County ranch, 167 acres with good improvements and in good state of cultivation. Water conditions excellent. Artesian wells and pumping plant both. Located ¾ mile from village of Westminster and ¼ mile from Orange County's fine highway running from Long Beach to Santa Ana. Property clear and title perfect, but on account of peculiar circumstances of ownership this land is for sale under value just now. W. F. Marks, 226 S. Main St. Phone Main 1499, Los Angeles.

Oregon & California Railroad Co. grant lands. Title to same revested in United States by act of congress dated June 9, 1916. Two million three hundred thousand acres to be opened for settlement and sale. Power site, timber and agricultural lands. Containing some of best lands left in United States. Large sectional maps showing lands and description. Price $1.00. GRANT LANDS LOCATING CO., P. O. Box 610, Portland, Oregon.

For Sale—80 acres well improved foothill ranch, good 8-room house, new barn, new pumping plant, plenty good water, young orchard, 12 varieties; few acres in alfalfa. Address owner, Box 3165, Perris, Cal.

Finely Improved 20 acres of almonds and alfalfa. For prices and description write George Arbuthnot, Manteca, Cal.

State, Government and Indian Lands. Bargains overlooked. Free New Blue Booklet, Joseph Clark, Sacramento.

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ALFALFA SEED

As has been our custom in the past, we are offering alfalfa seed both retail and wholesale. This is tested stock and up to our usual high standards. Samples, prices, etc., on application. Wire, write or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

ALFALFA SEED OUR SPECIALTY

SEEDS

Don't You Want pure home grown seeds? Of course you do. Ours are all tested and are good enough for anybody. Prices, information, samples, etc., upon application. Write, wire or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

MAKE OUR SEED YOUR SEED

Giant Winter Rhubarb Plants. Big profits. From ⅝ acre first season after planting I sold 675 boxes rhubarb, receiving $673.70. Grand prize San Diego Exposition. Big discount on plants for prompt orders. Booklet Free. W. A. Lee, Covina, Cal.

Seed Beans—We sell direct to the grower. Buy now before the advance. Our stock is carefully selected. Satisfaction guaranteed. Tell us the nature of your soil and we will suggest the best variety. Modesto Farmers' Union, Modesto.

Seed Corn—Egyptian white, large, pure white kernels. High germination test. None better offered. Also milo maize, feterita and Egyptian wheat. MODESTO FARMERS' UNION, Modesto, Cal.

Plant a Few Acres of Dwarf Milo Maize for seed. Good seed requires about 2 pounds per acre. Choice pedigreed Dwarf Milo 10c per lb. Delivered your station. Fred M. Mahoney, Box 420, Tulare, Cal.

Dwarf Milo Maize, grown from seed personally selected yearly from field. Samples and prices on application. Chas. N. Tufts, Brawley, Box 46A.

Alfalfa Seed—The very best, guaranteed 16c. Wm. Stuthman, 1239 West Pico St., Los Angeles, Cal.

Sudan Grass Seed—100 per cent pure, state analysis 40c lb. Kelly's Nursery, El Centro.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

SUDAN GRASS SEED
C. Meyer, San Bernardino, Cal.

POULTRY

Roofden Ranch Chicks are well hatched from first class utility breeding stock; money making egg producers our aim, and the prices are right. 7 to 14c, depending on breed, month, quantity (dozen to thousands). White, Buff, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks. For Dollars and Sense. Send card for circular. Roofden Poultry Ranch and Hatchery, Campbell, Cal.

Your Opportunity! 200-290 Egg Early Maturing, Winter laying Leghorns, Reds, Anconas; White, Buff Wyandottes; White, Barred Rocks; Buff Orpingtons, $3-$10 yearly profit every breeder. During May-June, EGGS HALF, CHICKS FOURTH OFF. Few pens, all breeds bargain make room. Guaranteed profit feed high. C. Beeson, Pasadena, Cal.

East Side Poultry Yards Established 1904. Our object, egg type and size for ideal utility stock. Thoroughly Hoganized, correctly hatched baby chicks, dozen or thousand. White Leghorn and Rhode Island Reds, prices reduced. Satisfaction guaranteed. 255 S. 18th St., San Jose, Cal.

Baby Chicks, reasonable prices—White Leghorns, R. I. Reds, settings, 100's-1000's. Hatched right in our $60,000.00 brick and concrete hatchery from our quality heavy layers. Stock, hatching eggs. Pebbleside Poultry Farm & Hatchery, Sunnyvale, Cal.

Baby Chicks and Eggs for Hatching from pure bred McFarland strain of carefully culled and Hoganized stock; bred-to-lay S. C. White Leghorns, $8.50 per 100 and $80.00 1000, shipped on approval. Sonoma Valley Hatchery and Poultry Ranch R. F. D. 2, Sonoma, Cal. Box 48.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

Free—How to Mate and Breed Rhode Island Reds. Just what you want to know, but could not get correct information. Send stamp. Trap-nested stock, both combs, big dark velvety red strain for sale. Aya Poultry Yards, Ava, Mo.

White Leghorn Breeding Cockerels, 10 months old, from our famous heavy laying, prize winning stock. To make room we offer our regular $5.00 VALUES at $2.50 EACH while they last. RANCHO DEL MARTINO, Downey, Cal.

Model Poultry Farm, White Leghorn specialists. Baby chix and hatching eggs from heavy laying stock, bred by us for thirteen years. Our prices are right. W. C. Smith, Prop., Corning, Cal.

Baby Chicks from S. C. White Leghorns from trapnested hens with records of 192 to 297 eggs. Also S. C. Black Minorca chicks and eggs. J. W. Benoit, Route C, Modesto, Cal.

Petaluma Hatchery, Established 1902, Capacity 16,000 chicks a week—the kind the hen hatches. Five varieties. Send for free circular. L. W. Clark, Petaluma, Cal.

Hatched Chicks For Sale—Barred Rocks, R. I. Reds and White Leghorns. Strong, vigorous chicks. Send for circular. G. L. Hawley, Madera, Cal.

Baby Chicks—White Minorcas and Golden Buff Leghorn. Two popular breeds. Cockerels for sale. Sandridge Hatchery, Kerman, Cal.

Earl E. Sanders, Modesto, Cal., breeder of M. B. Turkeys, S. C. White Minorcas, S. C. Black Minorcas and S. C. Barred Plymouth Rocks. Nothing but the best.

Incubators—Essex Model Incubators at factory prices. Write Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco. Poultry supplies.

"Eastman's Bred-to-Lay" Barred Plymouth Rocks. Chicks, eggs, cockerels. We Hoganize and trapnest. Fairmead Poultry Farm, Fairmead, Cal.

Baby Chicks—White Leghorns, Brown Leghorns, Reds, Barred Rocks, Black Minorcas, Anconas. Prices on application. Orland Hatchery, Orland, Glenn Co., Cal.

Rainescourt Reds—Eggs from prolific laying strain and exhibition winners from $1.50 up. Day old chicks $15 per 100. Rainescourt Poultry Ranch, Zel ah, Cal.

Day Old Chix—Barred Rock, R. I. Reds, White Leghorns, Black Minorcas, Light Brahmas, Buff and White Orpingtons. Enoch Crews, Seabright, Cal.

Baby Chix — White Leghorns, White Rocks, "quackless" White Muscovy ducklings. White Star Hatchery, Kerman, Cal.

For Sale—Rhode Island Red Baby Chicks from our carefully selected matings. $12.00 per hundred. Williams Poultry Place, 236 No. Gage, Los Angeles.

Turlock Hatchery—Baby chicks. A chick that will live. Turlock Hatchery, Turlock Cal.

Guinea Eggs $1.00 per setting, postpaid. E. A. McKinley, Ukiah, Cal. R. D.

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CEMENT STAVE SILOS are permanent investments. Grow better with age. Cannot crack, warp, leak or blow down. Cost no more than a good wood silo. They are sanitary and profitable. Get your money's worth. Write to Cement Stave Silo Co., 501 Call Bldg., San Francisco, Cal.

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Large Assortment slightly used and agents' sample plows, harrows, cultivators, wagons. Call and see them before buying. Save 50 per cent on some. Four floors. Largest stock. Arnott & Company, Ranchers' Supply House, 112 to 118 South Los Angeles St., Los Angeles.

LUMBER

AAA—Lumber, New and Second-Hand: rough, $10 M; finished, $15 *A*R. W. shingles, 45c bundle. Dan P. Dolan, 1635 Mission St., San Francisco, Cal.

FARMS WANTED

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

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FOR SALE—WHY BUY NEW? SAVE HALF

Material guaranteed. It's 2nd hand after used few times, but not necessarily worn out.

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Our prices on used windmills, used redwood tanks, and ranch tools are same as they were years ago. Advance on great many articles is a fad which we refuse to follow.

Price on new galvanized iron tanks and pipe we have been compelled to raise on account of new material costing us more.

WINDMILLS

Let the wind do it. 8-ft., $21.50; 10-ft., $28 to $32.50; 12-ft., $45 to $55. Have three 16-ft. mills; cost new $285; our price $125, and $95. Pumps as much as 4-h.p. engines for nothing once installed. Beats gas at 19c.

TANKS—TANKS

USED AND NEW GALVANIZED AND REDWOODS.

1000-gal., $32.50; 2000, $44. Have used galv. 500, 1000, 1500, 10,000-gal. storage, $125; 14,000, $200. 20,000 heavy corrugated, nearly new; cost $600, for $235. Redwoods all sizes.

ENGINES. PUMPS. PIPE.

Most all sizes—in good shape.

Centrifugal pumps, 2-in. $24; 3-in., $35; 4-in., $45; 5-in., double runner, $95; all size plunger pumps, $5 up; new pump jacks, $12.50; double-acting No. 3 Ames, $200, cost $660; Means double-acting deep well pump, $275; pumps 50 inches; 12-h. Lambert engine; 9-h. Foos, $135; 6-h. Stearns, $89. Many other first class engines very cheap.

Brass Cylinders, All Sizes.

Plunger rods, pipe, pipe fittings.

Ranch Machinery. Sundries.

Walking, riding plows, $15 to $22.50; fine 2-gang mouldboard plow, $45; 3 or 4-gang disc tractor plow; alfalfa renovator, $25; 24-disc, 4-horse harrow, $38; fine Bull tractor, $295; cement mixer, $35; sprayer, $19.50; mowers; buck rake, $25; power hay baler; bone grinders, $5 to $12; corn sheller, feed grinders.

Wanted to buy first class material. No junk wanted. Pioneers in our line. DEMMITT CO., Upstairs, 120 N. Main. Yard, 816 Yale, Los Angeles.

Several new and slightly used engines at a bargain. Best makes. 1 to 35 h.p. Arnott & Company, Wholesale Machinery and Implements, 112 South Los Angeles St., Los Angeles, Cal.

For Sale—New and second hand distillate engines, pumping machinery of all kinds. Be sure and get our prices, it will pay you. Wm. Gregory & Sons, 602 N. Main St., Los Angeles.

For Sale—38 H.P. "Otto" gas engine in good shape, at a bargain. E. A. Hayes, El Monte, Cal. Phone 48 R.

For Sale—Yuba tractor No. 12 in A1 condition. Plow and cultivator if wanted. Satisfactory reason given for selling. Address P. O. Box 306, Colton, Cal.

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Paper is advancing; save money by ordering your printing now from G. C. Gallagher, The Service Printer, 441 Sacramento St., San Francisco.

TURKEYS

Bronze Turkey Eggs—$2.00 per ten from now on. Baby turkeys, choice lots of 15, with turkey mother, $10. Brehm Bros., St. Helena, Cal.

Eggs For Sale from my prize winning Mammoth Bronze turkeys. Hens weigh 20 pounds, gobblers over 40, $5 per dozen. N. E. Mullck, Williams.

PATENT ATTORNEYS

Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS".

RABBITS

New Zealand Rabbits are money makers. Send 25c for our new book on their culture — also catalogs. Gilmore Rabbit Farm, Dept. C, Santa Barbara, Cal.

MONEY TO LOAN

Money to Loan—On improved farms, city property, or for building loans, also on cattle or cotton crops. C. G. Paul, 407 Chamber of Commerce Building, Los Angeles, Cal.

BEE SUPPLIES

For Sale—175 to 250 colonies Italian bees with extra equipment; in eight-frame hives; can remain in present location if desired. Geo. A. Sill, Watsonville, Cal.

HEREFORD SALE

Continued from Page 545

In the cows there was no outstanding supremacy, many of them bringing from $500 to $800. A thousand dollars was not reached, not that the cows were not worth the money, but there was not the strong bidding for the females that was shown for the bulls.

A large portion of the animals were purchased by California breeders. The diffusion of that blooded stock means that the ranches of California are to be presented with sires and dams that are sure to bring credit to the state, whenever shown, either east or west.

The excellence of their general form, the well rounded body, the bearing, the dignity of poise, the capabilities, both present and potential, are such that one cannot but realize that a great advance has been made in our local live stock industry.

In many instances the cows were with calf at foot and due to calve again again within a reasonably short time. That one purchase will, in itself, make a foundation herd that will make thousands of dollars for the owners. When we consider that the product of a good cow will often sell for her own price when very young, we can readily see the decided advantage of purchasing high grade cows. There is the prospect of many calves all ranging well up in money. When we can feed such animals with but little trouble and expense it gives the live stock business a vast outlook.

As a missionary propaganda the sale can only be accounted excellent and while some of the cattle did not bring all that was expected, the general average was particularly good. It should give courage to other breeders in the east and west to present to the buyers their offerings, and we feel confident that as good prices as were paid at this sale can be realized again for equally good stock.

The averages at the D. O. Lively Stock Farm sale was as follows: 15 bulls averaged $433; 29 cows averaged $329; general average $373.

CARRUTHERS SHORTHORN SALE

Continued from Page 544

started on her at $300. It was quickly run up to $700, and then by slower stages of cautious bidding she was knocked down to Mr. Miller for $1000. Mr. Miller made the two highest purchases at the sale and carried away three of the best cows that were ever put up at auction.

The prices of the cows ranged from $250 to $700 aside from those already mentioned as top notchers. But the bulls did not fare so well, one of them, Lord Wilson, going to Mr. Marshall of Los Angeles for $100. That is a cheaper price than the same amount of cow flesh would have brought on the hoof from the butcher, and the low prices obtained for the bulls brought down the high average established by the cows to the mean average of $370 for the entire sale.

It is quite possible that the low prices paid for the bulls was due to the fact that at this time they cannot well be used as breeders, but must be carried over for another season, and with feed at the present market one is likely to think that it would be better to wait till the animals are needed before paying their season's board. The bulls were of good breeding, of registered pedigree, strong of frame, sturdy of legs, well set, low to the ground, with good loins and heart girth. They will establish names for themselves when their time comes to head some of the herds of California and the Pacific Coast, for a number of the purchases were for Oregon.

In a number of instances the bidding was started particularly low, one bidder refusing to make the first bid more than $200. While we have no desire to make our readers believe that we would have any one pay more for a thing than it is worth, we would call attention to the fact that each low purchase decreases the value of similar animals all over the state, for an auction sale is largely a value placed upon certain classes of animals, no matter where found. The man who secures a bull for $100 or $200 cheapens all of his bulls at home, and while he makes a saving of perhaps $200 on the purchase, he loses several times $200, depending upon the number of bulls he owns. On the other hand, paying for an animal what he is worth, with perhaps a little thrown in for good measure, boosts the breed just that much, and while the cow or bull that is purchased may cost a good figure, the added value placed upon similar animals of one's own breed greatly overweighs the additional money paid.

Mr. Carruthers was fairly well pleased with the sale and has expressed himself as being desirous of further improving what he considers the greatest breed in America.

The following is a list of the purchases, with the amounts paid and the names and addresses of the buyers:

White Briar and calf, $2000; Golden Queen, $1000; Lady Dorothea 10th, $550; Riverside Grace 4th, $300; Mayfield Lil, $300; to T. T. Miller.

Rookwood Ury, $725; Mayflower, $750; Orange Blossom Girl, $350; Young Blossom and calf, $435; Lucy Lee, $400; Ruby Queen and calf, $900; Pacific Sultan, $225; Mayfield Sultan, $310; to Thos. B. Dibble Estate.

Magnolia, $250; Henrietta, $220; Orange Mary and calf, $375; Mayfield Henrietta, $205; to Barco Ranch.

Lucretia, $375; to C. N. Hawkins & Son.

Mary Fair, $285; Gloster Miss 2nd, $220; to J. F. Dunn.

Twinkling Star and calf, $225; Lady Foxglove 4th, $250; Dean Sultan, $140; Pacific Mayflower, $140; to Harry Murphy.

Western Lass 2nd, $240; Sultan Twinkle, $300; Mayfield Knight, $260; to Miller & Lux.

Mayfield Magnolia, $235; to H. N. Elberg.

Mayfield Victoria, $525; to Wm. Bond.

Mayfield Rose, $310; Violet Mayflower, $310; to D. B. Harris.

Fanny's Sultan, $240; to John M. Ratto.

Orange President 3rd, $210; Creation, $195; to G. G. Downing.

Redemption, $255; to Wm. Clark.

Golden Master, $305; Hesitation, $125; Superior, $155; Lord Wilson 3rd; to M. M. Marshall.

Mayfield Knight 2nd., $280; Mayfield Knight 3rd., $280; to O'Connell Bros.

Lord Valentine 2nd, $225; to R. C. Burton.

Ormondale Victory 2nd, $315; to Elder Creek Ranch.

BIG HOLSTEIN MEETING AT NAPA

Written for California Cultivator By C. L. Hughes

AN assemblage larger than ever attended a breed association meeting in California gathered at Napa State Hospital on Saturday, May 5, to participate in the meeting of the California Holstein-Friesian Association. President Fred W. Kiesel of Sacramento had put forth special effort to notify every Holstein breeder in the state of this meeting, and those who did not attend missed a rare treat.

The association on this occasion was the guest of the board of managers and Mr. Owen Duffy, business manager of Napa State Hospital, and the hosts left nothing undone to add to the comfort and enjoyment of their guests. A fine lunch was spread in the great hospital dairy barn, which proved to be a dining room that would compare in cleanliness, light, ventilation, and "invitingness" with most of the places where they charge extra for bread and butter. About 150 guests seated themselves at the big tables at one o'clock, and it was well along in the afternoon, and the sleek, clean Holstein cows were in the same barn eating their lunch of sweet ensilage and grain, before the meeting came to a close. During the lunch the hospital orchestra, an exceptionally good musical organization, added a full measure of good music to the general enjoyment.

Following the lunch, President Fred W. Kiesel presided over the meeting in the happy manner that has already made him a popular president. Some of the speakers programmed to be present were among those absent, but a wealth of after dinner speakers were recruited from among the visitors. Emmett Phillips, president of the board of managers, welcomed the association, and impressed his hearers with the great work that is being done by the big hospital. State Controller John S. Chambers, gave some interesting thoughts on the subject of the "State's Interest in Industry". John Neylan, president of the state board of control, was one of the recruit orators, but his talk on the handling of the state's finances was one of the hits of the day.

The fellow who invented the phrase "A prophet is not without honor except in his own country" evidently didn't live long enough to meet Owen Duffy. The speakers of the day, high state officials who have worked with him, neighbors and leading citizens of Napa County who have worked with him and have observed his work, unitedly and severally heaped upon him a measure of praise for the agricultural development of the Napa State Hospital properties that might well have been dangerous to a man less modest than he is well known to be.

CHRYSANTHEMUM CULTURE

Continued from Page 535

California fan palm is properly Washingtonia filifera, variety robusta, and has been known to the trade only as W. filifera. The tall slender species, known to nurserymen as W. robusta (doubtless for the reason that it is less robust than the other) is very properly W. gracilis, as all who know it well will agree. It is well for those about to buy these palms to be able to recognize them under either or both names or some confusion and disappointment may result.

Improved Day Lilies

The old-fashioned day lily, Hemerocallis fulva, with its large flowers of weak yellow is no doubt known to all, but the improved sorts, hybrids by the way, are not so well known. Sir Michael is the lightest in color, a soft, buff-yellow. Baroni has yellow-orange flowers and is very fragrant. Dr. Regel has very large orange flowers, and queen of May, the tallest of all the lot, has the darkest flowers, a deep orange, and the most floriferous of the hybrid sorts. There are other named varieties, and all are superior to the old type.

The Sapodilla

Another good evergreen fruit tree for the front yard in the most favored parts of California is Achras sapota, the sapodilla of the American tropics. The tree is slow of growth, even where frosts are unknown, and should be planted in California only where lemon trees pass unharmed through the winters. Even then the growth is confined to the hottest months, and some years will elapse before fruiting takes place. As the tree is of good appearance and evergreen one may forget for the time that it ever fruits, and consider ornamental only.

We have been very conservative in our advertisements of the sale at public auction of

Willowwood Herd

60 REGISTERED JERSEYS 60

Owned by C. G. McFarland

Tulare, California

THURSDAY May, 17 1917

As you will immediately feel when you see this great herd on sale day.

And we repeat that it is entirely conservative to state that this is the very greatest offering of well bred, well built, well developed Register of Merit Jersey cows and their offspring ever led into a Western sales ring.

A Get-together Meeting

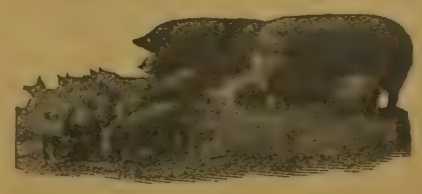
On the evening of Wednesday, May 16, at 8 o'clock, a good fellowship meeting of Jersey breeders and dairymen will be held at Ryan Hall, Tulare, Cal. Among the speakers will be Judge Peter J. Shields, Guy H. Miller, and very likely one of the most successful to breeders in the Northwest will be there to talk upon the subject of "Feeding Jersey Cows on Official Test". It is intended to open this subject up for general discussion, and it is a very timely one for the Jersey breeders of California. You are perfectly welcome to attend this meeting whether you are a Jersey breeder or not. If you want to have better dairy cows the discussions during the evening may be of help to you.

Sale under management of

California Breeders' Sales and Pedigree Company

C. L. Hughes, Sales Manager
SACRAMENTO, CALIFORNIA

Auctioneer—Col. Ben A. Rhoades



HOG CHOLERA

In introducing the Dorset-Niles method of immunization as recommended by the U. S. Government, the Stockyards Serum Company of Kansas City, through their representatives, Mr. L. B. Green and Dr. R. M. Leaf, wish the hog raisers of California to know of the splendid results obtained in the Imperial Valley, by such firms as Timkin Ranch Co., Lyons Bros., Russell Bros. and Stuart, Hale Ranch Co., D. Messmore, Thompson Bros. and many others. For vaccination or serum see Green & Leaf, Hog Cholera Specialists, 401 Bryson Bldg., Los Angeles, California. Phone Main 1107.

(Cut this out for reference.)

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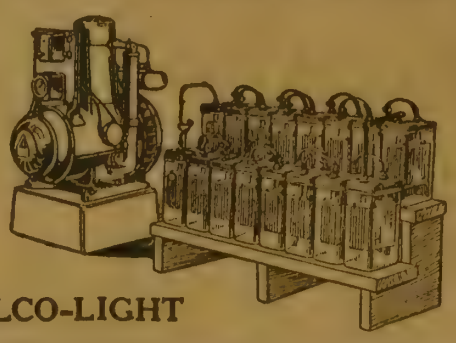

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"But it is more than that—it is the best place in which to live—and to raise a family."

Delco-Light brings city comforts and conveniences and economies to the farm.

It lights the house and barn—it furnishes power to pump the water, wash the clothes, churn the butter, separate the cream—run the vacuum cleaner and the electric fan.

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Canning Machines for the Home, Field or Factory

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When writing advertisers, mention The Cultivator.

Household Department

GOD'S GARDEN

Written for California Cultivator
By Ida M. Blake

"Are there any weeds in God's Garden?"
I asked of my soul today.
"Maybe you're a weed," came the the answer;
"Better find out right away.

"For God doesn't want things useless,
To hinder and choke out the flowers
That grow in His beautiful Garden,
Where he spends His golden hours."

"But where is this wonderful Garden"?
Impatiently I asked Him then,
And He answered so loving and tender,
I marveled at His patience with men:

"My child, the world is the Garden,
And all who dwell therein,
May be flowers of rarest beauty,
Or weeds, burdened with sin."

CANNING BEANS, CUCUMBERS AND SALMON

Written for California Cultivator
By Louella Barker, Fields Landing

IN reply to your question as to what kind of vegetables did I can and did it pay, I have this to say:

I canned string beans so simply and so successfully that my method may interest some other housekeeper. We had in our garden stringless green pod and Kentucky Wonder beans in quantities especially for canning and as we ate them this winter we concluded that it did pay both because it was cheaper and we felt free to use more than if we were buying them.

Gather beans and string them, or at least break off the ends and break into inch lengths. Let them boil in salted water about half an hour. This takes about an hour, for it takes a good sized kettle half an hour to come to boiling. Have jars and tops hot, fill very full of beans and have some good vinegar at boiling heat and put one or two tablespoons in the top of jar and seal. When wanted for use pour off water and wash in one or two waters and cook as you would fresh string beans. I have canned them two seasons in this way and never lost a jar.

Cucumbers and Onions

Have about twice as many cucumbers as onions. Slice separately and let stand over night with plenty of salt sprinkled over them. In the morning drain and fill jars, using about twice as many cucumbers as onions. Heat vinegar to fill jars. It takes but little more than one good sized teacup of vinegar to a jar, and to each cup use a tablespoon of sugar and a small teaspoon of ground mustard. Boil these in the vinegar, then let vinegar get cold, fill your jars, screw on tops and set in cool place till wanted. Have kept these a year and they were fine. By first filling jars you know how much vinegar to prepare. The jars used are quart size. These make an excellent relish and are much easier than most pickles to prepare.

Salmon

We live where we can go trolling when the salmon are coming in in the fall, and usually catch a good many of them. We clean the fish, cut it into lengths to go in the jars and cut into about two-inch strips and press into jars just as tightly as possible, then put in enough salt for the quantity of fish and if the fish does not seem very fat, I put a little olive oil in, then put the rubbers on jars, place the lids on, but not screwed on tight, and for pint jars boil in the boiler between three and four hours; for quarts, an hour longer. Have the water part way up sides of jars, but not so it gets into them when boiling. Do not put any water in jars. Have the water boil steadily and screw tops tight when taken out. Keep in cool, dark place.

These help to rob the high cost of living of some of its terrors for us, and are easily put up. I have never lost any of the cucumbers or salmon. And most people seem to like the home canned salmon better than that canned by the canneries.

SAVE YOUR BOTTLES

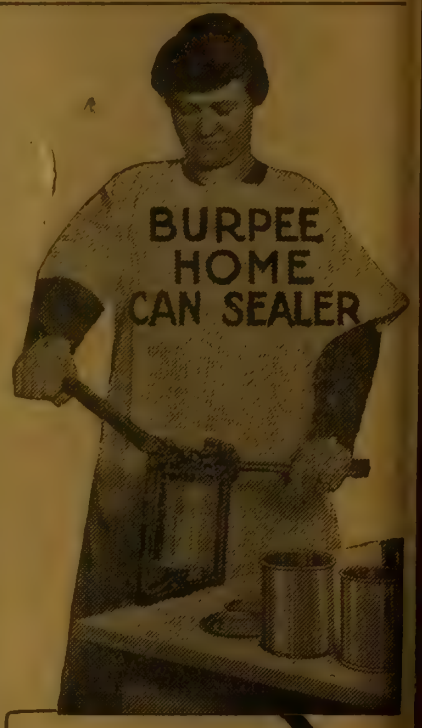
A serious shortage of preserving jars and cans is threatened. Glass bottles, especially wide-necked ones, are useful for putting up fruits, jellies, and preserves. Put up fruit juices in ordinary bottles.

Reserve regular preserving jars and cans for canning vegetables, soups, and meats.

FRUITS, preserves, jellies, jams and fruit juices if sealed with corks and paraffin, can be kept perfectly in these makeshift containers. Jellies, jams, and preserves can be kept even in ordinary drinking glasses, by the use of paper and paraffin. Fruit juices should be packed in ordinary small-necked bottles.

Vegetables, soups and meats, on the other hand, to keep must be sealed by the usual fruit jar or tin can packing methods. Reserve regular containers for foods that can not be packed in bottles.

The specialists of the United States department of agriculture are also urging all members of canning clubs and others not only to can products, but to dry and evaporate all such products as apples, pumpkin and squash.



ARE YOU READY FOR HARVEST

Fruits and vegetables will soon be ready for market. Are you sure that you can sell all you produce? Insure yourself against glutted markets, waste and loss by buying a

BURPEE HOME CAN SEALER

The strongly built, simple, easily operated machine for sealing sanitary tin cans without acid or solder. Clamps on any kitchen table.
It will save all those fruits and vegetables you might have to feed the hogs. It will start you in a new and highly profitable business. Made and guaranteed by one of the biggest canning machine manufacturers in the country. Cans easily secured. Free book of canning recipes, compiled with the assistance of the U. S. Dept. of Agriculture, with each machine. Write today for information.

BURPEE & LETSON, LTD.
So. Bellingham, Wash.

MAIL THIS COUPON TODAY

BURPEE & LETSON, LTD., E
So. Bellingham, Wash.

Dear Sirs:—Please send free illustrated folder on BURPEE HOME CAN SEALER.

Name .....

Address .....

The Cultivator Patterns

8275—Ladies' Set of Pockets. Cut in one size. The pattern consists of six different styles of pockets.

8282—Girls' Dress. Cut in sizes 4 to 14 years. The dress slips on over the head sleeves may be long or short and the waist perforated for applied yokes.

8289—Ladies' Dress. Cut in sizes 34 to 42 inches bust measure. The dress has a plain waist with large collar and a one-piece straight skirt with tucks.

7802—Ladies' Waist. Cut in sizes 36 to 44 inches bust measure. Any of the pretty figured materials can be used for this waist with the collar and cuffs of plain goods.

8309—Children's Dress. Cut in sizes 2, 4, 6 and 8 years. The waist is in overblouse effect and the straight gathered skirt is joined to an underwaist.

8307—Ladies' Overalls. Cut in sizes small, medium and large. The bib may be omitted and the trousers may fasten above the knee to form bloomers.

7803—Ladies' Skirt. Cut in sizes 22 to 30 inches waist measure. The skirt is cut in three gores.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH.

HOW TO ORDER PATTERNS

Write your name and address plainly in full. Give correct number and size of each pattern you want, and send ten cents in coin or (1 or 2c) stamps for each number. In order to furnish our readers with the very latest New York City styles, all pattern orders are filled in New York City. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

Pattern Department
California Cultivator
Los Angeles

They advise strongly that if containers are scarce locally, those in stock should be used to preserve perishable products which have the highest nutritive value. Nothing should be packed in jars or cans which can be conserved effectively in other ways.

Candy containers or other glass jars with screw tops or glass stoppers, and in fact any receptacle of glass, crockery or porcelain, can be sealed with cork or paper and paraffin.

Large tin canisters or tin cans with removable covers, provided the body of the container is air and water tight, will be found useful in canning certain fruit products. Such containers can be sterilized and their covers hermetically sealed in place with solder or wax.

INEXPENSIVE TOILET RECIPES

Written for California Cultivator
By A. M. H.

TO make an excellent remedy for bunions on the feet fill a four-ounce bottle half full with coal oil and put into it an ounce of gum camphor crushed fine. Keep tightly corked and shake occasionally until the camphor dissolves, then use this freely on the bunion. When there are hard corns and callous places on the feet use a piece of pumice stone, not the smooth kind prepared for the hands but a lump in the rough. Rubbing with this reduces the callosity, after a time removing it entirely if the surface is protected from further hurt.

To treat an ingrowing toenail, saturate a little piece of antiseptic cotton with laudanum, then raise the edges of the nail and press the cotton under the edge of the nail as far as it can be pressed without pain.

Hot milk is a safe and nourishing lotion for the skin to restore its plumpness, laying linen wet in it on the cheeks after the face has been massaged, and thick sweet cream makes a fine skin food, and if used often, by rubbing it well into the skin, it will fill out the cheeks and help to keep the wrinkles away.

Enlarged pores are the cause of both pimples and blackheads, and a little tincture of benzoin used in the water when bathing the face will help to close the pores. An excellent lotion for enlarged pores is made with one dram of boric acid in four ounces of distilled witchhazel. This must be applied with a piece of soft linen.

A trained nurse gives this recipe for a toilet powder that is excellent for both grown people and children, and it is easily prepared. Mix well together one part of boric acid powder with three parts corn starch, and if a perfume is desired a drop of oil of rose may be added.

One of the best salves to use for skin eruptions or any soreness of the skin is made with equal parts of powdered boric acid and vaseline.

To make an excellent powder to use in the shoes when one must take long walks or be much on their feet, mix well together four parts of the boric powder, one part salicylic acid and five parts of pulverized starch. Sprinkle a little of this powder in the shoes every morning and it will help to absorb the moisture and make the shoes feel easier on the feet. To rub the feet with alcohol refreshes them wonderfully, and nothing is as good for them as a vigorous alcohol rub after they have been wet or chilled. A rub with cocoa butter is a fine thing for the feet at all times. A cake of cocoa butter can be bought at any drug store for a trifle.

LINCOLN'S EARLY ACTIVITY

Little Hattie, determined to give her hero full credit for his achievements, wrote the following in a history examination:

"Abraham Lincoln was born February 12, 1809, in a log cabin he built himself."

IT WAS TOUGH

Hostess (serving mutton)—Doesn't it seem a shame, Mr. Jones, that this poor sheep should have to die for us?

Mr. Jones—Ah, yes, indeed! It is rather tough.

NO DELAY

"Do you ever ask your wife's advice about things?"

"No, sir; she doesn't wait to be asked."—Boston Transcript.

ALL THE YEAR ROUND

Cooler cooking in summer—better and more economical cooking all the year 'round.

A good oil stove will cook anything that any wood or coal range will cook, and do it better because of the steady, evenly-distributed heat.

All the convenience of gas. Meals in a jiffy, and a cool kitchen in summer.

The long blue chimneys prevent all smoke and smell.

In 1, 2, 3 and 4 burner sizes, with or without ovens. Also cabinet models. Ask your dealer today.

NEW PERFECTION OIL COOK-STOVE

STANDARD OIL COMPANY
(California)

The Household Sentinel
KELLOGG'S ANT PASTE
MAKES ANTS DISAPPEAR

Kellogg's Ant Paste stands guard for the housewife in her annual battle with the Ant nuisance With this faithful ally, she can drive every ant out of the house in 24 hours. Look for the rattle cap package.

25¢ AT ALL DRUGGISTS

THE RETREAT OF THE ANTS

If it's a rest, vacation or fishing trip you are planning—

Don't Forget

Wheelers Hot Springs Resort

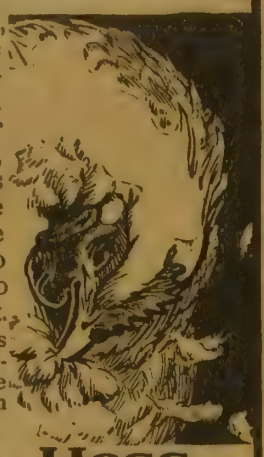
New auto road just completed and in fine condition. Hotel and Camp accommodations. Trout are plentiful this year. Write now for our new folder, just off the press.

"OPEN YEAR ROUND"
WHEELERS HOT SPRINGS
VENTURA COUNTY, CAL.
WCSS W WILCOX, MGR.

The advertisers in the California Cultivator are known to be reliable and we recommend them to our many subscribers.

Kill Lice

Begin now, in the spring-time—clean up your poultry, keep hens and little chicks free from lice so they will do their best.



When hens pick feathers you have a sure sign of lice.

Dr. Hess Instant Louse Killer

means easy and sure lice riddance. Dust into hens' feathers, about roosts and houses. Put it into the dust bath, both hens and chicks will work it all through the feathers, bringing the Louse Killer right home to the lice. You can do your poultry no better service. Don't neglect them.

Also destroys bugs on cucumber, squash and melon vines, cabbage worms, slugs on rose bushes. Sold in sifting-top cans.

Price, 1 lb. 25c; 3 lbs. 60c (except in Canada).

DR. HESS & CLARK, Ashland, Ohio

DRY MASH

GLOBE A-1

The food with the punch. Gets the eggs. Highest analysis, cheapest price $2.95 per 90-lb. bag. Special price on quantities. Write for free feeding sample and descriptive circular. At your dealers or

GLOBE MILLS

Los Angeles, Whittier, Fullerton, Santa Ana, San Pedro, Inglewood

Right Now use DEVIL'S DUST and Kill Lice and Mites

Sold Everywhere

Devil's Dust is a deadly poison to all insect life; harmless to poultry, stock, plants

Globe Mills
Los Angeles, Cal

Tells why chicks die

E. J. Reefer, the poultry expert, 4265 Reefer Bldg., Kansas City, Mo., is giving away free a valuable book entitled, "White Diarrhoea and How to Cure it." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

Feeding Baby Chicks

Written for California Cultivator By Jean A. Koethen

IN addition to the duck yard and duckling pens, Plymouth Poultry Ranch has yards and houses for several hundred hens. Two breeds are kept, White Leghorns and Barred Rocks, and it is rather surprising to learn that the Barred Rock chicks have this year been considerably more in demand than the Leghorn, 1700 having been sold since Christmas.

The chicks are brooded under hot water pipes, and after the two days' of rest and quiet which all chicks require, are fed a nursery feed of commercial chick feed for two or three days. This is fed on a large square wooden tray, which is placed just outside the hover, so that the chicks need not be chilled when they come out to eat. If dry bread crumbs are available, they are mixed with the chick feed. After these few days of nursery feeding the little birds are put at once on a ration which is being tried by many poultrymen this year, i. e., dry feed meal and beef scrap in separate hoppers. These two hoppers or troughs are kept before the chicks at all times, and they have nothing else. At first a fine feed meal is used, but later a coarser grade is substituted. This is proving just as satisfactory as the more expensive diet of commercial chick feed and elaborate mash. The chicks like it and thrive on it. No other feed is given till the birds are old enough to eat Egyptian corn, which is thrown into the pens after they are perhaps six weeks old, and which they gradually learn to eat. This ration of corn meal, beef scrap and Egyptian corn is continued till the cockerels are ready for market and the pullets for the laying pens.

At about two months of age, the chicks, which have been moved along from one brooder to another till they have learned to do without heat at night, are removed to the cold brooders with slatted bottoms. The cockerels go from these cold brooder pens to market, while the pullets are given more room until they are ready for the pullet section of the laying house.

A "Different" Laying House

Many of the laying houses in Inglewood colony are built after a model which is not often seen elsewhere. This is what might be called the "double-decker" or two-story style. The floor of the Ely laying house is fully three feet from the ground, with a trap door and stairway giving access to the ground underneath. In damp weather the hens are thus provided with a sheltered scratching place. When it is very rainy the trap door is closed and they are confined in the house. As the roosts are built high, so that the dropping boards are three feet above the floor, and a large floor space is provided in front of the roosts, the hens have abundant room for scratching in the deep litter which covers the entire floor. The front of the house is closed except for the upper three feet, which is of wire. Poultrymen who use this type of house claim that it is not only rat proof, but because of the protection it gives from the weather, induces the highest possible egg production.

COTTON SEED MEAL FOR POULTRY

Cotton seed meal in rather limited amounts has been fed, since last November, with excellent results, to a pen of 30 pullets on the experiment farm of the United States department of agriculture at Washington, D. C. These pullets have averaged 52,3 eggs each in 20 weeks, from November 1 to March 20, which is practically equal to the best egg yield received this year from any of the other experimental rations. No bad effects have been noted from this feed, either in the eggs or in the condition of the fowls, and the hens eat this feed freely. The ration is as follows:

Dry Mash.—Two pounds cotton seed meal, two pounds beef scrap, four pounds bran, five pounds middlings, nine pounds corn meal.

A large per cent of cotton seed meal in a dry mash without any beef scrap has not given satisfactory results. Pullets fed a ration with 33 per cent cotton seed meal averaged only 33.2 eggs apiece in one year. A considerable per cent of these eggs had discolored yolks, with green or brownish-green spots, making them unfit for market. The hens did not like this mash and had to be forced to eat it by feeding a very limited amount of scratch grains.

These results appear to indicate that cotton seed meal can be fed at the rate of about ten per cent of the mash, or five per cent of the total ration, with an equal per cent of beef scrap with excellent results. In sections where cotton seed meal is produced, half of the beef scrap in the mash apparently can be replaced by cotton seed meal with excellent results.

POULTRY NEWS

By C. A. Wilkins

One of the most important meetings of the California State Poultry Breeders' Association will be held at the university farm Davis, the afternoon and evening of May 30. Matters of interest to every poultry breeder in California will be brought up for discussion and papers of timely interest will be read. War conditions and the poultry industry probably will be freely discussed. In the evening an illustrated lecture will be given by Prof. J. E. Dougherty. A number of poultry experiments will be brought to a close at that time and explained to those in attendance.

The American Poultry Association of California is to meet at the same place on May 31, 1917.

Efforts are being made to have Mrs. S. T. Campbell of Mansfield, Ohio, named to fill the vacancy in the office of secretary of the American Poultry Association, caused by the recent death of S. T. Campbell, who for many years was secretary of the organization.

More than 100 ranchers and others interested in poultry attended the monthly meeting of the Stanislaus Poultry Association held at Modesto, April 12. The merits and use of the Hogan system were explained and demonstrated by C. W. Presher of Ripon.

STORRS EGG LAYING CONTEST

Storrs, Connecticut, report for the 25th week ending April 24, 1917.

The Plymouth Rocks got first two places with a safe margin, leaving the Reds and Leghorns to vie with each other for third position.

The three best pens in each of the principal varieties are as follows:

Barred Plymouth Rocks

Fairfield Poultry Rarms, 936; Merritt M. Clark, 779; Jules F. Francais, 749.

White Wyandottes

Merrythought Farm, 920; Obed G. Knight, 834; A. L. Mulloy, 817.

Rhode Island Reds

Jacob E. Jansen, 905; Allan's Hard to Beat Reds, 896; Geo. W. Harris, 893.

White Leghorns

A. P. Robinson, 1075; J. O. LeFevre, 917; Hilltop Poultry Yards, 903.

Miscellaneous

Obed G. Knight, 853; Cloyes & Sullivan (Buff Wyandottes), 825; Hollister Hill P. Farm (White Rocks), 807.

A hen will eat at least a bushel of grain a year if she can get it. Put aside that amount for each one and see that each one gets her share.

The bright eye, red comb, smooth, bright, well-kept plumage, activity and the keen appetite indicates the healthy fowl.

All hoppers should be sufficiently high above the litter to be kept as free from dirt as possible.

A load of gravel scattered along houses and coops would greatly contribute to the health of many a flock

A good snatch feed is made of equal parts of corn, wheat and oats by weight.

Coal ashes make a good disinfectant to use on the drop-boards and around the hen yards.

The more energetic the hen the more water she will drink.

Red Comb Chick Mash With Buttermilk

RED COMB CHICK MASH with Buttermilk

The greatest Chick Grower ever produced. Prevents White Diarrhoea—Authority for this statement found in Bulletin No. 162, University of California, Berkeley, California. Write to Berkeley for this bulletin. Hale & Edwards Co., Chicago, who manufacture the RED COMB and RED HORN FEEDS are the only people who have succeeded in drying buttermilk—without killing the Lactic Acid Bacilli or materially reducing digestibility. Tests made after this Dry Buttermilk has been manufactured SIX MONTHS show 10,000 Live Active Lactic Acid Bacilli to the centimeter. Send for a small sample of this Dry Buttermilk and convince yourself of its merit.

Globe Mills Western Distributors
Los Angeles, Cal.

Free Books on Poultry

Lee's Poultry Book.
Secrets of Success with Chickens.
Common Sense Chicken Talks.
Pointers to Amateurs.
How to Treat Poultry Diseases.

Globe Mills, Los Angeles, Cal.

PEERLESS CHICK FEED

Feed a Clean Chick Feed

One that will raise your chicks. Peerless is free from cheap filler commonly found in chick feeds to increase profit for manufacturer and dealer. Peerless contains the largest percentage of Hard Red Cracked Wheat; the wheat which has the highest protein content. Insist on your dealer supplying you with Peerless Chick Feed.

Globe Mills, 913 E. Third St. LOS ANGELES

Baby Chicks Many Varieties

Ten, 12 and 15 cents. We ship everywhere. Free 66-page illustrated catalog. Ducks, Turkeys, Rabbits, Guineas, Pigeons, etc.

Pioneer Hatchery, 320 S. Spring St., Los Angeles

Lower Prices on

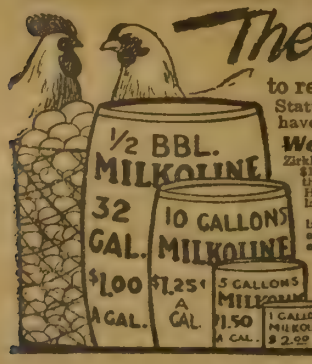
GARDEN TOOLS

SPECIAL—75c new perfect shovels, 35c.
Famous "RAYMOND" HOSE, ¾ in, 8c ft., ½-in. 6c ft. Elton Hose, ¾-in. 9c ft., ½-in. 7½c ft.
LAWN MOWERS, "Bluegrass", 14-in. cut. Regular price $5.50, now $4.50.
Other well known lawn mowers up to $9.00. THESE PRICES CANNOT BE DUPLICATED IN CALIFORNIA. "BEST FOR LESS"

Whiting-Mead Commercial Co.
9th and Maple LOS ANGELES

There isn't enough Pages in this paper

to repeat even half of the enthusiastic praise which the Big Poultry Feeding Stations, Poultry Authorities, Pure-Bred Poultry Breeders and Farm Poultry Raisers have said about Milkoline — if you'll try it, you'll say something nice too.



We Don't Ask You To Take Our Word—Read This:

Zirkle & Coffman, Breeders Thoroughbred Poultry, Virginia, write: Enclosing check $12.60. Please ship ten gallons Milkoline. Have used with such success that neighbors want some. Will not have enough to see us thru.

Have not had case white diarrhoea among chicks so far, last year we lost about half them with it.

W. G. Tainter, Kansas, writes: Have been using Milkoline for few months and getting greater number of eggs per hen than any year since going into business on larger scale. Ship me half bbl. more. I would rather be without grain than Milkoline, as it is a tonic as well as a food.

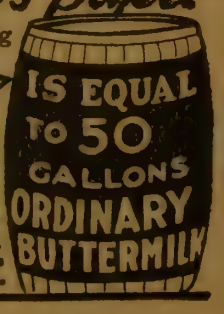
ONE GALLON OF MILKOLINE

The wonderful assimilating and digesting qualities are highest in Milkoline of any known feedstuff. Adds vitality, growth and fattening—eliminates Diarrhoea and disease.

Try It Yourself on Our Unlimited Money Back Guarantee

Shipped prepaid at the prices on the packages to the right. Write us today. Address

GLOBE MILLS, Western Distributors, Dept. G-4 Los Angeles, Calif.



Los Angeles Market

LOS ANGELES, May 9, 1917.

BUTTER

Wholesale prices:

Rcts. wk. ending May 8, 242,950 lbs.
California extra creamery 34
Prime first 32
Extr. Cr'y Exch. past week.

May	2	3	4	5	7	8
'17	.33	33	33	33	34	34

CHEESE

Brokers' prices:
California fresh, lb. 24
Oregon Longhorn 29
Tillamook Triplets 27½

EGGS

Exchange quotations:
Rcts. wk. ending May 8, 3166 cases.
Fresh extras 32
Case count 31
Pullet 28½
Fresh Ranch Exch. past wk.

May	2	3	4	5	7	8
'17	.32	32	32	32	32	32

POULTRY

We quote from growers:
Broilers .....16@22
Fryers 28
Hens .....15@21
Roasters 28
Geese, Young 18
Ducklings, lb. 20
Roosters, old 9
Turkeys .....22@27

LIVE STOCK

We quote cwt. f.o.b. L. A.
Cattle—
Beef steers, av. 1000 to 1100 lbs.....10.00
Heifers, good 8.00
Cows, good .....7.00@7.50
Fair .....6.50@7.00
HOGS—
Av. 125 lbs. 11.75
Av. 150 lbs. 12.50
Av. 175-225 lbs. 13.00
Rough, docked 20 lbs.; piggy sows, 40 lbs.; stags, 40%.
Prime wethers .....9.50@10.00
Ewes .....9.00@9.50
Lambs 13.00
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:
Northern .....4.50@4.75
Oregon .....4.50@4.75
Russets .....4.50@4.75
Sweet, lb. 8
New, lb. 2

ONIONS

Wholesale selling price:
Onions, Brown, lb. .....8@10
Crystal Wax, cr. .....1.75@1.85
Bermuda, cr. .....1.75@1.85
Garlic, lb. 10

VEGETABLES

Wholesale prices:
Artichokes, doz. .....50@75
Asparagus, lb. .....5@5½
Beans, green, 13; wax .....10@11
Ky. Wonder 15
Beets, doz. bunches 45
Cabbage, lb. 4
Red, lb. 6
Carrots, doz. 45
Chicory, doz. .....40@50
Cauliflower, doz. 1.00
Celery, doz. .....1.00@1.20
Cucumbers, Hothouse, doz.....1.00@1.75
Eggplant, lb. 20
Horseradish, rt. lb. 15
Lettuce, doz. 25
Leeks, doz. 30
Mint 40
Onions, green, doz. 25
Oyster Plant, doz. 45
Peas, lb., Telephone.....4½@5
Telephone .....6@6½
Peppers, Chili, lb., 20; Bell .....30@40
Parsnips, doz. 50
Radishes, doz. 25
Rhubarb—Crimson Winter 85
Strawberry 1.25
Tomaine, doz. 45
Spinach, doz. 25
Squash, summer, cr. 1.25
Turnips, doz. 45
Tomatoes ,cr. 1.85

FRUITS

Wholesale prices:
Apples—W. W. Pearmain.....2.35@2.50
Newtown Pippin, Yellow.....2.10@2.35
Avocados, doz. .....6.00@10.00
Bananas, lb. 5
Loquats, lb. 10
Strawberries, basket .....4@6
Raspberries .....12@13
Pineapples, lb. .....8@10

CITRUS

Lemons .....1.75@3.00
Juice 1.25
Grapefruit .....2.50@3.50
Limes, basket 1.00
Navels .....2.50@2.75
Tangerines, lug 1.50

HONEY

Wholesale prices:
Extr. lb. White 8½@9½c; A. 8½@9c; W. .....10@11
Comb., lb. W. 12½c; Lt.A.....12½@14c
W. 14½
Beeswax, lb. 32

PAINTS

Lowest Prices in California

Regular $2.50 Standard House and Floor paints, now $1.85 a gal.
Standard Porch Floor Paint, now $2.25 a gal.
$1.50 Black Graphite roof paint, 65c a gal. in 5-gal. can.
$1.50 red, green, gray roof paint, 90c a gal.; in 5-gal. cans.
$1.25 red and brown shingle stain, 69c a gal.; in 5-gal. cans.
Green 70c a gal.

Whiting-Mead Commercial Co.

9th and Maple - LOS ANGELES

NUTS

Peanuts, lb. 11c

BEANS

Wholesale Prices:
Lady Washington 17.00
Limas 17.00
Pinks 13.25
Manchurian Reds 11.00
Baby Mex. 8.50
Garbanzos 8.50
Small White 17.00
Blackeyes 12.00
Tepary 12.00
Lentils 18.00

HAY

We quote ton f.o.b. L. A. to producers:
Barley .....19.00@23.00
Oat, tame .....21.00@24.00
New Imperial Barley and Alfalfa .....21.00@22.00
Alfalfa, local, new 19.00
Stock .....15.00@16.00
Straw .....10.00@12.00

GRAIN

While we do not quote flour, it may be of interest to note that this day an additional 60c advance per bbl. has been made and according to grade flour is now selling from $14.20 to $17.10 per bbl. wholesale.

Wholesale selling price f.o.b. L. A.
Wheat—No. 1 .....5.40@5.45
Corn—No. 2 yellow, 3.85; white.....3.95
Oats—White 3.25
Barley—Recleaned 3.30
Milo 4.15
Egyptian Corn 4.15
Rye 4.95

FEED STUFF

Wholesale, cwt. f.o.b. L. A.
Alfalfa Meal 1.75
Bran, Heavy 2.75
Shorts and Middlings 3.35
Alfalfa Molasses 1.80
Meat Scraps 3.60
Beet Pulp 1.80
Cracked Corn 3.90
Cracked Wheat 5.80
Cotton Seed Meal 2.60
Oat, C. L. 3.10
Bone Meal 2.45
Feed Meal 3.95
Green Bone 2.25
Fish Meal .....3.60@3.70
Rolled Barley 3.25
Rolled Oats 3.30
Hulled Barley 3.75
Hulled Oats 5.00
Scratch Feed, 10-sk. lots $4.75; 5-sk. $4.80; 1-sk. 4.85
Scratch Feed with grit, 20c less.
Oat Chop 2.10
Oil Cake Meal 3.30
Pigeon Feed .....4.55@4.65
Chick Feed 4.65, 5.00, 5.25
Blood Meal 4.20
Cocoa Meal 2.05
Rice Paddy 3.70
Gritless Chick Feed 5.25, 5.30, 5.35
With grits 20c less.

San Francisco Markets

SAN FRANCISCO, May 8, 1917.

BUTTER

Dairy Exchange quotations, lb.:
Rcts. wk. ending May 7, 891,300 lbs.
Fresh extras 35
Prime firsts 34½
Extr. Cr'y. Prod. Exch. past wk.

May	1	2	3	4	5	7
'17	.33	33½	32½	34	34½	35
'16	.24	..	24	24	24	..

CHEESE

Dairy Exchange quotations:
Cal. Flats ...20½@21; Y. Am. ...23½@25

EGGS

Rcts. wk. ending May 7, 20,613 cs.
Dairy Exchange quotations:
Fresh extras 32½
Firsts 31½
Select Pullets 30½
Firsts 30½
Fresh Extr. Prod. Exch. past wk.

May	1	2	3	4	5	7
'17	.32	32½	32½	32½	32½	32½
'16	.21	..	21	21	21½	..

POULTRY

We quote from producers, lb.
Hens, large, 22@24; Leghorns .....14@17
Small colored .....20@22
Fryers .....33@35
Broilers .....23@25
Roosters, old, 12@13; young .....33@35
Squabs, doz. .....2.25@2.75
Ducks .....18@20
Geese .....18@20
Turkeys, live, lb. .....20@22
Belgian Hares, live 14@15; dr.....17@18

LIVE STOCK

Prices gross weight;
The following prices for cattle are for grass-fed stock. Hay-fed cattle bring ½@¾c more.
Cattle:
Steers, lb., 8@9¼, cows and heifers, 5@7¼; calves, 7@9.
Sheep:
Wethers, 11@11½; shorn, 1½@2c less; ewes, 10@10½; lamb, lb., 12@12½.
Hogs:
Hard grain fed, wt. 100 to 150 lbs., 12 @12¼; 150 to 300 lbs., 14¼@14½; 300 to 400 lbs., 13¾@14, undesirable, 6@8.

POTATOES

Wholesale selling prices at wharf:
Delta Burbanks .....3.75@3.85
Oregon Burbanks .....3.60@3.85
New Potatoes, lb., white.....5½@6
Garnet .....6@6½

ONIONS

Wholesale selling price on wharf:
Australian, cwt. .....5.50@6.00
Seed—Bermuda .....2.25@2.75
Crystal Wax .....2.25@2.75
New Green, box .....1.00@1.25
Garlic, lb. .....1@3

VEGETABLES

Wholesale selling price:
Asparagus, bx. .....1,75@2.00
Canners, bx. .....1.25@1.50
Artichokes, doz., large 50; small...25@35
Beans, String, Wax, lb. .....8@12½
Celery, cr. .....1.00@1.50
Cucumbers, bx., hothouse.....1.25@2.25
Lettuce, cr. .....50@75
Peas, sack .....1.25@1.75
Peppers, Green, lb. .....20@30
Rhubarb, bx. .....75@1.00
Spinach, cr. .....50@75
Squash, Summer, cr. .....75@1.25

FRESH FRUIT

Wholesale selling price:
Apples—Newtown Pippins .....1.25@1.75
Bananas, bunch .....1.25@1.75
Cherries, dr. .....1.25@1.50
Strawberries—
Longworths, chest .....8.00@9.00
Large varieties .....5.00@7.50

NUTS

Jobbers' Prices:
Almonds.—Exchange opening prices: Nonpareil, 19c; Ne Plus Ultra, 17c; IXL, 17½c; Drake, 16c.
Peanuts, Jap, 7@7½c; Eastern 7½
Pecans .....19@20
Pine Nuts .....15@17

BEANS

Jobbers' prices, cwt. recleaned:
Cranberry 12.00
Limas .....16.00@16.25
Bayous .....11.50@11.75
Garbanzos .....6.00@6.50
Small White .....15.00@16.00
Mexican Red .....11.25@11.50
Large White .....15.00@16.00
Pinks .....12.00@12.25
Horse Beans 6.50
Black Eyes .....9.50@10.00
Red Kidneys .....13.00@13.50

HONEY

Jobbers' prices:
Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. .....11@12
Ex. Fy. W. lb.....10c; Lt. A. 8
Beeswax, lb. .....30@32

HOPS

Prices to growers at shipping points:
Sacramento .....5½@8
Sonoma .....7@9
Mendocino .....7@9
Oregon and Wash., lb. .....5@9

RICE

Price to growers:
Cal. Rough No. 1, cwt.....3.50@3.75
Lower Grades .....3.00@3.50

HAY

Under date of May 5 Scott, Manger & Miller say:

Receipts past week 1204 tons. About one-half of arrivals have been from California points, the other half from Oregon and Washington. Cutting of volunteer is now in progress in some sections and harvesting of first cutting continues in most all alfalfa districts.

Export trade has been normal. The government has taken bids for July, August and September requirements for shipment to Hawaii and the Philippines. As bids are also taken at Portland, Seattle, Chicago and Kansas City for the

We quote the average wholesale price of hay in carload lots on today's market as follows, viz:

Wheat, Fy., jt. bales.....33.00@35.00
Wheat or Wh. and Oats, No. 1.31.00@33.00
Wheat, or Wh. and Oat, No. 2.28.00@30.00
Oats, Choice Tame .....31.00@33.00
Other Tame .....28.00@30.00
Wild .....24.00@29.00
Barley .....27.00@30.00
Alfalfa .....24.00@27.00
Stock Hay .....15.00@16.00
No. 1 Barley Straw .....1.00@1.25
Oregon Hay .....25.00@29.00

GRAIN

Grain Exchange prices, ctl.
Wheat—No. Bluestem .....4.80@4.85
Corn, California .....3.35@3.50
Oats, White Feed .....2.87½@2.90
Oats, White Feed .....2.85@2.87½
Barley, Feed .....2.97@3.00

FEEDSTUFFS

Wholesale prices per ton:
Bran .....46.00@47.00
Cornmeal .....71.00@72.00
Cracked Corn .....71.00@72.00
Cocoanut Meal .....35.00@36.00
Middlings .....58.00@60.00
Alfalfa Meal, carlots .....33.00@34.00
Shorts .....49.00@50.00
Rolled Barley .....61.00@62.00

SEEDS

Prices in round lots, lb.:
Millet, recleaned .....3¼@4
Alfalfa .....20@21
Flax .....5@6

Citrus Fruit Market

LOS ANGELES, May 9, 1917.

Daily shipments have been running around 200 to 250 cars, prices have been desperately low, there has been much decay. Some sales, especially in auctions, have been around packing and freight charges. At present conditions are looking slightly better. Lemons also are improving slowly but prices generally are low.

Shipments

Shipments of oranges from Southern California to date since November 1, 1916, 22,639 cars, lemons 3875, total 26,514; to same date last season, oranges 19,293, lemons 3111; total 22,404. From Central California to date this season, oranges 4064, lemons 164, total 4228; to same date last season, oranges 4807, lemons 146, total 4953. From Northern California this season, oranges 845; last season, oranges 610, lemons 1.

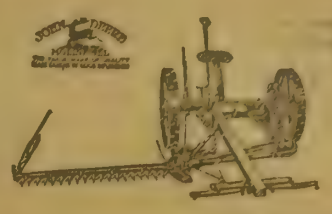
FROM THE AUCTION

May 7
New York: 49 cars Nav., 1 St. Mike, 1 sweet, 5 mixed, 3 lem. Nav., $1.45@3.10; Bloods, $1.70@2.10; tang., halves, $.65@1.25; lem., $2.00@2.90.
May 8
New York: 36 oranges, 3 lem. Nav., $1.00; lem., $1.40@3.25.
Boston: 21 cars. Nav., $1.45@3.35; St. Mikes, halves, $.90@1.00; lem., $1.80@3.65.

WEATHER CONDITIONS

For the Week Ending May 5, 1917

	Rainfall Wk.	Rainfall Season	Rainfall Norm.	Temp. Max.	Temp. Min
Eureka	.02	30.24	44.56	56	42
Red Bluff	.00	17.98	23.55	78	46
Sacramento	.00	12.81	19.24	76	44
San Francisco	.00	15.72	21.49	64	48
San Jose	.00	12.40	16.18	76	38
Fresno	.00	7.06	9.10	80	44
San Luis Obispo	.00	22.54	19.79	68	42
Los Angeles	.00	15.03	15.24	66	46
San Diego	.00	9.78	9.68	64	50



If you want a light running efficient mower, backed by the Deere Factory, a machine that has cut hay and grain around the world, try our Deere-Dain Mower, 4 sizes, and DELIVERIES NOW.

A. F. George Co.

200-202 No. Los Angeles St.
Los Angeles

Distributor, John Deere Implements, Yuba and Bean Tractors and Farm Tools.

YUBA
Ball-Tread
TRACTOR

uses most of its power to pull the load—and less to pull itself.

The machining of the Ball Tread is perfectly done — the mechanical part is equal in quality to the design.

Write for Catalog
Department B13

Yuba Manufacturing Co.

433 California Street
San Francisco

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Only Two Men to Run Easy on Men and Team -
-THE AUTO-FEDAN-
Means One Less Man-
Three Stroke - Great Capacity - Self Feed - No Danger - Smoothest Bales - Easily Moved - and Set - Extra Power - Simple - Durable - Guaranteed - Sold on Easy Payments CATALOG MAILED FREE
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Great Capacity Low Upkeep -
Especially Strong for Alfalfa - Feed Hopper only 39 Inches from Ground - Largest feed Opening -
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Alfalfa Land

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Also First Class Orchard Land
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$1195 F. o. b. Racine
Mitchell Junior—a 40 h. p. Six
120-inch Wheelbase

Mitchell SIXES

$1460 F. o. b. Racine
7-Passenger—48-Horsepower
127-inch Wheelbase

Trust John W. Bate

To Build a Car As You Want It

The latest Mitchells will show you that John W. Bate is a master at building cars.

You have never, at any price, seen a car so complete. You have never seen such luxury, so much over-strength, at anywhere near our price.

How Mr. Bate Works

Mr. Bate, the great efficiency expert, has spent 14 years on Mitchells. The latest Mitchell is his 19th model. It is the final result of 700 improvements.

But he started by building this model plant, which now covers 45 acres. He spent millions of dollars to build and equip it to build this one type economically.

Nowhere else in the world could a car like the Mitchell be built at the Mitchell cost. His methods will save us on this year's output about $4,000,000.

It is that saving which pays for all the Mitchell extras, and gives men these matchless cars.

31 Extra Features

There are 31 features in the Mitchell which nearly all cars omit. Things like a power tire pump, reversible headlights, dashboard engine primer, ball-bearing steering gear.

There is more beauty and luxury than was ever before combined in a modest-priced car. The reason is, we build our own bodies. And all we save goes into this extra luxury.

And no other car has Bate cantilever springs. They make the Mitchell ride like an aeroplane. In two years' use, on many thousand cars, not one of these springs has broken.

100% Over-Strength

But the chief Mitchell extra is double strength in every vital part. In the past three years we have doubled our margins of safety. We are making the Mitchell a lifetime car. Three of these cars have already run over 200,000 miles each. That's 40 years of ordinary service.

Over 440 parts are built of toughened steel. All safety parts are vastly oversize. All parts which get a major strain are built of Chrome-Vanadium.

In these days of high steel prices, any car which is built this way is either rare or costly.

TWO SIZES

Mitchell—a roomy, 7-passenger Six, with 127-inch wheelbase and a highly-developed 48-horsepower motor.

Price $1460, f. o. b. Racine

Mitchell Junior—a 5-passenger Six on similar lines, with 120-inch wheelbase and a 40-horsepower motor—¼-inch smaller bore.

Price $1195, f. o. b. Racine

Also six styles of enclosed and convertible bodies. Also new Club Roadster.

Everything You Want

Mr. Bate has worked 14 years to combine in Mitchells everything you want. He spent one year in Europe, to glean the best ideas from there.

Before designing this year's Mitchells, his artists and experts examined 257 new models. So all the known attractions are combined in these Mitchell cars.

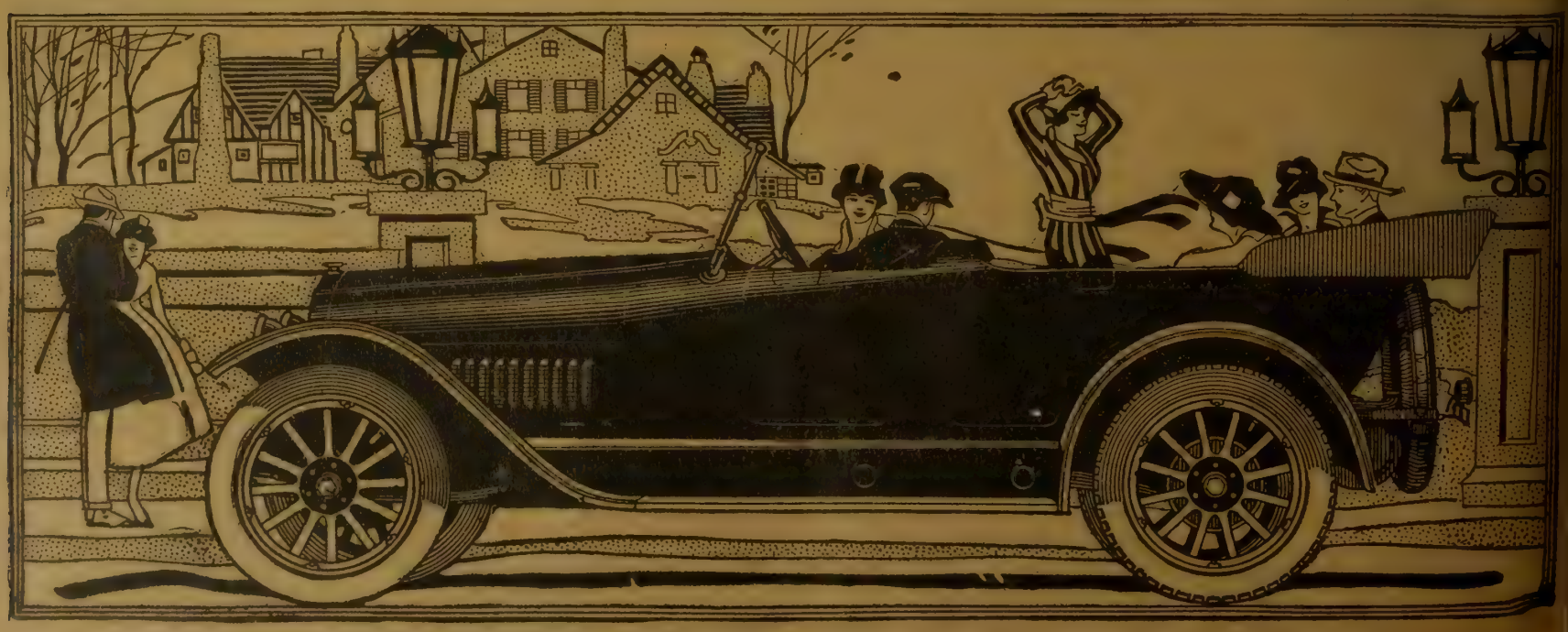
One Size, $1195

The smaller Mitchell—Mitchell Junior—costs only $1195. Yet it is a powerful Six, with a 120-inch wheelbase. You never saw such value in a car around this price.

But the larger Mitchell offers special value. See both sizes. See the extra features, the extra beauty and the extra strength. You will want a Bate-built Mitchell then for the car you buy to keep.

If you don't know the nearest Mitchell dealer, ask us for his name.

MITCHELL MOTORS COMPANY, Inc.
Racine, Wis., U. S. A.



CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

LOS ANGELES May 19, 1917 SAN FRANCISCO

Remco Redwood

REDWOOD FOR DURABILITY

What a Remco Silo Means

1. That you are able to store your crop when feed is plentiful.
2. That you have green, succulent feed when range feed is scarce and grain high.
3. That you will get more and better milk.
4. That you will more than save the cost of the silo every year.

What a Remco Tank Means

1. That you can store water when wind power can be had FREE.
2. That a good supply of water is always on hand for home and farm use.
3. That you have reliable protection against fire.
4. That you will never have tank troubles.

What Remco Pipe Means

1. That you have an uninterrupted flow of water.
2. That your pipe will last longer than any concrete pipe or metal pipe except cast iron.
3. That your pipe will cost you less than any metal pipe.
4. That your pipe will stand heavy pressure either pumping or gravity and no standpipes are necessary.

REMCO FOR MECHANICAL PERFECTION

REMCO SILOS, TANKS AND PIPE are made from CLEAR, AIR DRIED REDWOOD. They are manufactured by skilled mechanics using the most modern wood working machinery.

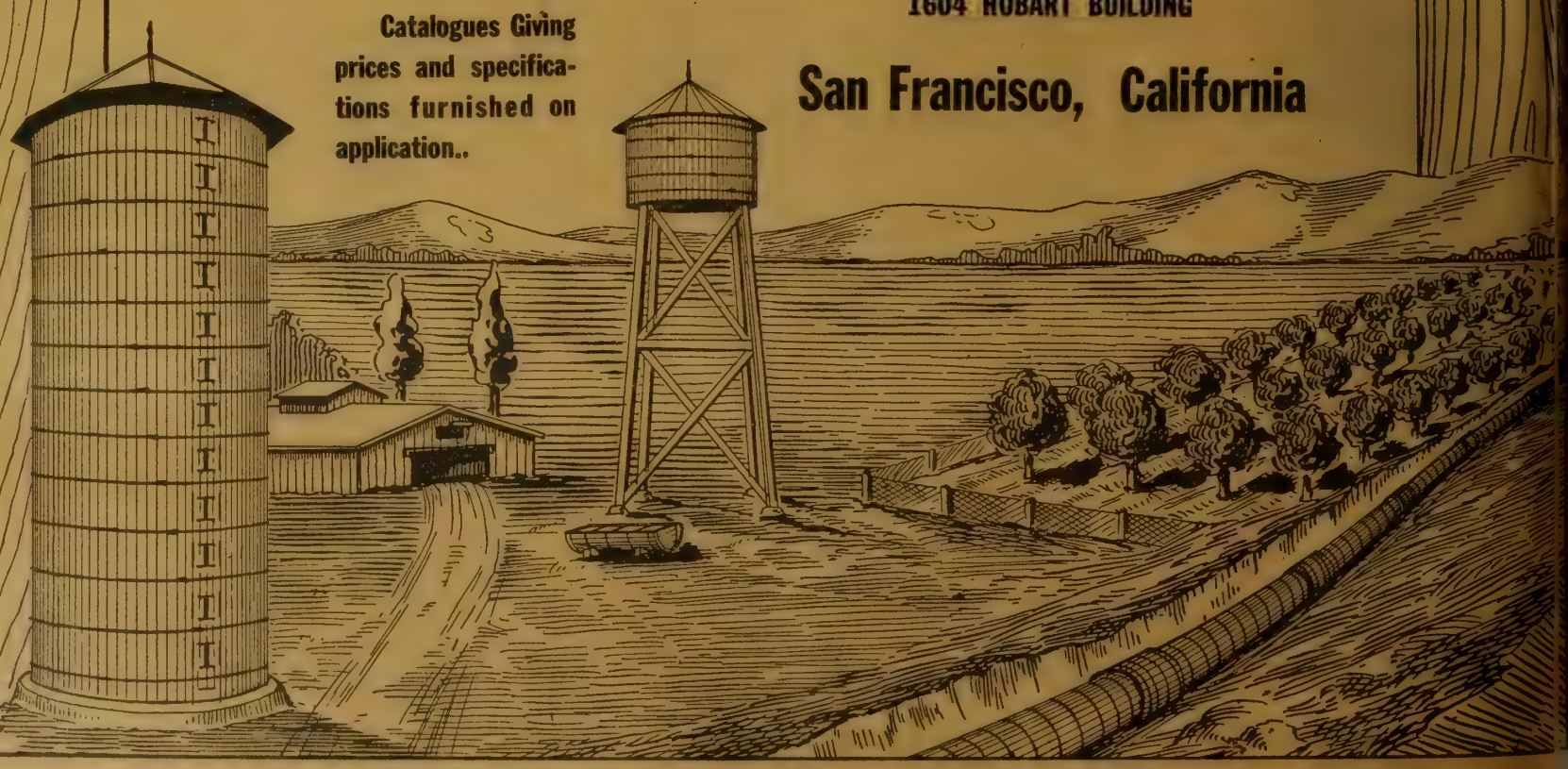
You can avail yourself of the experience and skill of our experts, who have made particular study of Pacific Coast needs. ALL INFORMATION IS GIVEN ABSOLUTELY FREE.

Redwood Manufacturers Co.

Catalogues Giving prices and specifications furnished on application..

1604 HOBART BUILDING

San Francisco, California



California Cultivator

Vol. XLVIII No. 20 LOS ANGELES: May 19, 1917 One Dollar Yearly

The Holstein-Friesian a Great Dairy Cow

California Has a Host of Black and Whites Which Have Produced Wonderfully. Some of Them with Official Records of Over 30 Pounds of Butter in Seven Days Are Shown in Photos in This Issue

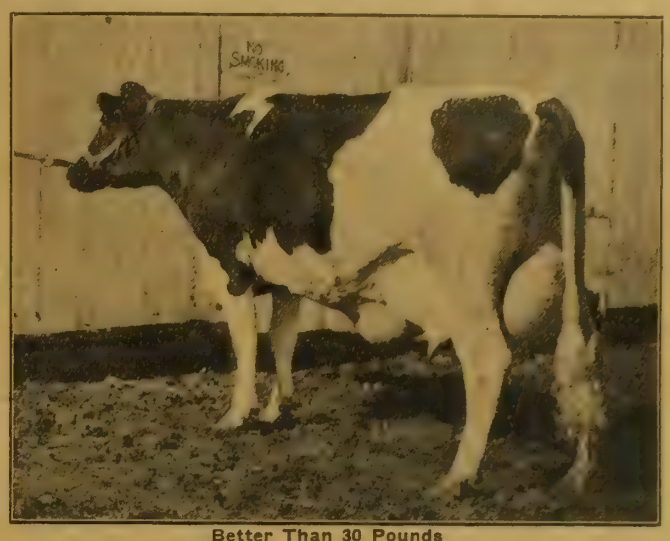
A GROWTH in popularity almost sensational has been given to the Black and White breed, or, more correctly, the Holstein-Friesian. This dairy cow has been in California for many years, but during the past 5 years her increase in popularity has been much more rapid than prior to that time, and today there are in this state more of this breed than of any other.

The native home of the Holstein-Friesian is Holland, though various strains of the breed are scattered over much of Northern Europe. Its origin is obscure; it has been claimed that for over 1000 years the people of Holland have kept them and been famous for the production of milk, butter and cheese.

"A quarter of a century ago," writes Plumb in "Types and Breeds of Farm Animals", "cattle were brought to this country under the names of Holstein and Dutch Friesian, being sold as different breeds and championed by different breeding associations. The name Holstein has no application in Holland, but refers to a small province in Germany, between the Baltic and the North Seas, about a hundred miles east of the Holland boundary, where black and white Dutch cattle are found. The word Friesian is derived from Friesland province, Holland, and this is the name the breed should go by in America, as it does in Holland, for no such breed name as Holstein-Friesian is used in the latter country. In view of the fact that all of the cattle imported from Holland to America are essentially the same, the breeders and importers finally came together and united their interests and agreed to call the breed Holstein-Friesian. If the word Holstein could by agreement be discarded, it would give a more appropriate and simpler name."

These cattle were first brought to America by the early Dutch settlers of New York, so that the breed has been in America for some hundreds of years.

That Californians have secured some of the finest blood in the world is shown by photos of California cows in this issue of the Cultivator which have produced in seven days 30 or more pounds of butter.



Better Than 30 Pounds
Salo Canary Mercedes Burke, 31.77 lbs. butter in 7 days. Property of Morris & Sons.

Better Than 30 Pounds.
The first cow, the one at right of picture, is Boweda, 31.91 pounds butter in seven days, 123.45 pounds butter in 30 days. The other three are all A.R.O. cows, close to the 30-pound notch. Owned by Stanford Ranch at Vina.

Better Than 30 Pounds
Aaggie Acme of Riverside 2nd, 35.38 pounds butter. In 90 days her butterfat and milk products aggregated $142.30, or well up towards $50 per month. Owned by Morris & Sons.

CALIFORNIA HOLSTEIN-FRIESIAN ASSOCIATION

Written for California Cultivator
By Fred W. Kiesel, President

THE California Holstein-Friesian association is going along fine, had a big meeting at Modesto on April 18 and an exceptionally large one at Napa State Hospital on May 5. At the latter place a most unique banquet was tendered by Mr. Owen Duffy, who spread tables right in the dairy barn, and while the banquet was in progress the cattle were led in and milked.

An association of this kind can cover a large field. It is not only an organization intended to bring together Holstein breeders and promote good fellowship, but it is educational to all the outsiders who attend our meetings. The visitors in many cases consisted of very prominent people in other walks of life, who were amazed at the cleanliness and sanitation practiced in modern dairying and were surprised that they could eat a meal in a dairy barn under perfectly sanitary conditions. Among the state officials at the Napa meeting, in addition to several members of the board of managers of the institution, were John Neylan, chairman of the board of control; Colonel Chambers, state controller, and Bismark Bruck, assemblyman.

The Holstein is adapted to California particularly because, generally speaking, we can raise feed in quantities; the animal being large and bulky consumes from one-third to one-half more than the Guernsey or the Jersey, and in return increases the quantity of milk over these last two mentioned breeds in about the same proportion. What we want for general consumption is a big milk factory, rather than a small one containing a higher percentage of butter fat.

A good Holstein herd now has no difficulty in meeting the requirements of any community. Approximately three per cent of the Holsteins in the state are pure bred.

I am told by butchers that the animal cuts up well on the block, but of course not to be compared with either of the beef strains, to-wit, Shorthorns or the Herefords, but is a big improvement over any other dairy herd.

Better Than 30 Pounds

Jane Korndyke of Riverside. Butter 7 days 31.47 pounds. Owned by F. W. Kiesel.

Wilhelmina Gerben De Kol. Butter 7 days 30.43. Owned by Morris & Sons.

Diotjme Clyde Korndyke. Aver. 31 lbs. Owned by Santa Anita Rancho.

Established 1888. Twenty-eighth Year

The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, May 19, 1917

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

California redwood enters into our cover illustration in a large way this week. This illustration shows a typical California dairy barn scene on Stanford Ranch near Mayfield, Santa Clara County. There are many such silos in the state, but we hope their number will vastly increase during the next year. These days of high-priced concentrates, and even of high-priced roughage, demand the saving of every straw. The saving is accomplished to a greater degree in the manufacture of silage than in any other way.

May we have more silos; may we have more pure bred cattle about them. It means a help toward the giving to the world that food which it now most seriously needs, and it means profit to California.

HOLSTEIN-FRIESIAN

Much of our space this week is given up to the Holstein-Friesian. The beautiful animals are doubly beautiful because of being in the "handsome is as handsome does" class. To this breed belongs the honor of producing the first cow to "come across" with 50 pounds of butter in seven days. The live stock world stopped and stood at attention when this cow back in Michigan made her wonderful performance record. But there are others—and in California—none which have made 50 pounds of butter in a week, but many which have made more than 30 pounds. Note the illustrations in this issue of a very few of them.

DON'T BE TIGHT

We have seen a new slogan in our present conservation campaign. We have been urged to save a starving world by eating to the last crumb, and not overeating at that. The world is going hungry. Now, however, the promoters of the conservation idea are finding that the world is taking the advice at its full value and conserving so rigidly that merchants the United States over are holding up their hands and appealing for their old-time customers to come back.

The new slogan is "Sit tight, but don't be tight." It contains a valuable lesson and has a hint on which we may well act. Notwithstanding, we presume there will be exceedingly careful buying on the part of nearly all of us for the next few months. But honestly there appears to be every promise of great business and the expenditure of great funds in this country, and the farmer who is far-sighted enough to fully equip his place, fertilize and care for his crops, even at the expenditure of large sums, will have something coming back. This is the time for doing things and not conserving to the extent of penuriousness.

QUALITY

We have talked so much about producing more that some of us may possibly think that the greatest good to the country may be secured by producing quantity. Bear in mind that no farmer gets rich by producing quantity. It is the price he gets for his product and economy and business judgment are factors, and price is determined by quality. Produce the best, and the price will in large measure take care of itself.

CONNECT UP WITH THE SOIL

"If we are going to connect up our men with the soil we must do two things. Credit must be provided so that these young men can start to farm and the values of farms must be based on their use for productive purposes and not on an increased price based on an additional speculative value. A credit system suited to the needs of the farmer would enable young men to become tenants instead of remaining laborers. Then as a tenant, since land would be lower in price due to no added speculative value, it would take a shorter period for him to save enough to make first payment and become an owner. Then again as an encumbered owner credit suited to the farmers' needs would shorten the period required for saving enough to pay off the mortgage. If we do not establish a system for helping young men to connect up with the soil and then as rapidly as possible to become owners, we are going to boost for an ever increasing percentage of tenants and for more and more farm laborers. The net result will be to drive more and more of our young men to the cities."

The above quotation from a keen observer is an expression of a condition which all have recognized but few acted upon. Now, will California have opportunity to make a most practical test in connecting up a number of young men with the soil?

Our land colonization commission has been two years in gathering data; this data it presented to the legislature; the legislature has acted, and now for a trial. Young men of small capital, more experience and good health and determination may now possibly own a farm of their own. It will take time longer than most of us will be patient with to bring this first practical test of this kind in the United States to the working stage, and the country will be watching us. We hope a far-seeing man like Dr. Mead may prove that California conditions under California laws, with determined young men, will make a success of a practical land colonization scheme.

LOS ANGELES EXPOSITION

In the midst of a war which is almost throttling her very life France appreciates the necessity of inspiring her agricultural classes to produce to the utmost limit, and to that end is holding, so far as possible, her regular agricultural fairs. Extremists in America have suggested that the movies and all forms of recreation be suppressed and that we should settle to the work of doing only that which means support for our country, either through agricultural production, manufacture or active aid in the war. We believe that such suggestions result only in throttling the best endeavor. These are times when we must see things in their larger aspect, and to that end anything which gives us opportunity to see the best that our neighbor is doing will inspire us to equal or better his achievement.

The California state fair and all the county and district fairs should be, and we believe are to be, held this fall. In the state legislature suggestion that these be discontinued was repudiated and the legislators decided that this means of encouraging agriculture should be continued.

The newest of these fairs, or rather an exposition which in a sense is one of the oldest, is that of the former Sixth District Fair Association of California at Los Angeles. This association has changed its name to the District Fair Association of California and proposes to hold a 30-day exposition. There will be exhibits during the entire exposition period. Some, like live stock will have only seven-day periods.

Other features of an educational nature will be planned. One we may mention, on which work has already begun, is a demonstration garden. A plot of ground has been set aside and on it will be planted at once crops which will be matured and removed and other crops planted prior to the fair. As these crops mature they will be canned or processed so as to preserve, and this canning or drying will be a practical day by day demonstration for the benefit of home and school gardeners of Southern California. Saturday and Sunday afternoon demonstrations in canning and drying with small outfits will be conducted.

But the most admirable thing in the preparation for this, which we believe will be a great exposition, is the usual Los Angeles get-together spirit which is shown. "Boost for a big fair" is the expression one hears everywhere, and from Los Angeles this spirit will soon reach the producing districts. Even now live stock men and growers of field crops are preparing for winning the honors at this exposition.

BE JINERS

NOTE the call of the president of the California Holstein-Friesian Association for every breeder to become a member of the association. Also note that California Shorthorn breeders have a similar association. The Hereford men have issued their get-together call for an early date in June. The Jersey breeders' association has been in existence for years and has done some exceptionally fine work for that breed. The swine breeders, the wool growers, in fact almost every line of activity which has to do with animal husbandry in California is organized.

Every live wire breeder should be a member of his association.

Agricultural Notes

The Bermuda onion crop of Tex is estimated at 6388 carloads.

There is now a heavy movement green beans from Florida, Louisian Alabama and Mississippi.

The United States consumes mo sugar than any other country, on fourth of the world's production.

The price of milk in Australia h been fixed by law at nine cents quart at the dairy, or 11 cents if d livered.

The department of agriculture recommending that much of the ry planted for turning under as a gree manure be harvested for grain.

The government of South Africa h four agricultural schools in operatio in that state. The attendance has bee seriously cut by war enlistments.

Ground clover and timothy hay fo human consumption is being made th subject of tests by a New York chem ist. The meal he expects to make int palatable bread.

Oil mills on the Pacific Coast hav been operating for several years wit soy beans imported from Manchuri and have found a ready sale for th oil, cake, and other products.

The Saskatchewan department o agriculture maintains poultry killin stations at Saskatoon and Regin The fowls are here graded and packe and poultrymen receive payment i advance according to quality.

Citrus planting is rapidly increasin in Australia. Recent figures of th commonwealth statistician show a acreage planted to oranges in Queen land, South Australia, West Australi and Victoria of nearly 10,000, lemon 700.

A four-day school in apple packin has just been held at Fredericton, Ne Brunswick, by the department of agr culture. The government will also i stall a fruit inspection service to a in production of a higher quality o fruit.

The National Duroc-Jersey and Am erican Hampshire Associations wil each give $50 in prizes to boys rank ing highest this year with Duroc-Jer sey and Hampshire pigs in the pig contest conducted by the agricultura college.

The Canadian government has placed wheat on the free list, thus opening United States markets to Canada and Canadian markets to the United States. The order is due to difficulty of securing ocean tonnage to send abroad.

Ten million dollars is to be loaned to farmers of New York by the Patriotic Farmers' Fund at 4½ per cent. This fund is for the use of real farmers, not "would-be's", and is intended to "increase acreage and crops, not number of farmers".

England's food controller has prohibited the sale of light pastries, muffins, crumpets or tea cakes. Cakes, buns, scones and biscuits can only be sold if they conform to the drastic restrictions respecting the amount of wheaten flour and sugar used.

Argentina has a steadily growing number of pedigreed cattle, Shorthorns heading the list with 43,000. Hereford, Aberdeen Angus, Flemish, Red Polled, Jersey, Red Shorthorn and Devon, all are represented by pure breds. A shipment of American Shorthorns sold at auction in Buenos Aires five months ago brought an average of $1047, while two lots of British stock sold at the same time averaged $1731 and $3421, respectively.

Agricultural News Notes of the Pacific Coast

Northern California

Thermalito, Butte County, had ripe cherries May 1.

The Colusa Sun reports sales of prunes at seven cents.

Colusa sheep men are reported to be refusing 49 cents a pound for wool.

Three hundred acres are being planted to olives near Palermo, Butte County.

Eight thousand five hundred sacks of rice will be shipped by one concern from Colusa.

The Glenn County farm bureau marketing department has been thoroughly successful.

Two thousand acres of beets at Meridian, Sutter County, are now being thinned.

Napa County reports large increase in acreage to be planted to sorghum and other forage crops.

The California Holstein Breeders' Association met at the Napa State Hospital last Saturday.

Experimental plantings of Tepary, Lady Washington and pink beans will be made in Eldorado County.

The United States topographical survey will take up work in the lower portion of Nevada County during this summer.

Butte County's Spring Festival will be held next week from Monday to Saturday, with full programs for each and every day.

Manager Gilson of the sugar factory at Hamilton reports more than 6000 acres about that factory planted to sugar beets.

Almond Day is the latest of the special days. The second Friday of September has been set apart for honoring the almond.

Report of the Grass Valley chamber of commerce shows planting this season of 234,000 of commercial fruit trees in that vicinity.

Sealer of Weights and Measures Dolan states that the enormous rise in the price of rice the past weeks has been due to speculation.

One of the largest poultry displays ever made in this state it is reported will be exhibited at the Butte County Spring Exposition, May 21-26.

A large live stock exhibit is to be made at the Butte County spring exposition next week. Various national breed associations are offering prizes.

The May 1st forecast of the United States bureau of crop estimates indicates California's wheat crop at 5-7 of its average production, with old crop on farms practically nothing.

Horticultural Commissioner Stabler of Sutter County recommends a paste made as follows for cut worm poison: Bran 10 pounds, white arsenic one-half pound, molasses one-half gallon, water two gallons.

President Stephens of the Pacific Rice Growers' Association warns growers not to join any association until they have had an opportunity to inspect the contracts of the Pacific association, which will soon be ready.

Horticultural Commissioner Gould of Yolo County after a thorough survey of crop acreage in Yolo County reports a big gain in barley acreage, approximating 100 per cent. The gain in wheat acreage is more than 50 per cent. The acreage planted to beans is 34,000 against 3000 in 1916.

Central California

There will be increased plantings of rice by Rio Bravo farmers.

Mooney Grove was the scene of the big Tulare County grange picnic on May 12.

There has been a decided drop in the potato market, both for new and old crop.

Riverbank, Monterey County, is making heavy shipments of strawberries and green peas.

Merced County has a new farm adviser. J. F. Grass has been appointed, beginning his duties on May 15.

The contract has been let for the new peach packing plant of the California Peach Growers at Reedley.

Grape growers of Fairview, Fresno County, have filed articles of incorporation, with headquarters at Sanger.

A branch office of the Mutual Orange Distributors, which was moved from Lindsay to Porterville, last fall, has been again located at Lindsay.

Alleging that seepage from ditches of the Oakdale Irrigation District has damaged his property a rancher has brought suit for $8500 damage.

Directors of the Fresno district fair are arranging for many special prizes for farm products exhibited by school children.

Tulare County Canning Peach Growers' Association has decided not to fix prices this season but to sell to the highest bidder.

Last Saturday members of the Farmers' Union of Stanislaus County gathered at Paradise School for an all-day meeting and picnic.

The Stockton chamber of commerce has gone on record as asking congress to pass legislation to permit immigration of 100,000 Asiatic laborers to harvest California crops.

The founder of Camp Curry in the Yosemite national park, David A. Curry, died last week in San Francisco. Camp Curry was founded in 1899 and is well known to all visitors to the valley.

The April report of the Fresno city license collector shows earnings from the free market for the month of $173.80. It is hoped that the earnings of the market may be applied to the purchase of a market site.

County Squirrel Inspector Anderson of Fresno County is planning to open up new killing districts near Barstow, River Bend, Reedley, Kerman and Fresno Slough. Property holders will be called upon to kill their squirrels.

Breeders of Hereford cattle have been invited to meet at the University Farm at Davis May 29-June 2 to form an organization of coast breeders. The California Shorthorn Breeders have recently formed a state association.

Sugar men are reported offering more money than the wineries for wine grapes. The contract price for the dried grapes is reported at three and three-quarters cents per pound, which is equivalent to $14 and $15 per ton for the green grapes.

The Selma cannery of Libby, McNeil & Libby announces that the shortage of the tin supply will compel drying of all fruits which can be so treated. Canned raisins, which promised to be a big item of this year's pack, will probably not be produced at all.

Southern California

Hemet Valley expects to ship out 75 carloads of Valencias.

Imperial Valley bankers are backing boys' and girls' pig clubs in the valley.

D. R. Malone of Lordsburg has contracted a carload of honey to be shipped direct to England.

Farm bureau centers are being organized at Highland, Bloomington, Rialto and San Bernardino.

It was reported that the tin mines at Temescal will be opened owing to the present shortage of tin for canning purposes.

Heavy shipments of onions are going forward from the Coachella district. It is expected that cantaloupes will soon be ready.

Eighty acres will be planted to lemons, grapefruit, Navels and Valencias on the new experiment station grounds at Riverside.

State Market Director Weinstock recently visited onion farmers of the Coachella Valley to discuss marketing plans for this year's crop.

The new farm center at Highgrove, Riverside County, held its first meeting May 8 and was addressed by the new adviser W. B. Parker.

Various chambers of commerce of Imperial County held a meeting at El Centro on May 17 to discuss organization of a county chamber.

A protection district for the Santa Ana River is still a live issue, especially a proposition to control the river from above Yorba to the upper part of the Newbert Protection District.

Poultry producers of Arlington and vicinity met at Arlington Tuesday, May 15. Secretary Newburg of the Poultry Producers of Southern California gave a demonstration on egg candling.

The semi-annual meeting of the State Fruit Growers, which was to have been held at Riverside in June, has been postponed because of the pressure of the food preparedness campaign.

The California Fruit Growers' Exchange has completed its orchard survey and finds that fully 25,000 acres of orchard can profitably be given to intercrops this year to aid in the food production campaign.

Forage sorghum, Sudan grass and varieties of alfalfa were discussed by Farm Adviser Dougherty at the recent meeting of the Westmoreland farm center. Dr. Cady was also present and talked upon hog cholera.

The California Lima Bean Association, with headquarters at Oxnard, is not a combination in restraint of trade, according to an official report transmitted to the department of justice by Special Agent Webster.

Directors of the Southern California Bean Growers' Association met at Oxnard last Monday to consider effects of the war on the year's activities of the association. Plans to encourage interplanting of beans in orchards are being considered.

The San Antonio Growers' Association is having some trouble in holding members together. Chino members particularly are reported to object to enlargement of the Ontario plant when they had hoped to have a cannery of their own at Chino.

The Coast

Farmers of Plaza, Washington, have cooperatively built a $75,000 grain elevator.

The Federal Farm Loan Bank at Spokane has received $750,000 capital stock.

Spokane County, Washington, will expend $150,000 on highway work this summer.

Sales of Montana wool are reported at 53 cents, many sales being reported at 50 cents.

The Union Stock Yards at North Portland, Oregon, reports best heavy hogs selling at from $15.75 to $15.85.

The Oregon Cattle and Horse Raisers Association held its fifth annual session at La Grande the last week in April.

County Agriculturist Shinn has been holding a series of bean meetings throughout the Spokane Valley of Washington.

Weather conditions at Walla Walla, Washington, are ideal for spring wheat planting which is going forward with much vigor.

Fruit growers of the Northwest are organizing to combat the proposed raise in railroad freight rates. They estimate it would cost them $750,000 annually.

Spokane milk distributors have raised the retail price of milk from ten quarts for $1.00 to nine for $1.00. In Portland consumers pay ten cents per quart.

The Fruit Growers' Agency has elected Paul H. Weyrauch of Walla Walla, Washington, president. This association is composed of growers and shippers of fruit in Washington, Oregon, Idaho and Montana.

The prolonged drouth of winter and early spring has inflicted heavy losses on cattle and sheep in Southern Arizona. The heavy rains of the middle of April have started spring feed and the situation is much better.

The Oregon Horse and Cattle Raisers' Association held its fourth annual meeting at LeGrande, Oregon, the last week in April. A parade of pure bred stock by the breeders of Union County was a feature of the program.

Under the present conditions of the federal farm loan farmers on reclamation projects will not be eligible to loans. There is now a bill before congress providing for the appropriation of several million dollars which will be available to project farmers.

White Leghorns are ahead in the All-Northwest Laying Contest at Pullman, Washington. The record is held by a pen of White Leghorns belonging to J. A. Hanson of Corvallis, Oregon, which in the period from October 15 to March 31 laid 358 eggs.

The state college at Pullman, Washington, has abandoned its building plans for this year and will devote about $114,000 to the agricultural preparedness campaign, to increase the efficiency of the experiment stations, to aid boys and girls clubs and farm extension work.

The United States government crop report shows general condition of winter wheat in the four states of the Pacific Northwest far above the general average for the country. Montana is up to its ten year average; Washington, 24 per cent below its ten year average; Oregon 12 per cent below and Idaho six per cent.

The Planting and Starting of Young Citrus Trees

By J. P. Englehart

IN the planting of young trees we believe we are just on the eve of great discoveries. We are gaining years over former methods in bringing the tree to maturity and to performance record work.

One of the impotant discoveries is to dig extra large holes and put in fertilizers and good soil. Another is in topping back the young nursery tree so as to save every inch of good fruit wood, even if it is the slow growing wood, and to remove only the coarse drone wood, even if it is the rapidly growing material. You thus give the fruit wood the upper hand. You thus have the original budwood that you budded from. The tree will then bear early and bear quality fruit only. In fact it is a performance tree from the start and pays its way from the beginning.

We are studying a young demonstration tree on my place that consists of three limbs, one originating from a sucker bud, one from white wood, or half-grade wood, and one from performance fruit wood. We do not stub the nursery tree but leave the original performance limbs and defoliate them. In stubbing back you lose your valuable original bud and change the entire character of the tree. Thus all the painstaking work of the conscientious budder may be undone. When this unfortunate tree is older scientific pruning alone is able to redeem it and bring back the original bud-wood. Sometimes it can never be restored. The tendency to make performance wood seems to be overcome by the tendency to quickly make wood. Quickly growing wood is, of course, drone wood.

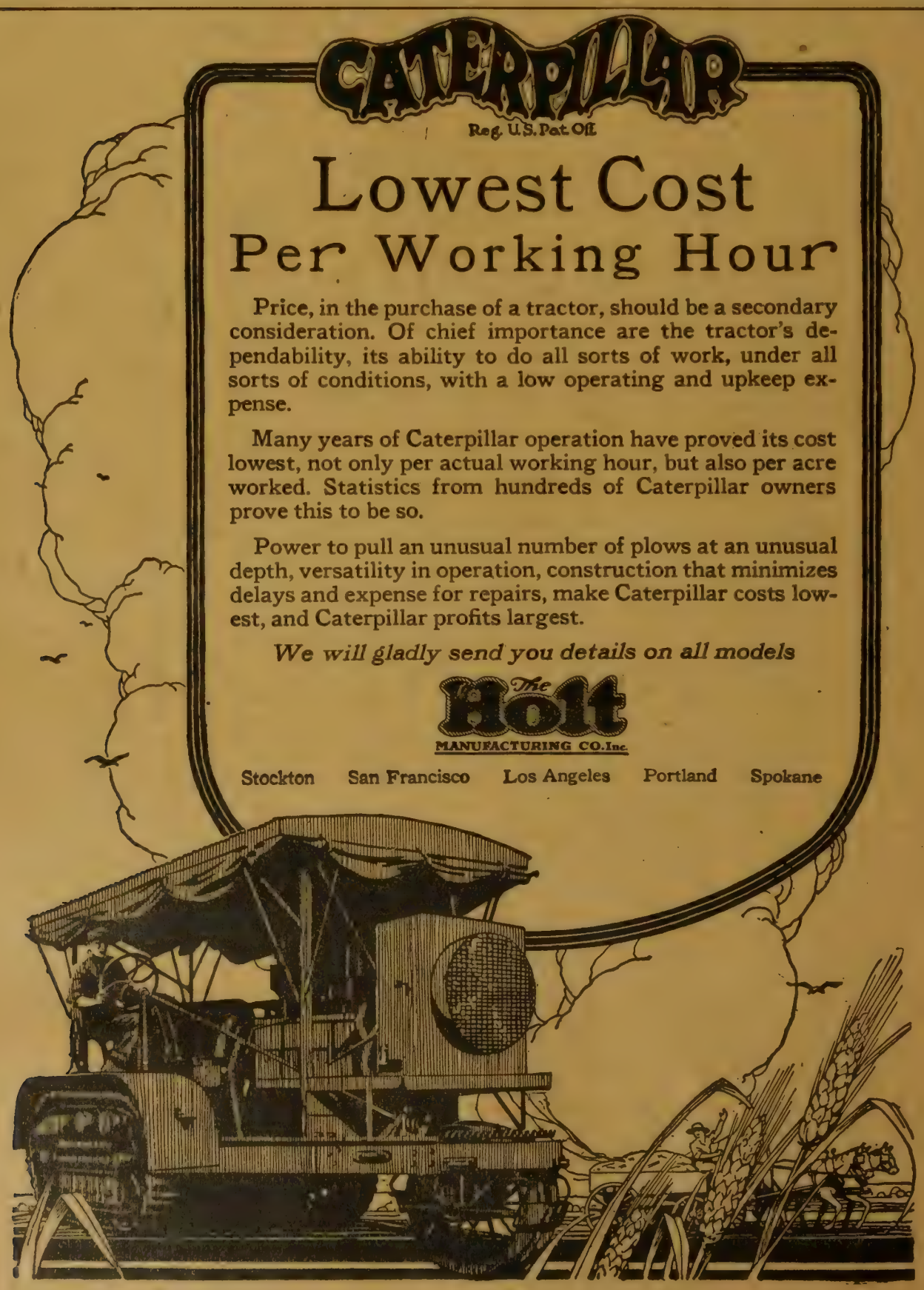
Another thing we have learned is to avoid balled roots in buying nursery trees. Broken roots, knotted and crossed roots, as well as those that were bruised, escaped our attention in balls. Slight bruises can be treated, but severe injuries are serious. In this way gum disease or curly leaf was started several times.

Again, the theory of like producing like was strikingly illustrated in an experience we had with curly leaf.

Avocado Growers Meet

The California Avocado Association is holding a two-day session, May 18 and 19, at Los Angeles, Normal Hill Center, corner Fifth Street and Grand Avenue. The program shows addresses of great interest. Large exhibits of fruits and nursery stock are a feature.

Among the speakers are Lloyd S. Tenny, Coral Reef Nurseries, Florida, "Avocado Marketing From the Florida Standpoint." E. D. Vosbury, U. S. Department of Agriculture, "Varieties of Avocados in Florida." Prof. I. J. Condit, College of Agriculture, "The Avocado in Central and Northern California." Victor Hirtzler, Maitre de Cuisine, Hotel St. Francis, "Methods of Serving the Avocado." Burdette K. Marvin, "Notes on Methods of Pruning the Avocado." C. P. Taft, "The Taft Avocado and Its History." Charles D. Adams, "Notes on Avocado Varieties." Effie S. Rolfs, "Marketing Avocados by Parcel Post." Chas. F. Wagner, "The History and Performance of the Wagner, Lambert, and Surprise Avocados." Prof. M. E. Jaffa, California College of Agriculture, "Further Investigations of the Nutritive Value of the Avocado." Prof. L. B. Scott, U. S. Department of Agriculture, "A Preliminary Report on the Comparative Merits of the Different Avocado Varieties." Martin Fesler, "Notes on Avocado Growing." Mrs. Margaret Stewart, "My Experience in Growing the Avocado." Symposium Discussion by F. O. Popenoe, H. J. Webber and T. U. Barber, "On the Susceptibility of Avocado Varieties to Frost Injury."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JAPANESE PERSIMMON PESTS

Word comes from Dr. W. T. Swingle, Physiologist in Charge, Bureau of Plant Industry, Washington, D. C., to the effect that a serious fungous disease and a serious insect pest on the persimmon occurs in Japan, and State Commissioner of Horticulture G. H. Hecke desires to draw attention of quarantine officers and inspectors of every California county to this pest and warn them to be on guard against it.

The insect is a new species of codling moth, Kakivoria flavofasciata. The larvae of the moth feed on the fruit of the persimmon. Its eggs are laid on twigs and the possibility of such twigs bearing eggs being introduced into California is pointed out by Dr. Swingle. This information is valuable in that it will result in an effort to prevent either of these pests from gaining a foothold in our state.

SUMMER PRUNING OF VINES

REGARDING inducing heavier bearing of vines Professor Bioletti says:

"First, longer pruning should be tried. Vines which have been pruned to spurs of two buds should be given three or four. If this does not cure the trouble cane pruning should be tried. Bowing the canes or tying them to horizontal wires may be helpful.

"Next, the perfect maturing of the wood in autumn should be promoted by ceasing cultivation and irrigation early enough to stop the new growth sometime before the early winter frosts commence. The canes should stop growing just about the time the crop is gathered. Late pruning is sometimes effective by delaying the blossoming. A delay of a week or ten days in the time of blossoming can often be brought about by pruning after the end buds of the canes have started. This makes it more likely that the weather will be warmer and more favorable to setting during blossoming.

"Various methods of summer pruning may be tried. These are all more or less weakening and should be used with discretion.

"The setting of the blossoms can often be much improved by 'pinching.' This consists in removing the extreme tip of the growing shoot with finger and thumb. It is done when the shoots are about 18 inches long and

when the bunches of unopened blossoms are well in evidence.

"More severe summer pruning later in the season is sometimes effective in promoting the formation of fruit buds for the following year. This is called 'topping.' This consists in cutting off the ends, one or two feet, of vigorously growing shoots in June or July. It should not be done in excess and only with very vigorous vines.

"Finally 'ringing' may be resorted to in special cases. This consists usually in removing a ring of bark about one-eighth inch wide from the cane just below a bunch. Its object is to hasten the ripening and increase the size of the grapes. Ringing an arm or even the whole vine in a smaller way may hasten the maturing of the wood and the formation of fruit buds for the following year. This form of ringing should be done late in July or August, according to the locality. It can only be used with excessively vigorous varieties, such as the Black Corinth. Most varieties would quickly succumb to this treatment."

Sulphuring

SUN-MAID Herald says. "The use of a tin can shaker or a cloth sack is to be emphatically discouraged. An experienced vineyardist said recently that many men in sulphuring like to see the sulphur on the vine. This is not only not necessary but its visible presence is no proof that the vine is well protected. Some form of knapsack blower is found to be by far the most satisfactory instrument for application. This blows very fine particles into all parts of the vine, and the more invisible the fine particles are the better distributed they are and the more likely they are to be effective.

"It is also a fatal mistake to wait for the appearance of mildew. The fungus is at work long before the killing is apparent, and may be feeding on the sap of the vine and weakening it and the fruit. It may become so severe as to lower the vitality and finally kill the vine. Two or three sulphurings at the right time are cheap insurance against loss from this, the most severe disease to be contended with in California. The disease has few terrors for the farmer who watches his sulphuring with care.

"'California farmers are indeed fortunate that they have none of the many diseases found in the vineyards of Europe,' said a university expert recently. 'They need not fear mildew if they sulphur. And sulphuring costs very little if applied in the proper manner'."

California Cured Fruit Exchange Settlement

Secretary-Cashier Wm. Jas. Hill of the California Cured Fruit Exchange writes:

"It may interest your readers who were members of the Exchange and therefore sufferers in the case, to know that at Walker's request the civil action has been settled by agreement out of court, and I enclose a statement showing the conditions of the settlement.

"The agreement was signed on the 12th of april. By it Walker dismissed his action against the Exchange in which he claimed over $96,000 and for which he attached the Exchange property in February of last year.

'Released the trust deed which he held and all attachments on the Exchange property and money, allowed about $15,000 received for fruit sold to apply on Exchange notes held by the bank as an innocent third party and also about $2000 lying to Walker's credit in a city bank, which the Exchange had attached.

'The agreement also provides that if the Exchange finds within five years that Walker's statements are untrue as to his having no property, the agreement is void and the Exchange may take legal proceedings to collect.

'The 1270 fruit growers who compose the Exchange are left guessing as to what has become of the difference between the $98,000 missing and the $17,000 collected, and will probably long remember with mingled feelings of sorrow and regret their late secretary-cashier, Mr. Samuel Otis Walker.

'The Exchange held a bond in a reliable surety office for $20,000 which they expected to collect, but find in the application form used Walker's duties are described as filling in printed forms, etc. He failed to describe himself as secretary-cashier, or as solely responsible for the books and accounts.' "

Cabbage Worms

INQUIRIES are often made regarding control of the cabbage worm. Regarding this pest we quote from Essig's "Injurious and Beneficial Insects of California":

"Life History.—In the northern part of the state the species winters over in the pupal stage, while in the south adult butterflies may be seen almost any time of the year. They become very much in evidence early in March and are active throughout the entire summer and fall. Egg laying begins soon after the adults leave the pupal stage. The eggs hatch in about a week and the young caterpillars begin feeding at once. They first feed upon the outer leaves, making them ragged and full of holes, but gradually work through towards the heart of the cabbage, leaving the dark green excrement to mark their paths of destruction. The growth is very rapid, so that in from one to two weeks they are ready to select some secluded spot beneath an old cabbage leaf or some nearby object and prepare for the pupal stage which, during the first two generations in the summer months, lasts little longer than the larval stage, but which in the fall continues throughout the winter. There are several generations a year. In fact, in the southern part of the state it seems as if the breeding is only slightly checked during the winter months."

Regarding the control of the pest Mr. Essig says: "The larvae, working as they do into the heads of the cabbages, make control measures practically impossible after they have once begun. Young plants may well be protected by arsenical sprays, which are applied with safety until the heads are half grown. Clean culture should

a citrus spray that makes good

After work of several years in groves and laboratories our staff—Entomologist, Chemist, Practical Growers—have evolved for us on citrus trees a spray that will successfully and satisfactorily controly insect pests at a cost much smaller than is possible with any other method of control.

TRIUMPH, a concentrated oil spray perfected by our staff, combined with Bordeaux, makes this citrus tree spray. If applied in accordance with our formulas, this combination spray of Triumph and Bordeaux is a beneficial fungicide as well as an effective insecticide.

Triumph with Bordeaux improves the general health of a tree and is safer in regard to spotting of fruit and tree injury than is a straight insecticide.

TRIUMPH with Bordeaux can be applied NOW, this summer, before insects do their damage.

There is no uncertainty about the supply or price. Stocks are on hand in Los Angeles and San Francisco. Shipments will be made at prices we shall be glad to quote upon application.

TRIUMPH with Bordeaux has been proved out by scientific laboratory tests and actual work in groves. It is not a "shot-gun" prescription.

Our new book, "Spraying of Citrus Trees" is full of money-making, new, accurate information. It also contains formulas and tables for the application of TRIUMPH.

Give us your name and size of your grove and we shall be glad to mail you a copy free. Address Box C, Insecticide Department,

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Table and Ornamental Oranges: (Paper Rind, St. Michael, Ruby Blood, Navelencia and Jaffa.) Golden Nugget Navel, Golden Buckeye Navel, Sweet Seville, Bouquet des Fleurs, Golden Variegated.

Garden and New Citrus Fruits: Sampson Tangelo, Sweet Lemon, Sweet Lime, Golden Variegated, Ponderosa, Seedless Lemon, Citrus Limonum, (Dwarf Lemon), Thornless, Bangpur and Red Limes, Lue Gim Gong Orange, Nagami Kumquat, Algerian Satsuma Orange, Algerian Tangerine Orange and Citron of Commerce.

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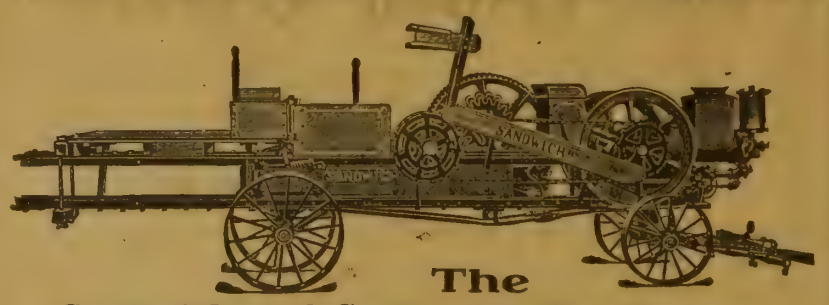

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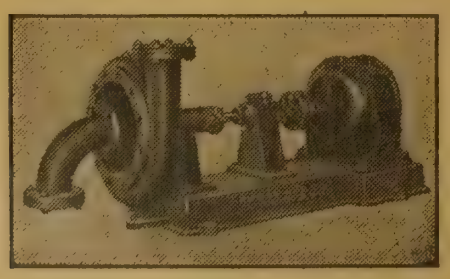

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be practiced and no cabbage or host plants allowed to grow during the intervals between crops unless they are freely sprayed with strong solutions of arsenicals. Spraying with white hellebore kills the caterpillars without da ger to the plants or the consum Fortunately most of the cabba grown in California is raised near t ocean, during the winter, and is usu ly quite free from this pest."

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Bermuda Infesting Alfalfa

A large acreage in this section of the state which was formerly covered with thrifty alfalfa, on account of the rapid growth of Bermuda grass, wire grass, salt grass, etc., has been abandoned for the growing of alfalfa, the owners stating that if the land is plowed and reseeded the Bermuda and other grasses will again choke out the alfalfa within a period of two years. Can not such fields be treated so as to effectively kill out grasses, or at least hold them in check so the alfalfa can be grown with profit?—Subscriber, Lordsburg.

Here is a case where clean culture of the land would be required for a couple of years and this of all years is perhaps one of the best because of the demand for more grains and other food and stock feed products. Milo, feterita or any of the grain sorghums planted on such ground should yield immensely, and such crops enable clean culture which would kill out Bermuda or other foul grasses. Then there are sugar beets, beans, sweet corn or field corn, or other crops which may be grown on this land. As noted in the inquiry, alfalfa planted on this same soil without the interval of clean culture would only result in the weeds taking the crop.

Lice on Potatoes

Have a fine looking patch of potatoes which are becoming infested with green lice. Are these harmful and, if so, what would you recommend as a spray for their control?—Subscriber, Berkeley.

Tobacco dust or spray with kerosene emulsion, tobacco extract diluted in water, or any of the milder insect sprays. It will probably be necessary to keep up the treatment for they are persistent in coming back. They are most decidedly harmful if allowed to remain.

Morning-glory

The best remedy for this pest is a sharp cultivator. After it is brought partially under control weed cutters should be run over the patch regularly once a week. Use the cultivator only on the one patch, being careful not to drag any particles of the roots to other sections of the place. Chemicals such as salt, arsenicals and proprietary mixtures are sometimes employed, but some of them prove injurious to the soil, preventing growth of other crops for a period of months or years. The cultivator method is absolutely sure and benefits the soil, but it must be continued persistently.

Blackbirds

How can one wage a successful campaign against blackbirds?—Subscriber.

A subscriber recently came to the office with a suggestion along this line which will be described more fully later. In effect it is the use of the small mouse trap with a spring which flies over and pins down the head of Mr. Mouse. This spring is supplied with a small cardboard pan easily attached, and in this is placed fine gravel so that when the birds light on it, partially concealed, t spring is released and the sm gravel is catapulted against the bun of birds. If several of these tra are set it will frighten away many the birds. The gun is also satisfa tory but expensive. A short gu campaign frightens the birds and partially effective. Poisons are har ly to be recommended because of t innocent birds which are also d stroyed.

Lemon Variety

We have ten-year-old lemon trees i orchard and would like to know v riety. Are they Eureka or some othe kind?—Subscriber, San Gabriel.

If the trees are not very large, a thornless and heavy bearers with fa ly compact head, presumably they ar the Eureka. If larger growing, thorn not so free in bearing but almos every lemon is a typical lemon shap then they may be the Lisbon. An e perienced lemon grower can give i formation on this point.

Pruning Evergreen Shrubs

Which is the best time for prunin evergreen shrubs, such as the pitto porum, laurustine, etc? Subscribe San Gabriel.

A fairly safe rule is to prune suc shrub soon after blossoming. Eithe may be pruned severely any time du ing the earlier summer season.

Liver Trouble

My hens (one and two years old) are dying just as they finish thei litter, and I don't know what to do fo them. They get sick and sit aroun a couple of days and then die. I hav opened several of them and found the liver enlarged and the bowels floatin in blood and bloody water. I fee milo and rolled barley and oats. Have plenty of green stuff, plenty of grave and fresh water. Have been in the chicken business for years and never had this experience before. Can you tell me a remedy? — Subscriber, Nestor.

Your hens are dying of liver trouble, probably due to the unbalanced ration they have been receiving. You speak of feeding rolled barley and oats, both of which are hard to digest because of the hulls, and make no mention of meat in any form or of ground grain. The lack of these forces the hens to eat more of the scratch grain than they should; very likely they do not get exercise enough in scratching for it; gizzard and intestines become clogged and sluggish in their action; the liver is enlarged, the circulation obstructed. In most cases the intestines are covered with fat. When the hens are in this condition the strain of laying an egg may rupture the softened liver, and death follows.

The cause suggests the cure. Feed a bulky mash, largely bran, which is quite laxative. Feed greens liberally. Cut out either oats or barley, and feed the grain you do feed sprouted. If the hens are fat it would be a good plan to turn them out on range for a while. If this is good and green they will get on nicely without any other feed for a week or so, though of course such a course as this will probably check their laying. If you do not turn them out, give a moist mash of bran and cooked vegetables

(or vegetable skins) in the morning, all the green feed they will eat during the day, and sprouted oats or a little milo at night. And make them scratch for every bit of grain they get. A dose of Epsom salts all round might be given once a week for several weeks, or until all the combs have turned bright red and every hen seems in tip-top condition. Mix the salts (about half a teaspoon for each hen) in moist mash in the morning when the hens are hungry, and give no more than they will eat up clean. This helps in cleansing the system. Many poultrymen give Epsom salts regularly in the spring whether their hens are sick or not.—J. A. K.

Tomato Blight

I have a piece of ground which was ast year planted to tomatoes but on ccount of wet weather they became ffected with blight. I plowed under he vines and would like to again this ear plant the same plot to tomatoes. Would this be advisable, or would here be danger of the new crop be- oming affected? — Subscriber, Ana- eim.

If, as stated, the blight came as the esult of wet or cool weather it is prob- bly the fall blight which is usually ontrolled by the use of a weak Bor- leaux mixture, and if other equally as ood ground is not available then e would surely plant and expect to ontrol by spraying. The Cultivator as given in former numbers this ormula and will do so again before he danger period of this fall comes. f, however, the blight was the fusar- um or summer wilt type this trouble annot be controlled by spraying and he bacteria now existing in the soil a hold-over from the former crop robably would infest the new plant- ng.

Veterinary

Answers in this column by Dr. Wm. etrie, 2714 South Harvard Blvd., Los ngeles, are without charge. For im- ediate mail answer remit $1.00. In riting questions give full symptoms or articulars of injury of animal. Unsigned communications receive no ttention.

yspepsia (Depraved Appetite)

Please tell me through the Culti- ator what is wrong with my cows at will chew paper or wood. I have ried everything I can think of and do ot know what to do next. She is fed reen feed, beets, carrots and bean raw. She also has a lump of salt go to at any time.—Subscriber, arden Grove.

This condition is not common but seen occasionally in animals that e kept on one kind of feed for a long me. The gnawing in the stomach comes chronic and the taste of sin in the wood seems to satisfy it. ive eight ounces of turpentine, two nces of aloin and two quarts of raw nseed oil. Mix and divide into four ses. Give one dose every two or ree days as a drench. Change the ed entirely and give nothing but dry y. Tie her where she can get noth- g else and feed her often and only a ttle at a time. After the other medi- ne is all used get some powders of ntian four ounces, nux vomica two nces, bicarbonate of soda three nces and farina to make one pound. ix and divide into 12 powders. Give ne once a day.

umor on Face

In the Cultivator of December 23, 916, on page 625, I described a trou- e with one of my mares, that was agnosed as bleeding wart. That trou- e is healed all right, but now there a bunch under the eye the size of alf a very large walnut, and the velling extends along under the eye e full length of the eye. It is hard and is all under the skin. Please tell me what to do for it now.—Subscriber, Santa Ynez.

Am inclined to believe that the trouble was caused by a small thorn puncturing the skin and a portion of it breaking off. Remaining there it has become encysted and a tumor is growing around it. Split the skin and peel out the whole bunch. Do not remove any of the skin. Then wet the parts once a day with a solution of permanganate of potash, one dram to the pint of water.

Throat Disease in Calves

Small calves have some kind of a throat disease that evidently is contagious and that has proved fatal in two cases. The calf's throat or jaw swells on one or both sides and seems to be very sore. The calf slobbers a great deal, and when one of the largest lumps was lanced deeply a white pus ran out of it. What is the disease and can anything be done for the calves?—Subscriber, Canby.

It is uncommon and we know nothing about it. Until we can give better answer clean up the place well, using plenty of carbolic acid. Burn all litter and the carcases of those that die. It acts like distemper of horses but that is not supposed to attack cattle. If it continues write us again.

Sore Teats

Have a cow that has sore teats most all the year. Have always used vaseline but with no results. Why is it so and what is best to do for it?—Subscriber, Soledad.

Try oxide of zinc ointment or if your druggist does not have any that is fresh get a box of Resinole ointment.

Tape Worm

Will remedy given in Cultivator of April 28 for wormy horses be successful if used for tapeworm in horses?—Subscriber, Blythe.

Yes, the formula is all right, but if I suspected tape worm I would double the amount of areca nut and try to give the medicine on an empty stomach.

Skin Disease in Dog

Will the treatment given for "Skin Disease in Horse" in the Cultivator of March 24 be all right for skin disease of a dog, and what amount of the medicines should be given to a dog the size of a collie?—Subscriber, San Anselmo.

The treatment for the dog should be somewhat changed. Half a teaspoon of the salts every morning for a week would be enough and five drops of Fowler's solution of arsenic would be about the right dose. For the outside wet the skin once a day with a strong solution of permanganate of potash. If it makes the skin look rough apply a little engine oil to keep it from cracking.

Mammitis (Inflammation of Udder)

I have a five-year-old Jersey that has an infected udder. About two weeks ago she began giving thick ropy milk from one teat and the quarter of the udder began swelling. Later the milk became bloody and is drying up but the swelling does not leave the udder, and it is sore to the touch. Have been rubbing it with camphor and oil and have also painted it with iodine but it does not improve. She has been milking about five months and is running on grass. Am still milking her but the milk is not good. She will be fresh in October. Will she get well if I turn her dry or what can I do for her?—Subscriber, Gridley.

Your treatment has been all right for the outside but you must not stop milking her. Milk her three or four times a day and rub the swollen parts for some time with the hands and work out everything that is in the quarter. She should also have a physic. Take one pound of epsom salts, half a pound of common salt and half an ounce of powdered nux vomica. Dissolve it all in two quarts of hot water and when cool give it all to the cow as a drench. Following this get your druggist to prepare this prescription: Iodide of potash four ounces, Fleming's tincture of aconite two ounces and water enough to make one quart. Mix. Give one ounce on the tongue once a day. It will last a month. In spite of all you can do you may still lose the quarter but it will probably prevent the trouble spreading to the rest of the udder.

Garget

Is there any connection between garget and small lumps on folds of the skin that lay next to the brisket? Cow drinks very little water and we do not think she is giving enough milk. Have given her poke root. As long as the lumps remain is it a sign that she is not cured of garget?—Subscriber, La Mesa.

There can be no connection between lumps in the skin at the brisket and garget. Give her the following treatment and the lumps will probably leave in a short time. Mix three pounds of epsom salts, two pounds of common salt and two ounces of powdered nux vomica and give her a handful of the mixture in the feed once a day.

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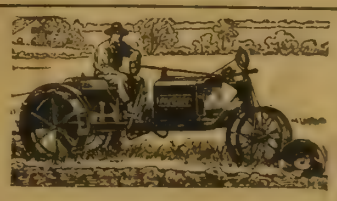

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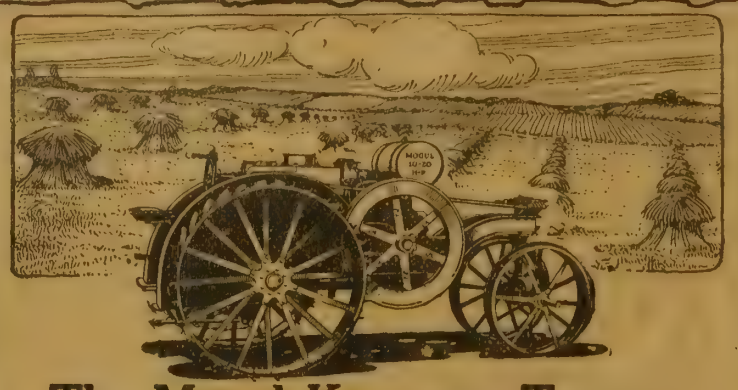

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Irises in the Southwest

THE iris or flag, fleur de lis of the French, is among the oldest of our cultivated flowers, writes J. J. Thornber in California Garden. He says: "Its name, signifying 'rainbow', was given to it by the Greeks. The iris is related bontanically to orchids on one side and to the amaryllis and lilies on the other. It is a favorite flower with the Japanese.

"Irises constitute one of our largest groups of hardy perennial flowers; there are in cultivation now more than 100 species, with varieties almost too numerous to mention. When once established an iris bed should not be disturbed any more than is necessary, since ordinarily the plants do not blossom well the first year after being set.

"Because of their general hardiness, and especially the drought resistant qualities of a large number of them, particularly the German irises, they are admirably adapted for planting in Southwestern gardens. There are few flowers that are as uniformly successful in Arizona, with its wide range of growing conditions, as the iris. They can endure some alkali, strong light, thrive in heavy or light soils, grow with much or little irrigation and endure prolonged drought and heat. With their surface growing rhizomes they can even tolerate poor drainage. To be moderately successful, they require only the most ordinary culture. On account of the ease and success with which they grow, they should find a place in every garden. It is interesting to know that a number of rare irises from Palestine and Syria which are grown with difficulty in the Eastern states, blossom and come to perfection in the mild climates of Arizona and California.

"The writer knows of plants that have grown for several years on dry Arizona mesas with only the scant rainfall and the occasional flood water that collected in the basins surrounding them. In the heavy red clay soil in the cemetery of one of our larger Arizona mining towns, irises are much planted and succeed beyond expectation. When established there, they grow and blossom year after year with little care, and they have come to be known to the children as "Easter lilies." I know of no other flower that would thrive so well under the same trying conditions.

"Irises are used to advantage in many kinds of planting, including massing, setting along borders of walks and drives, and also for naturalizing in back yards, in woods and along brooks. With their showy flowers and strict habit of growth, they are excellent for formal bedding and they lend themselves well to artistic effects. In addition to irises heretofore mentioned should be noted the several dwarf irises which are splendid for low borders, and the Spanish and English irises, the two latter bulbous species indigenous to Spain."

The Honey Harvest and Its Problems

Written for California Cultivator By Henry Perkins

NOW is the time for the California bee man to be Johnny-on-the-spot with his cup right side up if he is to get that big honey crop. The difference between a big crop and a fair one is often due to the difference in management and manipulation rather than to location and stock.

One of the first essentials to a big crop is strong colonies. Don't let them swarm in the middle of the honey flow. If you do your crop is cut squarely in half. Swarming during the honey flow is more prevalent some years than others. Different races and strains of bees exhibit different tendencies in this direction. The Italians are least of all subject to it, but they all need watching until the second or third extracting is over. This is especially true if spring swarming has been backward.

The best way to forestall late swarming is to give the bees plenty of room and plenty of ventilation. Put on two supers or even three if the colony is very strong. A full width entrance five-eighths of an inch deep is none too much. A congested and overheated condition of the hive is the most prolific cause of swarming during the honey flow.

If you use queen excluders place them between the second and third story till all danger of swarming is past. That will give the queen abundance of room to lay. A large supply of brood on May 20 means a large force of workers by June 15. In addition to this it is necessary to keep watch for indications of swarming.

Preventing Swarming

When a colony is found to be constructing queen cells it is time for the bee man to get busy and knock the notion out of their heads. There are so many ways of doing this that I will only describe the method which I have used with the greatest degree of success. It is called the shifting method. I shift colonies, putting the strong colonies on the stands of the weak ones and vice versa. This can only be safely done when honey is coming in readily, and then only toward the close of the day, say three o'clock in the afternoon. The method in detail is as follows. Go through your yard and inspect all colonies which you suspect of swarming intentions. Mark any hive found to be making preparations. Likewise mark all very weak hives. If the excessively strong outnumber the weak it will be necessary to create enough through frame nuclei to bring the number of weak up to that of the very strong. Then in the middle of the afternoon of a bright day reverse the positions of each grade of colonies, placing the strong ones on the stands occupied by the weak and the weak ones on the stands occupied by the strong. Be sure to blow smoke into the entrance of each at the time the transfer takes place. Care should be taken that the hives in every case are moved at least two rods from their original stand. A general killing of bees will not result. It seems that a bee laden with honey and pollen is not always looked upon as a robber, and is therefore reasonably sure of admission into any hive even though that hive has not been confused by a sudden change of position. The confusion due to the change and the smoke seems to prevent in almost every case the loss by fighting which so often occurs when strange bees are suddenly thrown together in the same hive.

Now the effect of this procedure as related to the swarming problem will be readily understood. It reduces the force of field bees in the strong and strengthens the hands of the weak, yet it does not cripple the strong ones for the balance of the season as casting a prime swarm surely does.

If when inspecting for swarming preparations I discover a hive with sealed or well advanced queen cells I always make it a point to destroy them and in addition to the shifting treatment above described I also take away at least two combs of sealed brood and give it to one of the weaker stands. When a colony has so far matured its plans to swarm as to have sealed queen cells, or even cells well advanced in the larval stage, they are loath to abandon the idea, and a more vigorous preventive treatment must be used than would otherwise be necessary. Swarming is the active exercise of the bees' natural instinct for increasing by establishing a new

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colony. When it once gets a firm hold on the collective mind of the colony it is about as hard to overcome as it is to break up a sitting hen.

Keep Bees Busy

The next point I wish to mention is: Don't let your bees get honey bound. Just as sure as you let them run short of room you are provoking swarming. The minute a colony is compelled to loaf for lack of room to store honey it will begin plans for a new home and more room. Then the bees will fill every cell in the hive with honey, leaving no place for the queen to lay. By all means keep the extractor going and keep plenty of empty comb ahead of the bees.

Right here I want to mention the great advantage of having plenty of supers and combs. There is no better investment for the bee man than at least two supers for every hive he owns. It is so often the case that bees will under favorable conditions store honey a third faster than they can ripen it. At such times if they are only furnished with one super it is obvious that the gatherting must cease for several days while the honey is being sufficiently ripened to extract. During this period an additional super would easily be partly filled without retarding the ripening process in the least.

In Arizona and Imperial

In Imperial Valley and certain parts of Arizona bees are not much inclined to swarm. In fact I have often found it necessary in those sections to resort to artificial means of increase to keep a yard up to its number.

I have found it a good practice to form a number of three frame nuclei at the beginning of the honey flow unless a large part of my colonies were already very weak. They fulfill a twofold purpose. They take care of the demand for a reasonable amount of increase as well as furnish a means of disposing of the surplus strength of the strong colonies, which must be reduced to prevent swarming.

To Insure Ripened Honey

I want to say a word or two about old brood chamber combs in the supers. A comb that has been used for brood rearing one or more seasons will flavor the honey stored in it for a number of extractings. Some claim that brood chamber combs also darken white honey. I am not so sure on that point but I do know that the brood chamber taste and smell will stick to them for a long time. If your location produces a dark honey it is not of so much importance to safeguard the flavor. On the other hand if your honey is white the flavor has an important bearing on its price. The lighter honeys are used largely for table purposes, while the darker grades are consumed by the bakers and other manufacturers.

What is true of the color and flavor of white honey also applies to its body. Your honey may grade water white, but if it is thin and watery it will not command a first class price. Don't extract it too green. Better let the bees finish the job of ripening and sealing. You can do this without loss if you supply them with an extra super or two in which to store while the first one is being thoroughly ripened. Some beekeepers maintain that every cell should be sealed before it is ready to extract. The different locations produce honeys which differ in this respect. It should be thick and ropy, that is a satisfactory test irrespective of whether it is sealed or not.

Better Honey—Better Prices

It is a bad practice to extract combs that are partly filled with unsealed brood. Lots of it will be thrown out by the extractor and be mangled and mixed with the honey. It is a fact that the lack of uniformity in the flavor, body and color of the average honey is to a great extent responsible for the low price it brings in competition with the more inferior though more uniform syrups. True it is that the items of color and flavor are largely due to seasonal conditions and locality, yet the producer can do a whole lot to improve the price of his product by improving its quality. A buyer once told me that he would be glad to pay me a cent above the market for my honey if he knew where he could buy enough more like it to make out a carload. Because he could not I was obliged to sell for the same price as the man whose honey was inferior.

IN the Middle Atlantic States where farm genius succeeds at everything from fruit growing to dairying, from intensive trucking to the most diversified of general farming, Firestone Tires are held in high respect.

The sound, conservative, far-sighted farmers of this region feel a kinship with Firestone ideals, with Most Miles per Dollar and express their friendly attitude by generous buying. Try Firestone Tires and you'll do likewise.

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that will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour.

For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus and Conifers. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.

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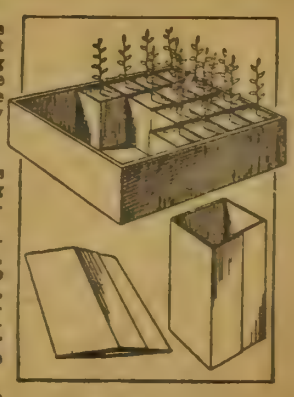

The Bull We Choose!

IT

IT

IT

We Had Our Ideal, Set Out to Secure its Fulfillment and Obtained "It"

"It" at age of four years represents a culmination of breeding, individuality and opportunity such as no other bull in the world at his age has ever been able to obtain. He surpasses all other bulls in the West in the following respects:

I. "It's" dam, Pontiac Clothilde De Kol 2d, has the highest record from seven days to a year of the dam of any bull in the West. She was the first cow to make 37 lbs. butter in 7 days, 145 lbs. in 30 days and 1271 lbs. in a year.

II. His sire, King Korndyke Hengerveld Ormsby, has 40 A. R. O. daughters including the world's champion cow with first calf for 30 days' production. His daughters are all young and in good hands and he will undoubtedly have eventually a dozen 30-lb. daughters.

III. "It's" sire is a full brother to a cow that has made over 1000 lbs. fat in a year. "It" is therefore the only bull in the world that inherits 100 per cent of his blood from two cows that have each produced over 1000 lbs. fat in a year.

IV. His sire's dam, Pietertje Maid Ormsby, has twice broken the world's record for butter in her class for 30 days' production, making the last time 35.56 lbs. butter in 7 days and 145.66 lbs. in 30 days.

V. His dam, Pontiac Clothilde De Kol 2d, is the most noted cow that has ever lived. Practically every great young bull today is either descended from her or is closely related. Her sons are more famous than those of any other cow. Her grandsons include the highest priced dairy animals in the world, being headed by the $50,000 bull, the $35,000 bull and the $20,000 bull calf.

"It's" sire's dam, Pietertje Maid Ormsby, is also a great transmitting cow, having more high yearly record and great show ring winners among her granddaughters than any other cow in the world.

VI. The average of the seven and 30-day records of the two nearest dams of "It" were world's record averages in 1912 and 1913 and are still unequaled by any other bull in the West.

VII. The opportunity that "It" has had in the last four years surpasses that of any other bull of the breed. He will have within a few months 100 living daughters, practically all out of the daughters of King of the Pontiacs, the greatest sire in the world, one-fourth of whom will have 30-lb. records.

We intend to give "It" the best opportunity of any bull in the West, as he will be bred to more 30 lb. cows, 25-lb. cows, A. R. O. cows and 20-lb. two-year-olds than any other bull on the Pacific Coast.

VIII. The first five daughters of "It" to freshen average almost 21 lbs. butter for seven days. One in the hands of a small breeder with no previous experience in making records made 23.92 lbs. of butter, while another gave over 21 lbs. butter. All as 2-year-olds.

IX. The individuality of the offspring of "It" place them in a class by themselves. They all show straight top lines, great constitution and wonderful quality.

For Sale—Owing to the fact that we have bought "It" we offer our two young herd sires for sale at a great sacrifice. They are both just past two years of age, are evenly marked and are splendid individuals. One is a son of King Korndyke Sadie Vale, whose three nearest dams average over 33 lbs. butter and which we think will soon be greatly increased and the other is a son of Winnie Korndyke Cornucopia De Kol, the only cow in the world to make over 31,000 lbs. milk and 1200 lbs. butter in a year. We have also a number of young bulls for sale out of high record dams. Inquiries invited.

McAlister & Sons - Chino, Cal.

California Butter and Cheese Scoring Contest

By H. S. Baird

SCORING contest was held at Fresno May 2 under direction of University of California. The management of the contest is withholding names and locations of contestants excepting where permission is given to use the name. The only name announced is that of Ed Hooper, Spreckels Market Creamery, San Francisco, with butter score of 92½. Other scores range from 90¾ to 94¾; scores on Cheddar cheese, 90 to 93½; California cheese, 91½ to 93; Jack cheese, 89 to 92½.

Twenty-five cubes of butter and 11 cheese were entered in this second scoring. Five buttermakers were present during the scoring. After the judges had placed their scores the buttermakers went over the samples after which their scores were compared with those of the judges.

Hans Beck of the Danish Creamery, Fresno, received the highest score on butter with 94¾. High scores on cheese were as follows: Cheddar—Arthur Schoenrock, White & Terry Cheese Factory, Galt, 93½; California (Granular), Ray Weedmark, University Farm, Davis, 93; Jack, C. Basciarini, 92½.

The scoring was done by T. J. Harris, Official Inspector of the San Francisco Wholesale Dairy Produce Exchange; H. S. Baird and S. L. Denning of the Dairy Division.

Butter of Good Quality

S. L. Denning, who was one of the judges, makes the following comment on the butter:

"The average score of the 25 cubes of butter entered was 92.5. This average again raises the high mark for our scorings; 92.38, the average for the last scoring which was the highest average during the last two years, is now surpassed .12 by this scoring. Thirty-two per cent of the entries scored 93 or above. The lowest score was 90.75. A few of the entries showed the use of some old cream and several were criticised for having a neutralizer flavor. The feed flavor was again common and in some entries very pronounced. The body in this scoring was a big improvement over that of the last scoring. Although a few entries had weak, leaky body, the majority were very good.

There was a big variation in the color of the entries with almost any shade from pure white up to a bright yellow. Probably some of the buttermakers do not realize the importance of having the butter of the proper color. A butter too light or too dark must stand a severe cut when sold on the market. Several of the entries were mottled and a few contained grit. Both of these faults can be easily remedied by a little more working. A few of the entries were excessively high in salt.

The cubes showed a wide variation as to size, shape and general appearance. Most of the boxes were very neat and showed a great deal of work and care in their preparation, but a few were very rough in appearance. The package often gives the judge or buyer his first impression of the product and it is generally an index to the workmanship of the butter. Mr. Harris, one of the judges, spoke of the irregularity of the package and said that he is cutting very severely on the market when butter appears in ill sized and poorly made packages. In the next scorings the package will be watched more closely and cuts made when necessary."

Cheese Has Poor Texture

The average score on all cheese entered was 91.68. The average score on the different classes were as follows: Cheddar 91.9, California (Granular) 92.2, Jack 91.1. The principal criticisms on the Cheddar cheese was on texture and body. There was a wide variation in the criticisms on body and texture of this cheese; some were criticised for being soft and weak while others were cut for being dry and crumbly. The dryness may be caused by neglecting to cut down the percentage of starter for the "faster" spring milk or by not lowering the cooking temperature when the fats become softer with green feeds. The sticky, open and weak bodied cheese probably contained too much moisture. Two cheese were very highly colored, containing so much that they had a reddish tinge. This could not be accounted for unless it was due to failure to cut down on the rate of cheese color when the milk became higher colored, on account of green feeds. There were three or four Jack cheese entered which were undoubtedly made from half skim milk and were intended for "drying" cheese. It was our intention, when adding Jack cheese to the contest, to score Jack as "table" Jack, but if there is a sufficient number of "drying" Jack to make it practical we will make two classes of it and score them on a different basis. These cheese which were made from half skim were very tough and inclined to be dry. The most common defect in flavor on the Jack and California (Granular) was bitterness. This flavor very often accompanies a high moisture cheese and if it is to be avoided, nothing but the best quality of milk can be used.

The next scoring contest will be held about the first of July, notice of which will be sent to each contestant. Any one wishing information concerning the contest should address the Dairy Division, University Farm, Davis, California.

A RARE HOLSTEIN OFFERING

It is not often that a breeder can go out and buy a great sire and 15 of his daughters, the sort of group that carries the beginning breeder far forward in the development of his herd and saves him years of time. The scarcity of such groups makes the offering by The Greenbank Company, Seattle, Washington, in this issue, of particular interest. Their decision to sell Greenbank Farm is responsible for their decision to sell their great Holstein herd bull, King Korndyke Pietertje Pontiac, and 15 of his daughters. King Korndyke Pietertje Pontiac is sired by King of the Pontiacs, which is enough said for that side of his pedigree. His dam is a 26.30 pound three-year-old daughter of Beauty Pietertje Prince, who is also the sire of Prince Gelsche Walker, the present sensation among Holstein sires in California, and she is out of a 30-pound dam that was for many years the youngest 30-pound cow of the breed.

The 15 daughters of King Korndyke Pontiac range in age from six months to 18 months, and they are all out of splendidly bred dams, all with A.R.O. records, and some with great semi-official yearly records. These dams are sired by such bulls as King of the Pontiacs, Aaggie Cornucopia Crown De Kol, Vale Concordia De Kol Cornucopia, Sir Inyo Mercedes, Mutual Fobes Longfield De Kol, Sir Johanna Ruth Fayne, the latter being represented several times.

This is a good straight, clean group of cattle, and any man who puts them all in his herd can start right off with a top notch sire and a bunch of his daughters that will not be long in reaching milking age.

King Korndyke Pietertje Pontiac 127387
AND
15 of his Daughters are For Sale

His sire: KING OF THE PONTIACS, 200 A.R.O. daughters, which include 40-lb. daughters; more 30-lb. daughters; more 20-lb. daughters; more 20-lb. 2-year-old daughters; and more daughters with semi-official yearly records than have been sired by any other bull.

His dam: MAY KORNDYKE 2ND 139970, who as a 3-year-old made 544.7 lbs. milk and 26.30 lbs. butter in 7 days. As a 5-year-old she made a semi-official record of 18,868.9 lbs. milk and 776.46 lbs. butter in one year. She is sired by Beauty Pietertje Prince, the sire of Prince Gelsche Walker, whose daughters include the California junior 4-year-old record holder, Lady Hiske Walker, 34.24 lbs. butter in 7 days, and the world's record holder in the eight months after calving division, in the senior 2-year-old class Miss Valley Mead De Kol Walker, 404.2 lbs. milk and 21.33 lbs. butter in 7 days beginning 243 days from freshening. May Korndyke 2nd is out of May Korndyke, the first 30-lb. 3-year-old and for many years the youngest 3-year-old cow of the breed.

KING KORNDYKE PIETERTJE PONTIAC is a full brother to KING KORNDYKE PONTIAC, standing at the head of Mr. Fred W. Kiesel's good herd at Sacramento, Cal., and whose daughters will be given every opportunity to make a high place for themselves.

KING KORNDYKE PIETERTJE PONTIAC is a great individual, possessing great length, depth of body, straight top line, and carrying splendid quality. He is vigorous, a sure breeder, and has already sired a splendid lot of offspring.

THE 15 DAUGHTERS OF KING KORNDYKE PIETERTJE PONTIAC range in age from six months to eighteen months, and having been well fed and cared for are all good, large, growthy heifers, the kind that are rarely offered for sale. They are out of A.R.O. cows, some of which have semi-official yearly records up to 1000 pounds butter.

We are retiring from the dairy business, otherwise this great young sire and his daughters would not be offered for sale. We will gladly furnish further information and prices upon request.

Copies of the pedigrees of these animals are on file at 4-5 Labor Temple, Sacramento, the Sacramento office of California Cultivator, and interested parties are invited to inspect them there.

The Greenbank Company

Leary Bldg. - - SEATTLE, WASH.

CALIFORNIA BREEDERS' SALES AND PEDIGREE COMPANY — PUBLIC SALES OF SOUND HEALTHY LIVESTOCK

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BEGINNING AT 9 A. M. PROMPTLY

60 REGISTERED HOLSTEIN COWS, HEIFERS and BULLS

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60 GRADE HOLSTEIN and JERSEY HEIFERS

Sale under management of

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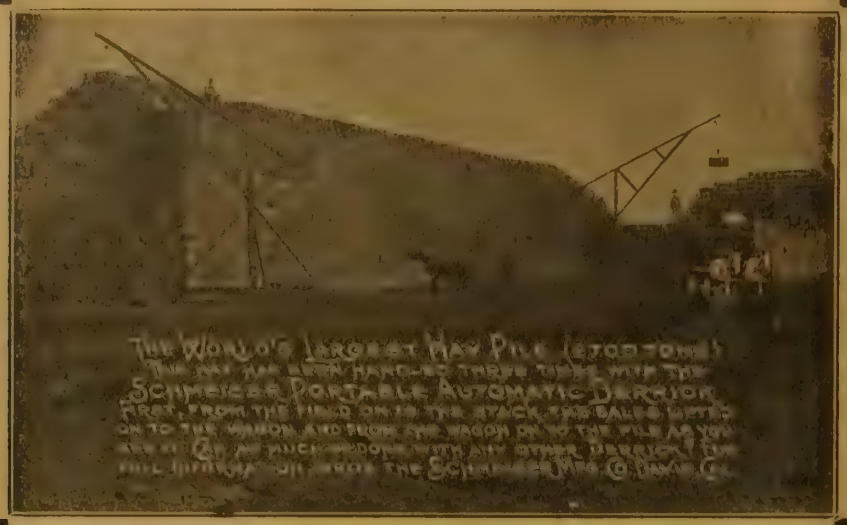

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Stacks hay baled or loose, Saves Labor, Saves Time, Saves Money. More Schmeiser Portable Automatic Derricks are sold on the Pacific Coast than all other hay stackers combined. The reason is:

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Sure Pop Almond Huller and Separator, 3 sizes; McGarvin Fruit and Olive Graders, any size; Schandoney & Harrington Equalizing Hitches, any size; Diamond Special Harrows, Baker Clips, Clevises; Schmeiser Alfalfa Land Leveler and Checker, and

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Why Europe Makes Bigger Crops Than the United States

Average Production of European Crops is as Follows:		Average Production of American Crops is as Follows:	
Wheat	33 bushels per acre	Wheat	14 bushels per acre
Oats	45 " "	Oats	40 " "
Potatoes	199.84 " "	Potatoes	97.15 " "
Cotton in Egypt	400 pounds "	Cotton	185 pounds "

European farmers use about 600 pounds to the acre of a Home-Mixed Nitrated Fertilizer containing 8 per cent of Phosphoric Acid and 4½ per cent of Nitrated or Nitratable Nitrogen.

American farmers apply 200 pounds to the acre of a Fertilizer containing 8 per cent of Phosphoric Acid, together with 2 per cent of Nitrogen which is mostly unavailable.

The difference in results is largely due to the large amount of Nitrated Nitrogen used in Europe per acre as **Nitrate of Soda.** Our pitifully small American yields are due to failure to appreciate the necessity of using Nitrated Nitrogen.

Write for "What Nitrate Has Done in the Farmer's Own Hands"

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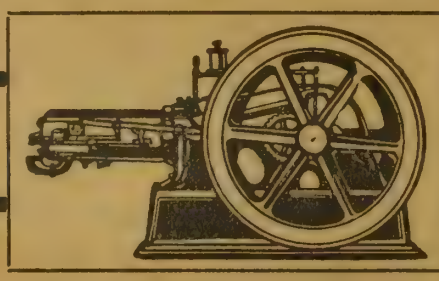

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COMMERCIAL Engines are NOT an experiment. They have stood the test of years because they are honestly made down to the smallest bolt and nut. They combine ALL the essential features necessary to produce a perfect pumping engine. They are strong, simple in construction (having only 150 parts)—easy to operate, reliable, and backed by an ironclad written guarantee.

Our handsome new catalog will post you on all the details of Commercial Engine Construction. Write today for free copy.

Commercial Engine Co.

2416-32 Porter Street, Los Angeles, Cal.

Branch: 1228 "H" Street, Fresno, Cal.

When to Choose Certain Crops

By J. W. Gilmore

Sorghums

Sorghums are primarily dry land crops, although they respond to irrigation. They are planted after the soil becomes warm and dangers of severe cold are over.

The sorghums are most economically grown where they can be fed on the land where grown. The grain, however, has a market value, and is used largely for stock food.

During the growing season they should be cultivated as the destruction of weeds, the demands for moisture, and the maintenance of physical condition require.

Dwarf Milo

For earliest planting (latter part of April). Germinates under wider range of moisture and temperature than others.

On heaviest and lightest soils. More hardy under adverse soil conditions.

When in doubt as to value of other varieties; apparently the most generally adaptable.

Feterita

When bird damage to other varieties is expected. Birds seem to hold this variety in second choice.

When soil is in prime condition as to moisture and temperature. Feterita is less hardy than other varieties in this respect.

For mid-season planting (during May).

Egyptian Corn

For late planting.

Where moisture supply is very deficient.

Where forage is of little importance.

This variety is very similar to Milo in its adaptabilities and conditions of planting. It is not quite so hardy however, and is a little more subject to shattering.

Feterita With Its Attractive White Heads Makes a Beautiful and Profitable Field

Indian Corn

Where previous experience has proved its success. Indian corn is less adaptable to California climate than the grain sorghums.

Where summer temperatures are relatively warm and humid. Dry, hot winds often damage the crop severely.

Where irrigation is available. This crop requires more moisture than is usually available from rainfall only.

Corn is an excellent crop where it can be grown, for it produces more nutrients per acre than any other cereal. It can be most economically used when preserved as silage, as food for cattle.

Sudan Grass

Where moisture conditions are inadequate for the production of sorghums. Sudan grass will grow on a more restricted supply of moisture than the sorghums.

Where costs of harvesting must be reduced. Tonnage of forage can be produced at less expense than corn or sorghums.

Where annual crops are desired on land that would otherwise have to be summer fallowed.

Where alfalfa cannot be grown because of soil type or lack of water for irrigation.

Subsoiling and Commercial Fertilizers

By J. R. Mattern

IN a section of the country where commercial plant foods are used to such an extent as they are throughout our part of the Pacific Coast, the importance of maintaining the best possible soil condition cannot be emphasized too much. Five to eight hundred pounds of a successful mixture will give as much results on an acre of soil properly mellow and open as a full ton on soil compacted and harsh at any point within reach of the roots. In addition, the composition required is cheaper and easier supplied for the mellow soil. This is not an argument for the reduction of fertilizer applications, but a statement of the conditions necessary in order to secure the maximum results from an application of any amount.

Any soil except sand, very light loam or muck that is left in its natural unbroken condition, is bound to be somewhat puddled and clogged in the section below plow depth. Drainage through such subsoil is not good, yet a good deal of the plant food applied on the surface ultimately finds its way to depths below the first foot. Roots do not go down after it freely, especially to depths of three feet and more, because penetration is more or less difficult, and because conditions are uninviting to them. Much of the fertilizer that gravitates deeply into the soil therefore practically is lost.

Another source of loss not commonly reckoned with is the reversion of soluble plant food to insoluble forms, identical with the unavailable native plant food found in soils. It is a

A Bumper Crop Is Now Assured

proven fact that each acre on nearly every kind of soil contains tens of thousands of pounds of potash and phosphorus, which elements may be taken as illustrations. If this plant food material could be released fast enough there would be no need for any artificial fertilizer. The difficulty on the one hand is to release it by cultivation, and on the other—the point usually overlooked—to keep it in the soil in an available condition. The commercial plant foods we buy are largely soluble, but they are subject to the same changes as the native plant food once they are deposited in the ground.

The condition which keeps them in available forms is that where the moisture supply is maintained uniformly at about the right point. Whenever the soil dries out excessively considerable reversion occurs, which means that just so much plant food is lost, from a practical standpoint, forever.

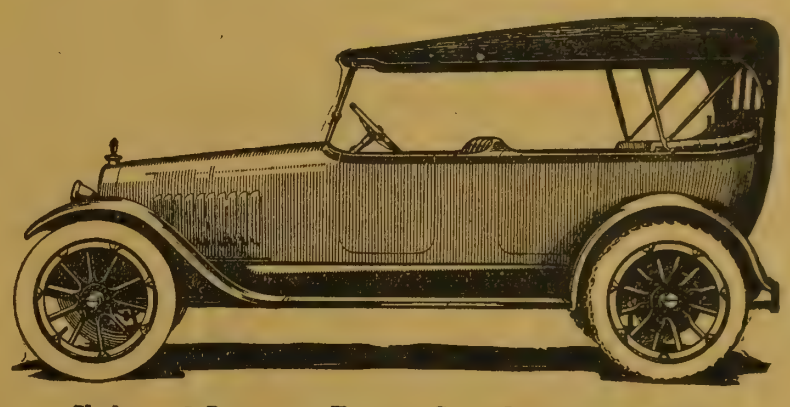
The direct loss of commercial plant food by leaching is the only one generally thought of. It is not large except on sloping and on all irrigated land. Hillsides lose enormous quantities of their fertility every year when there is any surface run-off at all. And there usually is. Irrigated land not subsoiled nearly always has that characteristic choked and compacted subsoil that is nearly impervious to water.

The man who wants to derive the full benefit from his commercial fertilizer applications will see to it that the soil is in a condition to receive, store and use them. The subsoil to a depth of three or four feet must be blasted open and loose to put it in a condition to do so, which is not difficult. Once this deeper soil is crumbled it will attract roots, accumulate humus, and, most important perhaps of all, will store and hold an abundant supply of moisture in capillary form. The trees or plants must have enough water for direct use and enough in addition for the indirect use which consists in making the "stone soup", which is the only form in which they can take up plant foods.

The maker of explosives has given this subject a good deal of study. It is a part of his business to promote the use of powder for subsoiling, hence his attitude is not disinterested, yet every agriculturist will find valuable information in their literature in which this matter of the relation between deep tillage and commercial fertilizers is discussed in a valuable manner. Numerous United States department of agriculture bulletins dealing with soil moisture supply, availability of plant foods and similar angles of the subject are equally interesting.

SHIP BUILDERS WANTED

The department of labor of the federal government has undertaken to assist the shipping board in its task of constructing wooden vessels, and to that end is endeavoring to secure experienced ship carpenters, shipwrights, bridge builders, dock workers, caulkers, etc. Congressman Osborne writes that he will be glad to aid anyone qualified to secure positions in this branch of the federal service. Write the congressman at the House of Representatives, Washington.



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Chalmers builds for long life. Sturdiness is in every part. Severe usage and hard going only serve to prove Chalmers construction.

The Chalmers is a light weight, roomy car. Light weight insures right road performance and true economy. Long springs give easy riding qualities both on good roads and in the ruts.

Go to the nearest Chalmers dealer. See a Chalmers. Examine the car feature by feature. See the beauty of the Chalmers lines. Note the fine body finish. The upholstery is genuine leather. The lamps are large and powerful. Point by point the Chalmers appeals to your good judgment.

Chalmers price is low for such quality. A cheap car is poor economy. A low priced, high grade, well performing car, such as the Chalmers is a genuine investment.

Ride in a Chalmers. You will then know its value.

Touring Car, 7-passenger	$1475	Roadster, 3-passenger	$1250
Touring Car, 5-passenger	1250	Limousine, 7-passenger	2550
Touring Sedan, 7-passenger	1850	Town Car, 7-passenger	2450
		Cabriolet, 3-passenger	1625

(All prices f. o. b. Detroit, and subject to change without notice.)

Chalmers Motor Company
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SCORES AGAIN

Milk 26,815; Butter 1040 pounds

The above figures are the result of her fifth consecutive yearly test, begun without rest and following a production of 29,826 and 30,451 pounds milk in the two previous years.

Beginning with first calf her records for five years for both milk and butter have never been equalled by any other cow of any breed, which distinguishes her as the

World's Champion Dairy Cow

Her records are as follow:

At 2 years 6 months (285 days)	Milk	14,837.2	Butter	549.33 Lbs.
At 3 years 5 months	Milk	21,421.3	Butter	841.22 Lbs.
At 5 years 1 month	Milk	30,451.4	Butter	1189.03 Lbs.
At 6 years 5 months	Milk	29,826.6	Butter	1190.46 Lbs.
At 7 years 7 months	Milk	26,815.0	Butter	1040.00 Lbs.
World's Record				
Total for 5 years		123,351.5		4810.04
Average per year		24,670.3		962.00

During the first four years Tilly Alcartra was awarded fourteen cash prizes by the Holstein-Friesian Association of America, amounting in all to $364.75, which as far as we have been able to ascertain has never been equalled by any other cow. During this time she was also debarred from one $40.00 first prize by the limitation rule.

She has produced three sons and two daughters. Two of her sons are at the head of large herds and having an excellent opportunity. Her first granddaughters are now coming in and making an excellent showing.

KING MORCO ALCARTRA

a son of this cow by SEGIS PONTIAC DE KOL BURKE, our herd sire out of RIVERSIDE SADIE DE KOL BURKE, is now in service in our herd. He is one of the greatest long distance bred bulls in the world and has all that could be desired in the way of type. His dam and sire's dam have the following average records—

Butter	7 days	32.26	Milk 842.9 Lbs.
Butter	30 days	128.42	Milk 3454.4 Lbs.
Butter	365 days	1137.79	Milk 29638.9 Lbs.
Butter	2 years	2222.33	Milk 57543.1 Lbs.

A few sons of KING MORCO ALCARTRA from high record splendidly bred dams are now available, also a limited number of young bulls by PRINCE GELSCHE WALKER and SEGIS PONTIAC DE KOL BURKE.

Information and pedigrees by request.

A. W. Morris & Sons Corporation

WOODLAND -:- CALIFORNIA

Articles of Association of California Holstein-Friesian Association

THESE articles were adopted at the special meeting of the California Holstein-Friesian Association, at Modesto, April 18, 1917.

Article I.—This organization shall be known as the California Holstein-Friesian Association. Its members shall consist of those participating in its formation and those interested in any way in the advancement of the Holstein-Friesian breed of cattle in the state of California, whether owners or not. Before any one is enrolled as a member he shall sign these Articles of Association, and shall pay to the teasurer the sum of five dollars ($5.00).

Article II.—The official meeting place shall be in the city of Sacramento, and the annual meeting for the election of officers and other business shall be held at 8 o'clock on the evening of the first Thursday after the state fair is opened, and at such place and in such building on the state fair grounds of California as the secretary of said state fair may, from time to time, designate, and said meeting place shall be ascertained by the president in advance, and each member shall be officially notified thereof by letter or postal card mailed to his last known address in ample time to permit his attendance.

Article III.—The board of directors shall consist of 15 members, of which five shall constitute a quorum. They shall be elected annually and serve until their successors shall be chosen and qualified, and at least ten counties shall be represented upon said board of directors in the following manner: Four from below the line of the Tehachapi Mountains; four from the peninsula and various coast counties, and seven from the Sacramento and San Joaquin Valleys.

The said board shall meet immediately after their election and appoint officers. The officers of this association shall consist of a president, two vice presidents and a secretary and treasurer in one person. When vacancies occur either by resignation or death, the same shall be filled for the unexpired term by the president. The board of directors shall appoint the speakers and select the subjects for such meetings as it shall call, and shall make such other arrangements therefor as it shall deem advisable.

All special meetings are subject to the call of the president, and may be held in various cities and towns within the state, wherever deemed expedient by him.

Each director in attendance at a meeting shall be entitled to his actual expenses for railroad fare expended for said meeting.

The secretary's salary may be fixed by the board of directors at such time and in such amounts as it may be deemed advisable.

Article IV.—For the purpose of meeting the necessary expenses of the association each member shall pay to the treasurer once a year the sum of five dollars, but each initiation fee shall cover dues for the first year's membership, or that portion thereof which may antedate the regular annual meeting.

Article V.—Any member of this association who shall be found guilty of any misrepresentation, deception or fraud in relation to the registry of animals in the Holstein-Friesian Herd Book shall forfeit his membership in the association.

Article VI.—These articles may be amended at any regular meeting by a two-thirds vote of those present, provided notice of such proposed amendment is given by the secretary at the request of three members before sending notices of the meeting at which the vote is to be taken.

The board of directors may act on any matter by written resolution, each member signing the same, and such action shall have the same effect as if the committee has met and passed upon it in the regular manner, and the secretary shall enter the same upon the minutes of the association.

In addition to presiding in the order named at meetings of the association or board of directors, in the absence of the president the vice president shall assume the duties of the president, viz: to secure members, to aid and encourage breeders to register their purebred stock promptly in the Herd Book of the Holstein-Friesian Association of America, to report to the secretary any irregularities that may come to their notice where parties sell grade stock claiming them to be pure bred or where sales of registered cattle have been made and transfers promised but never given.

The secretary and treasurer shall keep a true record of the transactions of the association and of the board of directors, and an accurate account of all money received and paid out by him, and shall make report thereof at the annual meeting. He shall be furnished with such books, stationery and postage as may be necessary in the performance of his duties as secretary and treasurer.

Article VII. — This organization, under the provisions of ArticleI, Section 6, of the by-laws of the Holstein-Friesian Association of America, relating to membership, and having 15 or more members, hereby avails itself of the privilege of delegate-membership in that body, and accepts its offered privileges and declares itself duly affiliated as a branch thereof, and subject to the constitution and by-laws of said Holstein-Friesian Association of America. It is the further intent of this club to at all times encourage, promote and assist the Holstein-Friesian Association of America in maintaining its objects and purposes and high character.

The objects of this club may be: The promotion of good fellowship and the general interests of the Holstein-Friesian breed of cattle by securing, as occasion may demand, of favorable legislation; equitable freight rates; uniform classification at fairs; discussion of the best methods of breeding, rearing, and exhibiting and raising the standard of excellence of the breed; to bring before the public the good qualities and exceptional merits of the breed; and other subjects of interest at regularly called meetings, and in all ways to generally promote, widen and extend the interests of this breed of cattle, and to act in unison upon all occasions which demand it.

Article VIII.—It shall be the further duty of the secretary to annually prepare and file with the secretary of the Holstein-Friesian Association of America, upon or before the 30th day of April of each year, and oftener if required, a true and duly attested

statement, under oath, of the proceedings of all its meetings of members and the affairs of the company, including:

1. A complete list of members in good standing, and their residences, together with a list of the officers.

2. The delegate representation to the meetings of the Holstein-Friesian Association of America, to which it is entitled at the rate of three delegates for its first 15 members and one additional delegate for each 50 additional members, or major fraction thereof, in good standing.

3. The name and residence of such delegate or delegates, duly selected at a regular meeting held within 90 days of the date of such meeting of the Holstein-Friesian Association of America.

4. Such statement shall be further countersigned and attested by the president and treasurer. — Signed, Frank M. Helm. Fresno; Gion Gibson, Williams; A. R. Magruder, Ripon; Owen Duffy, Napa; Frank L. Morris, Woodland; J. M. Henderson, Jr., Sacramento; W. H. Taylor, Santa Anita.

ARTICHOKES

The Jerusalem artichoke has a stem something like a sunflower but tubers grow on the roots like the potato. It is more frost resistant than potatoes and has a longer growing season. In fact, the artichoke will live over winter in the ground and come up year after year. It is not difficult to eradicate, however, as spring plowing followed by corn or some other cultivated crop will quickly kill it out. The culture of this crop is similar to that of potatoes, but it may be planted earlier, as the spring frosts do not harm it so much. In late fall the tubers may be dug and pitted or put into the celler in the same waythat potatoes are handled. They wilt more readily than potatoes, however, and will keep firmer if covered lightly with earth to exclude the air.

Their more extensive culture as hog feed is advocated by E. F. Gaines of the Washington experiment station at Pullman.

They may be grown anywhere that potatoes or sunflowers do well. They are more drouth resistant than potatoes and are not considered hard on the soil. In composition the tubers of the artichoke are very similar to the potato tubers and the tops are about equal to meadow hay if cut just before blossoming time.

Probably the most general use of the Jerusalem artichoke is for hog feed, but dairy cattle do well on the tubers, and in the absence of silage it is one of the best succulent feeds for milk production. The artichoke was first cultivated for human food, but the smoother, starchier Irish potato has now largely supplanted it in spite of its smaller yield per acre.

NEW WORLD'S CHAMPION HOLSTEIN

Michigan Holstein breeders are elated at the latest achievement of one of the members of the Black-and-White breed. A world's champion junior four-year-old record has been made by Wandermeere Belle Hengerveld 193784. This great butter cow, who freshened at the age of four years, five months, 12 days, gave 570 pounds of milk, which produced 42.61 pounds of butter, in her seven-day test, and in doing this she became the 18th cow of the Holstein-Friesian breed to make over 40 pounds of butter in one week. Not only that, but she defeated Mabel Segis Korndyke, who has held the junior four-year-old championship of the world for three years, her production figures being 2.29 pounds of butter in excess of the late champion.

Better Than 30 Pounds and a State Record Breaker

Miss Valley Mead De Kol Walker, who last year broke the state record for her age, now comes back at the beginning of her new test as a junior three-year-old with 36.37 pounds butter, making her again winner over all in the state and third highest in the world. Both these records were made on Santa Anita Rancho, under the management of Wm. H. Taylor. Among other big producers on the same ranch are Alba Sadie Cornucopia Creetia, with 34 pounds butter, and Lady Hiske Walker with 31.91 pounds.

REMEDY FOR WORMS IN PIGS

H. O. Harney of Grand View Herd of Durocs, Hampton, Nebraska, writes:

"I will give you a good remedy for worms in pigs or old hogs which is cheap but effective as santonin. Use equal parts by weight sulphate of iron and Glauber's salts mixed and fed in slop, about one tablespoon to every 100 pounds of hog. This will do the work as well as santonin, and there is no danger of injury from an overdose."

Grow as much as possible of your stock food on the farm. Cut down to the lowest limit your bill for mill feeds and concentrates. Make your farm self supporting. Feed your stock with the crops you produce on the farm. Convert your hay, alfalfa, grain, roots, and fodder crops into beef, mutton, pork, dairy and poultry products. Return the manure to the soil, and you will thus conserve the fertility of your land instead of impoverishing it. The keeping and feeding of stock on the farm is the keynote of successful farming.

Where a separator is used the milk can be fed to the calves while yet warm and when a little calf meal is added is equal to the whole milk. Also a separator will get all the cream out of the milk. During summer especially is the separator a labor-saving machine. After the milk is separated it can be fed to the pigs or calves while it is yet sweet and all pails can be washed and set away, so they will not attract the flies.

ECONOMY STOCK POWDER

For

CATTLE—SHEEP
HORSES—HOGS

ECONOMY STOCK POWDER absorbs the gases caused by feeding alfalfa or other heavy foods. In so doing it increases the butterfat and keeps the dairy cow on a better paying basis and more years on the job. Economy Powder will also relieve alfalfa ball of the stomach, constipation and bloat. Has no superior in straightening the cow out after calf birth. Economy Powder will absolutely relieve and prevent calf scours.

ECONOMY STOCK POWDER has stood the test of time. It has been on the market for SEVENTEEN years. Is fed regularly by over 200,000 farmers throughout the United States. Once a customer, always a customer, because the feeder is able to make bigger profits on his stock.

It stands to reason that an animal kept in good condition will produce larger gains. Economy Powder keeps the stomach sweet, the liver and kidneys regulated, the bowels loose and active and the digestive organs in perfect working condition so that the animal will extract all of the nutritious qualities from the grain of which it partakes. At the present high rate of feed this means something, to say nothing of the protection the feeder is afforded against disease.

We publish a valuable booklet, "Economy-Ize Your Farm", full of interesting reading for the farmer and stockman. It is free for the asking. Our faith is also so strong in our products that we will send a free sample of Powder so that you may prove to yourself the merits of our goods. Just cut out the coupon and mail today.

Economy Hog and Cattle Powder Company

527-528 Hearst Building - - SAN FRANCISCO, CALIFORNIA

MAIL ME TODAY

ECONOMY HOG & CATTLE POWDER COMPANY

527-28 Hearst Bldg., San Francisco, Cal.

Send me your booklet "Economy-Ize" Your Farm," also a free sample of Economy Stock Powder to try out on my stock.

Name.....R. F. D.....

P. O. .....State.....

I have ....hogs.....sheep.....cattle.... horses

Real Holstein Quality

AT YOUR OWN PRICE

Our offering at the sale at Sacramento, Cal., May 31, 1917, consists of ten highly bred females and two bulls.

One heifer whose first four dams average 34½ lbs. butter in 7 days. Sire, Spring Farm Pontiac Cornucopia, whose dam was the first 44 lb. cow. Her dam, a 31.70-lb. cow in our herd, who was sired by a brother to the twice 44-lb. cow, Ormsby Jane Segis Aaggie.

A daughter of King Korndyke Sadie Vale, whose daughters are making such high records. Her dam, an own granddaughter of Pontiac Korndyke, also De Kol 2nd, Butter Boy 3rd, both great transmitting sires.

A daughter of King Segis Pontiac, he being the best bred son of the great King Segis. Her dam traces direct to Hengerveld De Kol and Pontiac Korndyke.

Seven other heifers equally well bred. Most of these heifers are bred to our herd sire, King Segis Alcartra Abbekerk, whose first eight dams average 30 lbs. butter in 7 days.

The two bulls offered are both fine individuals and highly bred.

One whose first six dams average 28½ lbs. butter in 7 days. Sire, Prince Gelsche Walker.

One a show bull, whose dam has a 28-lb. 3-year-old record with a good prospect for a much larger record. Son of a 36-lb. bull.

All carefully selected from our herd of 125 head.

Bridgford Company

KNIGHTSEN, CONTRA COSTA COUNTY CALIFORNIA

CARNATION HOLSTEINS

Are Guaranteed "For Health"

HERD SIRES
Johanna McKinley Segis
King Segis 10th
Beauty Pietertje Prince

Carnation Stock Farms

YOUNG STOCK
offered at reasonable prices, with health and breeding guaranteed.

Is Under Supervision of United States

Bureau of Animal Industry. We have been operating under its direction (for health) for the past two years.

We aim to keep every animal in our herd in good health and have chosen this most stringent method, the federal test.

When we buy animals we demand federal test. We therefore, guarantee the health of all animals (testable age) when we sell.

This, with our quality breeding, is appreciated by careful buyers.

Write us your needs.

Carnation Stock Farms — General Offices: 1064 Stuart Bldg., Seattle. Farm: Snoqualmie Valley, near Tolt, Wash.

California Wonder

KINGS COUNTY JACK RANCH

Breeders and dealers in American Jacks and Jennets.

Jacks and Jennets for sale at all times. Come and see them.

John Burrell

R. F. D. B. Box 74

Hanford, Kings County, Cal.

SHORTHORNS **BERKSHIRES**

Hopland Stock Farm

Fifteen head Shorthorns at State Fair awarded 19 premiums. Herd boar awarded Reserve Grand Championship. Grand Champion Sow now added to our herd.

Bulls, Boars, Bred Sows and Gilts

San Francisco Office: 1210 Flood Bldg.

Use Tuberculin Tested Sires in Your Herd

WE HAVE A NICE LOT OF SHORTHORN BULLS and HEIFERS THAT WILL SELL FAST WHEN THE SPRING FEED COMES. SELECT YOURS NOW FROM THE BRIGHTON FARM HERD.

H. L. & E. H. Murphy, Perkins, Cal.

When writing advertisers, mention The Cultivator.

Soft Butter

Written for California Cultivator By E. H. Hagemann

TO the dairyman who has trouble with soft butter I suggest the following method of making butter: The cream before churning should be ripened to a mild acid taste or flavor. It can be soured or ripened naturally, but preferably by using a starter (clean flavored sour skim milk or whole milk) using one pint to each gallon of cream. When mild acid flavor in cream is reached cool cream to 52 to 56 degrees Fahrenheit and hold for 18 to 24 hours at this temperature before churning. The above temperature should be about right for churning at this time of year, but a temperature should be used low enough so that it will not bring butter in less than 30 to 40 minutes. As temperature is such a great factor in the manufacture and preparation of dairy products, it must be looked after particularly.

It must be remembered that in trouble with soft butter it should be handled in a firm condition all through the process from breaking of the granules to packing and molding of the product. All the moisture possible should be worked out of the butter, but it should not be overworked; only enough so the salt will be thoroughly incorporated and the butter will not appear streaked. Butter cannot be made to stand up well or hold up, especially at this time of year, from cows fresh in milk, and on green feed, even though it is hardened on ice after it is made. Some cows produce softer butterfat than others, somewhat due to larger fat globules in their milk, and it is apparent therefore that it will be more difficult to make butter from an individual cow than from a herd, or a number of herds, the mixing of which insures a more average composition, by which a regular method can be more easily followed.

Aristocrats in Black and White

From the time the herd on the Stanford ranch at Vina was founded by the late Governor Leland Stanford in the early 80's, it has been steadily improved by importations and the infusion of the best blood procurable. Governor Stanford bought his foundation herd from Peter Coutts who had imported extensively for his ranch in Santa Clara County, where the Stanford University was afterwards established. Having entered into the breeding of registered Holsteins, Governor Stanford in 1888 sent Thomas B. Whales to Holland with instructions to secure a number of individuals that would work a decided improvement in the fine stock he had already purchased from Coutts. Whales returned with a big consignment.

On the death of Governor Stanford in 1893, Charles Lathrop took over the management of the Vina property and followed in the footsteps of Stanford in improving the Holstein herd. In 1901 Lathrop sent T. H. Ramsey, now a Red Bluff banker, to eastern states for the purpose of buying the best Holsteins on the market. Ramsey returned with two carloads, and this stock added to the great foundation herd already established, helped immeasurably in the development of the Vina herd.

Under the direction of competent herdsmen, the Stanford Holsteins were developed to a point where the herd was noted for the wonderful capacity of the cows and the great transmitting characteristics of the bulls.

In 1907 Lathrop sent Sam Houseman east for another lot of Holstein pure breds and the result was an addition of two more carloads of the best individuals that could be found in this country.

To the dairyman it will be of particular interest to know that the first A. R. O. work on the Pacific coast was done in the Stanford herd. That was in 1901 when Estepilla made 17.13 pounds of butter in seven days.

During the last year 40 A. R. O. records were made, including two that were for more than 31 pounds. A number of the two-year-olds went over 20 pounds. The showing in A. R. O. work has been such as to indicate that the Stanford herd will produce some of the greatest testing cows in the world.

Announcement that this grand herd will be dispersed June 5, 6 and 7, at the Stanford ranch at Vina, under the direction of M. H. Tichenor, owner of the Palo Alto Stock Farm at Palo Alto, has created more attention than any other announcement of its kind. Already a great number of inquiries have been received regarding the stock to be sold. All applications for permission to buy from the herd before the date of the sale have been declined by Sale Manager Tichenor.

Segis Fayne Johanna
The first cow to produce 50 pounds in seven days.

as it is desired that the buyers at the sale have the opportunity to select from a herd that has never been depleted by sales.

Numerous requests have been made of the sale manager for catalogues, and these will be forwarded as soon as received from the printer.

The indications are that the sale will be the greatest live stock event ever staged in California. Owing to the fact that there will be a large attendance on each of the three days of the sale, Sale Manager Tichenor has arranged for special trains leaving Chico each forenoon about eight o'clock and returning to Chico from Vina each evening after the day's selling. Arrangements are also being made for the housing and feeding of the large crowd that will undoubtedly be present.

THE SLAUGHTER OF CALVES

Written for California Cultivator
By M. C. Holman

THE only excuse for slaughtering calves is found in the surplus of males and lack of feed. It is upon the basis of shortage of feed that the heifer calves are slaughtered, and even then it is questionable whether or not it would not be better to provide the feed, even if the price does seem prohibitive, in view of the fact that milk and beef are commanding particularly good prices.

In one of the towns of the San Joaquin Valley we recently saw 78 veals ready for shipment to market. Each heifer veal represented from eight to a dozen calves and thousands of pounds of milk taken from the productiveness of the state. Each bull calf represented several hundred pounds of good steer meat. The price realized is not at all commensurate with the price that could be realized if the calves were kept for a little time or until they were mature and could be sold as prime beef. The market is particularly high for this class of beef.

The feeding problem is one that deserves great consideration and careful management. A good silo will preserve for future use the surplus feed. With better handling of the crops a large amount can be made available for silage and some that are ordinarily thrown away can be converted into succulent feed.

Owing to unfavorable weather conditions it is estimated that the forage crop this year will be about 80 per cent of normal. It is desirable to have a big crop, and with the present outlook it becomes advisable to make splendid use of whatever available land there is for the production of forage and all other crops. The hill slopes could be utilized; and land along the railways can be had for a small rental, or possibly for nothing at all; the low lands will produce a summer crop; you can plant in the orchard; in short, plant wherever there is available land that can be used without abridging the growth of the present crop.

There is going to be a tremendous slaughter of beef and milk animals this fall and winter, estimated from 300,000 up. There will be 500,000 sheep killed. All on account of the lack of feed. When this great number of meat producing animals is taken from the available supply it means that while beef may be cheap for a time the resultant high prices are sure to make the cost of meat next winter particularly high.

From the point of pure investment and foresight purchase of feed for live

GREAT HOLSTEIN EVENT

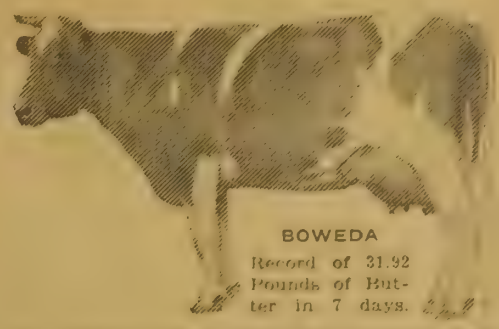
COMPLETE DISPERSAL OF THE STANFORD HERD

AUCTION at Vina, Cal.

(near Chico)

June 5, 6 and 7

9 a. m. Each Day



BOWEDA
Record of 31.92 Pounds of Butter in 7 days.

One of the Many Great Individuals

By order of the Board of Trustees of Leland Stanford Jr. University, the unequaled herd of 300 registered purebred Holstein-Friesians on the Stanford Ranch at Vina, California, will be sold to the highest bidder, June 5, 6 and 7.

AT EACH DROP OF THE HAMMER SOMEBODY'S HERD WILL BE IMPROVED

Intelligent breeding, by the infusion of grandest blood strains, has developd this herd, established by the late Governor Stanford in the early 80's, until it is without a peer.

This sale offers unexcelled opportunities to secure cows of wonderful capacity and bulls of character. All tuberculin tested and free from abortion. Just study these offerings:

40 GRANDDAUGHTERS OF KING OF THE PONTIACS.
The only bull with two 40-pound daughters and the only bull with a 40-pound daughter and a 40-pound granddaughter. He also has a 41-pound 3½-year-old granddaughter.

40 GRANDDAUGHTERS OF COLANTHA JOHANNA LAD
Another wonderful sire with two daughters that made over 750 pounds of milk in 7 days; 30 of them averaged over 600 pounds of milk in 7 days; 8 of them made records of from 30 to 34 pounds of butter in 7 days.

20 GRANDDAUGHTERS OF SEGIS PONTIAC DE KOL BURKE
Leading sire of the Morris herd and one of the best bred bulls in the world. He was senior and grand champion at the California State Fair in 1916.

40 A. R. O. COWS AND MANY OTHERS THAT WILL DO AS WELL OR BETTER ARE TO BE SOLD FROM THIS HERD THAT HAS NOT BEEN DEPLETED BY SALES. THIS STOCK HAS THE GREAT GROWTH POSSIBLE ONLY ON THE PACIFIC COAST AND IS ACCLIMATED. WHY GO EAST FOR UNCERTAINTIES?

Advanced Breeders, Dairymen, Beginners: The blood of these black and white aristocrats is almost invaluable. Can you afford to miss this sale?

300 IN ALL AND INCLUDING MANY SHOW ANIMALS. STANDING OF INDIVIDUALS IN THE HERD ENTERED IN STATE COW COMPETITION WILL NOT BE AFFECTED BY CHANGE OF OWNERSHIP.

For catalog or further information, write

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COL. BEN A. RHOADES
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M. H. TICHENOR, Sale Manager
PALO ALTO -:- -:- CALIFORNIA

Special Trains Between Chico and Vina Each Day of Sale.

ABORTION IN CATTLE

PREVENTED AND CURED PERMANENTLY
YOUR COWS MADE PROMPT. REGULAR BREEDERS BY
STERILOID

STOP LOSING CALVES

TREATMENT: If STERILOID is used at the first sign of abortion the cow will go her full time and have a healthy calf. If your cows or heifers do not come in season, or fail to get with calf, use STERILOID. Cows get with calf after only one treatment. Write today for FREE BOOK. It explains the causes and symptoms of Abortion and tells how to cure Abortion, and make your cows regular, healthy breeders with STERILOID. Also contains letters from breeders who have used STERILOID successfully.

GUARANTEE: We will refund money in every case when STERILOID FAILS to make good. Price $1.00. Mail postpaid, in plain wrapper.

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HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families. Some of serviceable age.

REGISTERED BERKSHIRE PIGS

Masterpiece, Longfellow and Robin Hood Strains. Fine individuals of both sexes—we pay registration fee.

Careful attention given to mail orders.

Whittier State School
Whittier, Calif.

FOREST GROVE LAUREL 8TH
First and Reserve Grand Champion
California State Fair 1916

The Type We Are Breeding For

Hardy, prolific sows of best blood lines and breeding. Strong, upstanding, prepotent boars. In short the best possible specimens of the Berkshire breed. We plan to do this by breeding large numbers and from them making a rigid selection.

James Mills Orchard Corporation
Hamilton City, California

Shorthorns

Paicines Ranch Company

Offers for summer and fall delivery both registered and unregistered weanling bull and heifer calves.

For prices and particulars apply to

DAVID J. STOLLERY
320 Sharon Bldg. San Francisco, Cal.

Tulare Guernsey and Holstein Farm

Guernsey herd of A.R. cows headed by DAIRYMAID'S PRINCE 26352, whose sire is a son of Dairymaid of Pinehurst, A.R. record 17,285 pounds milk and 910 pounds butterfat in one year. His dam is POLLY'S BEAUTY, A.R. record 16,629 pounds milk and 774 pounds butterfat in one year as a 4-year-old.

Holstein herd of choicely bred females, many with good A.R.O. records, headed by PRINCE RIVERSIDE WALKER, whose sire is Prince Gelsche Walker, and whose dam is Aaggie Acme of Riverside, 808.82 pounds butter in one year, and she has a 3-year-old daughter that made 1095.1 pounds butter in one year.

CHOICE BULL CALVES OF BOTH BREEDS FOR SALE.

W. J. HIGDON - - - TULARE, CAL

Bemmerly
HEREFORDS

Perfection and Beau Donald breeding. Noted for their size, bone and quality.

Now booking orders for service bulls for future delivery.

Visitors always welcome.

W. J. BEMMERLY, Woodland, Cal.

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THE

Quality Holstein Sale

CONSIGNORS:

Bridgford Company, Knightsen Toyon Farm, Los Altos
J. S. Gibson Company, Williams Frank Hatch, Modesto
Henderson Company, Sacramento
Palo Alto Stock Farm, Palo Alto

These breeders have selected for this sale high class animals to represent their herds, animals that they believe to be fit as individuals and fit as to breeding, to make the best of foundation stock. No better Holsteins have gone into any sale ring than will go under the hammer at this sale.

SOME OF THE FEMALES IN THIS SALE

A DAUGHTER OF KING KORNDYKE SADIE VALE, the only 40-lb. sire that has produced a 40-lb. daughter. He stands today in a class by himself among Holstein sires, and the value of his sons and daughters is rising rapidly.

A DAUGHTER OF SIR SKYLARK ORMSBY HENGERVELD, 24 A.R.O. daughters, among them the great 34-lb. cow Gerben Abbekerk Maid, and the 31-lb. 4-year-old Cristeria Overton Mechthilde 4th.

A DAUGHTER OF KING SEGIS PONTIAC out of a good granddaughter of Hengerveld De Kol.

A DAUGHTER OF SPRING FARM PONTIAC CORNUCOPIA, son of the first 44-lb. cow. The first four dams of this heifer average 34.41 lbs. butter in 7 days. Her dam, at just past 5 years of age, made an official record of 31.70 lbs. butter in 7 days, right after she was shipped to California from the East.

A GREAT COW with semi-official records of over 19,000 lbs. milk and over 800 lbs. butter in one year.

A WELL BRED COW that has a semi-official record of over 15,000 lbs. milk and 644 lbs. butter in 320 days.

A DAUGHTER OF FINDERNE HENGERVELD KORNDYKE, who is by a son of King Segis De Kol Korndyke, sire of the former world's record junior 4-year-old Mabel Segis Korndyke, 40.32 lbs. butter in 7 days.

A SPLENDID YOUNG A.R.O. COW out of a 27-lb. daughter of King Mead of Riverside, sire of Aaggie Acme of Riverside, 35.36 lbs. butter in 7 days—the California record.

A NUMBER OF WELL BRED HEIFERS in calf to It King of the Pontiacs, whose sire is It, and whose dam is by King of the Pontiacs.

AND MANY OTHER GREAT COWS besides a fine selection of unusually good heifers, both open and bred.

THE BULL OFFERING

will be pleasing to anyone looking for a selection among some of the greatest young bulls yet offered for sale in the West. Among them will be

A SON OF A GREAT 33-LB. COW, and she is a daughter of King Hengerveld Aaggie Fayne, who has 7 three year old daughters with official records from 31.94 to 37.33 lbs. butter in 7 days, the 7 averaging 35.25 lbs. butter in 7 days at an average age of 3 years 7 months. The sire of this great youngster is by a son of King Segis De Kol Korndyke, sire of Mabel Segis Korndyke, 40.32 lbs. butter in 7 days at 4 years 2 months. World's record in class when made.

A SON OF FINDERNE PRIDE FAYNE, whose dam is the former worlds' record cow, Finderne Pride Johanna Rue, 36.86 lbs. butter in 7 days; 1470.59 lbs. butter in one year. The dam of this royally bred young fellow is a daughter of Valdessa Scott 2nd, the first 40-lb. cow. She made an official record of 19.16 lbs. butter in 7 days as a yearling. She is a great individual and a candidate for a very large record. She is sired by a son of King Segis De Kol Korndyke out of a 30-lb. daughter of Pietertje Hengerveld's Count De Kol.

A SON OF JUDGE LYONS, son of King Lyons and a daughter of King Walker. The dam is one of the best bred heifers of the Holstein breed. Sired by King of the Black and Whites she is out of LOTTIE WALKER SPOFFORD, the only cow that has made five official records above 30 lbs. butter in 7 days. This splendidly bred young fellow is a great individual, and the transmitting quality of his blood is of the highest rank.

A GRANDSON OF TILLY ALCARTRA, the world's greatest dairy producer, and out of a 28-lb. daughter of Johanna McKinley Segis, whose sire is King Segis and whose dam is the great 40-lb. cow Johanna De Kol Van Beers.

A SON OF PRINCE GELSCHE WALKER out of a 25-lb. 4-year-old daughter of Beryl Wayne Korndyke of Riverside, and she also has semi-official records above 18,000 lbs. milk and above 800 lbs. butter in one year.

A SON OF JUDGE LYONS, whose 7 nearest dams average over 32 lbs. butter in 7 days, out of a 24-lb. junior 3-year-old daughter of King Colantha Clothilde.

A SON OF PRINCE GELSCHE WALKER out of a 21-lb. 4-year-old that made 595.98 lbs. butter in one year as a 2-year-old.

AND OTHERS OF EQUAL BREEDING, out of good record dams and by great sires.

Everything over six months old tuberculin tested.

Catalog in preparation. Write for one.

Time and place of sale State Fair Grounds, Sacramento, California, Thursday, May 31, 1917.

Sale under management of

CALIFORNIA BREEDERS' SALES AND PEDIGREE CO.
C. L. Hughes, Sales Manager, Sacramento, Cal.
Auctioneer—Col. Ben A. Rhoades

DO YOU WANT LARGE MILK YIELD Combined with HIGH PER CENT OF FAT ?

If so you will be interested in one of our young registered Holstein-Friesian bulls sired by our herd sire

DUTCHLAND SIR PIETERTJE CREAMELLE

Only ten of his daughters have freshened as junior 2-year-olds or younger. The entire ten average over 20 pounds butter in 7 days. His five best junior 2-year-olds average 22.27 pounds butter in 7 days.

PAULINE INKA DE KOL CREAMELLE
A. R. O. 423.4 lbs. milk, 24.43 lbs. butter in 7 days as a senior yearling. Pacific Coast record in class. Sired by Dutchland Sir Pietertje Creamelle, and out of the 26-pound cow, Pauline Inka De Kol Kate.

so far and all have been tested

One of his daughters, shown in the picture, has just broken the Pacific Coast senior yearling record by producing 423.8 pounds milk and 24.43 pounds butter in 7 days, average test 4.62 per cent, and milking as high as 69 pounds in one day.

Let us tell you more of this sire and his breeding. Only a few of his young sons on hand at present, but they are fine, sturdy young fellows, the kind you would be proud to own. And remember that they are of the breeding that combines LARGE MILK YIELD with HIGH PER CENT OF FAT.

They are priced well within their value. We reply to inquiries promptly.

F. STENZEL, San Lorenzo, California

The advertisers in the California Cultivator are known to be reliable and we recommend them to our many subscribers.

stock, both for meat and dairy, will be particularly satisfying. It is impossible to influence any large number of stock raisers to keep their animals through the period of high prices, and those who have that foresight will be the gainers for they will have milk and beef to sell when the market has been very materially robbed, and the prices obtainable at that time should more than repay one for the extra expense and seemingly prohibitive price of feed.

Another Comeback for Tilly Alcartra

Tilly Alcartra, the wonderful milk and butter factory owned by A. W. Morris & Sons Corporation, Woodland, has just closed her books on her fifth consecutive year of dairy manufacture, and a brief summary of her business operations is interesting at this time.

The totals of her five year production may be reduced to a few lines of type thus:

Age at freshening.	Milk 1 year Pounds.	Butter 1 year Pounds.
2 yrs. 6 mo. 17 days	14837.2	556.20
3 yrs. 5 mo. 26 days	21421.3	841.22
5 yrs. 1 mo. 6 days	30451.4	1189.03
6 yrs. 5 mo. 20 days	29826.6	1190.46
7 yrs. 7 mo. 9 days	26815.4	1042.21
Total 5 yrs	123351.9	4819.12
Average per yr	24830.38	963.82

But the few lines of type showing her total production do not begin to tell her story. Picture to yourself that her milk yield in five consecutive periods, beginning with her first calf, makes a total weight of more than 60 tons, or more than 12 tons per year; that in the same period she produced nearly two and one-half tons of butter, almost half a ton a year on the average, and for three consecutive years she has produced over a half ton of butter each year; that she has dropped five living calves upon which it is impossible to place a valuation; that she has won several hundred dollars in prize money on her production records; that she has done more to effectively advertise California as a dairy state than any other cow yet developed; that her record of continuous production stands unequalled in all the world among all dairy breeds; and complete the mind's picture by looking at Tilly herself as she stands today, a fat, silken coated, vigorous cow, in the prime of physical health, keen of appetite, bright of eye, and to all appearances thriving upon and enjoying the production pace which she is setting.

Better Than 30 Pounds

Tilly Alcartra. Seven-day production 32.23; 30-day 126.71. This wonderful cow is the first to pass 30,000 pounds in 365 days, and this all in California with California feeds. Property of Morris & Sons.

Field Notes From the Live Stock Men

W. Bernstein reports recent sales of Poland-Chinas to Miller & Lux two boars; to M. and A. Bemmerly, one boar; to Hamilton & Colcote, one boar and three sows; to Hal. B. Parker, one sow.

Hillcrest Farms Company has been located in Fresno County near Caruthers and will be the home of a new Holstein herd recently brought from the East by H. E. Spires and J. M. Crawford. Besides Holsteins these men will breed Duroc hogs and White Leghorn chickens. Their herd sire is a three-year-old son of King Segis Pontiac Count and judging from his breeding he should make a very valuable addition to the Holstein blood of California.

Some Great Heifer Records—Some of the very best two-year-old heifer records yet made in the West have been made in the herd of registered Holstein-Friesians owned by F. Stenzel, San Lorenzo, within the past year. A particular feature of these record makers are the daughters of Dutchland Sir Pietertje Creamelle, the senior sire in the herd. Only ten of his daughters have freshened to date and all have been put on official test. The ten, all of them yearlings and junior two-year-olds, have averaged over 20 pounds butter in seven days. Five of them average 22.27 pounds butter in seven days. One of them was for a time the California state record junior two-year-old, and the latest one to freshen, Pauline Inka De Kol Creamelle, freshening as a senior yearling has made an official record of 423.8 pounds milk and 24.43 pounds butter. Her average test was 4.62 per cent and her best day's milk 69 pounds. The daughters of Dutchland Sir Pietertje Creamelle come by their production honestly through their breeding. He is sired by a son of the famous cow, Changeling, who is also dam of Changeling Butter Boy, sire of Changeling Tidy Abbekerk Wayne, the great cow that recently made 40.62 pounds butter in seven days in Dr. Work's herd in Colorado. Changling Butter Boy is also sire of the great young cow that recently made 34.74 pounds butter in seven

days and over 141 pounds in 30 days in the Morris herd in Woodland, she being 100 per cent the same blood as Changeling Tidy Abbekerk Wayne. Dutchland Sir Pietertje Creamelle is also out of a daughter of Creamelle Vale, the former worlds' record cow that produced 29750.2 pounds milk and 1155.85 pounds butter in one year, and is the dam of Dutchland Colantha Vale that produced 22750.2 pounds milk and 857.43 pounds butter in one year as a junior two-year-old. His dam is also sired by Pontiac Butter Boy who is the sire of Changeling Butter Boy, thus giving Dutchland Sir Pietertje Creamelle a large percentage of the blood that has produced a 40-pound cow and a 34-pound cow to add to the long list of high record daughters of Changeling Butter Boy. Mr. Stenzel has as a junior herd sire a son of King Korndyke Sadie Vale, the only 40-pound bull in the world that has produced a 40-pound daughter, and the blending of his blood with that of Dutchland Sir Pietertje Creamelle promises much for future production in this herd.

O. J. Ames of Stanislaus County writes that he has made sales of young bulls to Louis Skadsheim and J. M. Aitchison of Winton, E. O. Blickschmidt, Patterson, R. J. Smith, Oakdale, and Mrs. S. W. Taylor, Loomis.

Elmer Lamb of Ceres reports the following sales: Boar to Fraser Bros., Arizona; three bred gilts and one boar to C. B. Crawford, Wasco; two bred gilts to M. C. DeFraga, Bolinas; bred gilt to Ben Armstrong, Quincy; three bred gilts to Albert Dickey, Dixon; bred sow to Miss Millicent Bucholz, Merced; boar to W. S. Rishey, Merced; boar to W. S. Vacaville; gilt to J. M. Duncan, Visalia; gilt to W. H. Dixson, Heughson.

ANNUAL MEETING OF AMERICAN JERSEY CATTLE CLUB

The forty-ninth annual meeting of the American Jersey Cattle Club in New York, held at the Waldorf-Astoria on Wednesday, May 3d, at which every state but one was represented, disclosed that the year just ended has been the most successful in the history of the club.

The secretary's report showed the finances of the club to be in excellent condition and also showed a substantial increase in the amount of business transacted. During the year 36,117 Jerseys were entered in the Herd Register, and there were 34,499 transfers recorded, indicating an increase of 17 per cent over the year before in the sale of Jerseys, which is the largest increase in transfers that has been recorded for over 12 years. Eighty-four new members were admitted to the club during the year, bringing the total membership up to 649 against 592 the year previous. There are now 100 applications for membership pending, and it is expected that the club membership will soon be over 700.

M. D. Munn of St. Paul, Minnesota, was unanimously re-elected president of the American Jersey Cattle Club, Ed. Cary of Carlton, Oregon; F. J. Bannister of Kansas City, Missouri; W. Gettys of Athens, Tennessee, and George Batten of New Jersey, were elected members of the board of directors for a term of three years. At a meeting of the board of directors following the annual meeting, F. W. Sessions of Utica, New York, was elected vice-president. R. M. Gow was reappointed secretary.

Madison had a rice carnival on the 13th.

"IT"

"Short in Name and Long in Quality" is a phrase applied to the bull of one of the best producing strains purchased something over a year ago by McAlister & Sons. This bull, purchased in the greatest of Holstein states of the Union is now at the McAlister Ranch at Chino, and the McAlisters say will have, within a few months, 100 living daughters, practically all out of daughters of the King of the Pontiacs. One-fourth of these have over 30-pound records.

The McAlisters say: "We intend to give 'It' the best opportunity of any bull in the West, as he will be bred to more 30-lb. cows, 25-lb. cows, A.R.O. cows and 20-lb. two-year-olds than any other bull on the Pacific Coast."

Mr. McAlister says that he had had his eye on this great animal for some time, especially because of the great records made by his offspring. "When we first saw him we found it impossible to buy "It." At that time we bought a number of heifers in calf to him. Before we bought "It" a careful examination was made again of all his daughters, and especially those with first calf, but they all passed the test with honor. We believe no bull in the United States has ever sired a more uniform lot of daughters with as much show type and individuality.

Referring to his breeding, the Holstein-Friesian World says: "He possesses a combination of blood lines that cannot be surpassed."

The Steven Brothers, his former owners, in speaking of this sale in the Holstein World, say: "In the face of the fact that McAlister & Sons placed before us a large cash offer, we decided to part with "It" and, as we have said, he is now at their ranch in California. We believe they have secured a sire of great worth as he has produced in our herd some wonderful progeny! We certainly believe that we could say no more in favor of 'It' than that we have used him exclusively on daughters of King of the Pontiacs and we know of no greater recommendation for the sire's ability, and we also believe that breeders in general will realize how strong was our confidence in him. The daughters of 'It' have started off mighty well on official test. He already has a two-year-old with 23.92 pounds to her credit, another that has better than 21 pounds as well as several between 19 and 20 pounds as two-year-olds. Those who see these daughters for themselves will join in congratulating McAlister & Sons on securing this young sire."

Better Than 30 Pounds

Woodcroft Ybma Pietje. Milk seven days 585.1 lbs., butter 31.38; milk 30 days 2594.4 lbs., butter 124.00. Owned by McAlister & Sons.

THE DE LAVAL LINE

Dependable Dairy Equipment That Has Made Good

DE LAVAL CREAM SEPARATORS

The New 1917 De Laval marks the greatest advance in separator construction in the last thirty years.

LARGER CAPACITY
CLOSER SKIMMING
LONGER LIFE

NO ADVANCE IN PRICE.

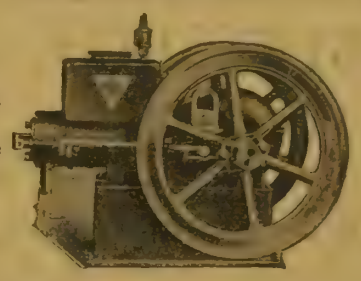
ALPHA DISTILLATE ENGINES

CAN BE DEPENDED ON 365 DAYS IN THE YEAR AND 24 HOURS A DAY.

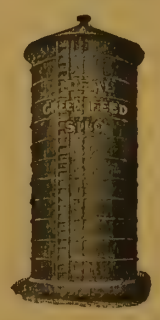
Fine Workmanship
Perfect Balance
Last for Years.

You will feel secure with an Alpha on the job.

SIZES 1½ TO 100 H. P.



IDEAL GREEN FEED SILO



You will find that the features of vital importance in a silo are of better design and better constructed in the IDEAL GREEN FEED SILO than in any other silo manufactured.

20 Years' Experience in Silo Building is behind the IDEAL GREEN FEED SILO.

ACME FEED CUTTER AND SILO FILLER

FILLS THE HIGHEST SILO — MAKES AN EVENLY CUT SILAGE THAT PACKS WELL.

All Steel Frame

Built in Seven Sizes

SANITARY BARN EQUIPMENT

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Steel Stalls
Stanchions
Litter Carriers
Feed Trucks
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VIKING ROTARY PUMPS

A high-efficiency, positive delivery pump that will pump large quantities of water to high elevations.

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Everything for the Dairy

SAN FRANCISCO, CALIF.

Elliott-Brant Rancho Guernseys Are Persistent Producers

The results of our first two years of official testing show our herd to average 10,172.28 Pounds of Milk and 507.97 Pounds of Fat. One half of these cows were heifers with first calf who averaged 8,670.24 Pounds of Milk and 436.01 Pounds of Fat (only 7 pounds under the average of all A.R. records). Our mature cows averaged 12,710.5 Pounds of Milk and 621.52 Pounds of Fat (120 pounds over the average of the mature cows of the breed).

A bull from these cows will increase the production of almost any herd.

Elliott-Brant Rancho, - Owensmouth, Cal.

Oak Knoll Ranch Chester Whites

The hog that is making good under California conditions. They are easy keeping and quick maturing and dress out second to none. They are the profit-making kind.

THE MELONE CO.

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Raising the Standard of California Bacon

MONTELENA HERD

Large Yorkshires

Have large litters. Service boars of exceptional quality, in best breeding condition. They are strong, active, long, deep fellows, with big bone and splendid heart girth. Come and see them, or write to

A. L. TUBBS CO.

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BERKSHIRES

A few fine fall pigs, strong in Bandmaster, Masterpiece and Rival's Champion blood. They are strong and active with good top lines, heart girth and moderate heads. Glad to show them or send full particulars and prices.

Forest Grove Duchess 5th

MAPLEWOODE RANCH

E. M. HOLGE, Owner **HOMER HEWINS, Jr. Manager**

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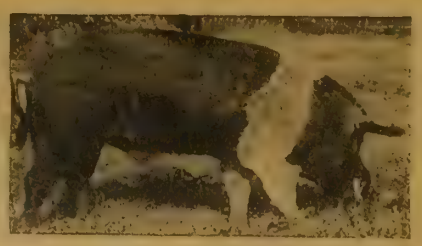
Prize Winning HAMPSHIRES

The farmer who wants a hog that puts on 200 lbs. of firm meat at six and a half months of age buys the Hampshire.



Boars, gilts, bred and open, for sale from the P.P.I.E. Champion Hampshire stock, just as nearly perfect as they make them.

F. A. Langdon Manager

Llano Vista Ranch, Perris, Cal.

F. V. Gordon Owner

Poland Chinas, Medium Type

Choice breeding stock, both sexes, from Panama-Pacific International Exposition prize winning strain. 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to

M. Bassett

Hanford, Kings County, Cal.

When writing advertisers, mention The Cultivator.

THE FERMENTATION OF SILAGE

By A. R. Lamb, Iowa Agricultural College

CERTAIN other well-known fermentative processes are somewhat similar to silage fermentation. When hay is stored too green it is likely to heat, even to the combustion point. This heat is only the outward evidence of other changes which are taking place in the hay. Grain stored in bins undergoes certain chemical changes, which sometimes develop a noticeable amount of heat. These and similar changes, which are undergone by all living plant material when stored in large masses, are in some respects like silage fermentation. The fermentation of sauerkraut is also similar in that the preservation of the kraut depends upon the formation of organic acids by bacterial action. The formation of vinegar from cider involves the production of acetic acid, which is one of the acids found in silage. This change takes place necessarily in the presence of air. On the contrary, the changes which are normal to the formation of good silage take place almost entirely in the absence of air.

Since corn (maize) is the principal silage crop in this country, all references to silage will be understood as being to corn silage unless otherwise stated.

In silage making the chopped corn forage is tightly packed into an air-tight silo, with plenty of moisture present, and fermentation begins at once. The first evidences of change are a slight rise in temperature and the evolution of carbonic acid gas. This gas is generally known to be poisonous, but accidents still occur occasionally when the gas, which is heavier than air, collects in a partially filled silo. If a lighted lantern lowered into the silo is extinguished, it is almost certain death to enter before the gas has been driven out by starting the silo-filler or by opening a door near the surface of the silage. The temperature of the silage rarely exceeds 85 degrees to 90 degrees Fahrenheit, except near the surface, where fermentative processes are greater, owing to the presence of air. Erroneous ideas regarding the importance of the heating in silage fermentation were derived from observations made only on the surface of the silage. The oxygen in the silage is used up early in the process of fermentation or driven out by the carbonic acid gas. From this point the presence of air or oxygen is fatal to the proper preservation of the silage, because air permits the development of molds, which are themselves sometimes poisonous, and which quickly destroy the acids and thus allow the silage to spoil. The importance of air-tight walls and proper packing down of the silage to keep out the air is, therefore, at once apparent.

The Formation of Acids

The next changes noticed during the silage-making process are a change in color and the development of a more or less pleasant aromatic odor and a sour taste. The color and odor are characteristic of silage and are of considerable value in judging its quality; but the most important change is the formation of acids which cause the sour taste. The acids formed are chiefly lactic acid, which is the acid found in sour milk, and aectic acid, the acid of vinegar. The total amount of acid formed averages between one per cent and two per cent of the weight of the silage.

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Prevents Hog Cholera.

Experiments on live hogs prove that a 2½% dilution of Kreso Dip No. 1 will kill virulent Hog Cholera Virus in 5 minutes by contact.

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HOLSTEIN CATTLE

The broad highway to success is persistent and intelligent application to something worth while. A successful 60-year-old dairyman said, "I have made the greater part of my money since I was forty-five. Up to that time I was making mistakes. I corrected a host of mistakes and ideas about cows and have made nearly all the money I have since that time." The difficulty is that some dairymen never wake up. Any farmer who will devote a short time to a study of the supremacy of Holstein-Friesian cattle as profitable milk producers and as dual purpose cattle will be able to turn his dairy operations to a profitable basis. Send for free literature. There's big money in the big "Black and White" Holsteins.

Send for FREE Illustrated Descriptive Booklets
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F. L. Houghton, Sec'y, Box 120, Brattleboro, Vt.

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of any size our specialty. Best blood lines.

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Linnview Farm BIG TYPE **Poland Chinas**

We have a choice lot of young sows and boars ready for delivery, sired by champion Iowa boars and out of big boned, prolific sows. A Wonder, Iowa King and Big Orphan blood—none better.

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DUROC JERSEYS

Sows, gilts and a few boars of the best breeding FOR SALE

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This change is important because it indicates that the fermentation is healthful, like the ripening of cream or the formation of vinegar, instead of being a state of unhealthful decay, like the putrefaction or spoiling of meat. In the presence of this acid fermentation it is impossible for the bacteria which cause decay to live and work, unless the presence of air should allow the growth of molds, which in turn destroy the acids, and thus allow the putrefactive bacteria to thrive. This last process is what occurs in the top layer of the silage in the silo, which is spoiled because of the presence of air. The formation of acid is, therefore, one of the most important of the changes which take place in the fermentation of silage.

The Formation of Alcohols

Other changes occur in the process which are not appreciable to the senses, and which can generally be detected only by chemical analysis. One of these is the formation of a small amount of alcohols, chiefly ordinary or grain alcohol. The total amount of alcohols generally varies between 0.1 per cent and 0.4 per cent of the weight of the silage, or as much as 0.5 per cent of the juice. The source of the alcohols, as well as of the acids, is the sugar originally present in the plant. Experiments conducted by the writer show that the amount of sugar which disappears is almost exactly equivalent to the amount of alcohol and acid formed. About one-half of the sugar present is ordinary cane sugar. This is first broken up into simpler sugars, such as glucose, and then the simple sugars are changed into alcohol and acid.

Other recent experiments show that the amount of simple sugars in the silage is at first increased by the breaking up of some of the starch; but the total amount of sugar present, after fermentation is over, is much less than in the green plant material. Sometimes practically all the sugar is used up. The amount of sugar in the green plant, and, therefore, the amount of acid in the silage, depend upon the maturity of the plant when harvested. The amount of sugar in the plant decreases as the plant approaches maturity.

Another characteristic change is the breaking down or digestion of protein matter, or the flesh-building constituent of foods. This merely anticipates some of the digestive processes in the alimentary tract of the animal which eats the silage, and therefore does no harm, since little or no nutritive value is lost.

HOLSTEIN-FRIESIAN ANNUAL

The 32nd annual meeting of the Holstein-Friesian Association of America will be held in Worcester, Massachusetts, Wednesday, June 6. Besides report of the auditor, treasurer and other departments it is proposed to amend the by-laws, elect officers and transact other business, which will mean much to the Holstein-Friesian interests. Secretary F. L. Houghton of Brattleboro is planning that this shall be a great meeting.

CALIFORNIA PET STOCK ASSOCIATION

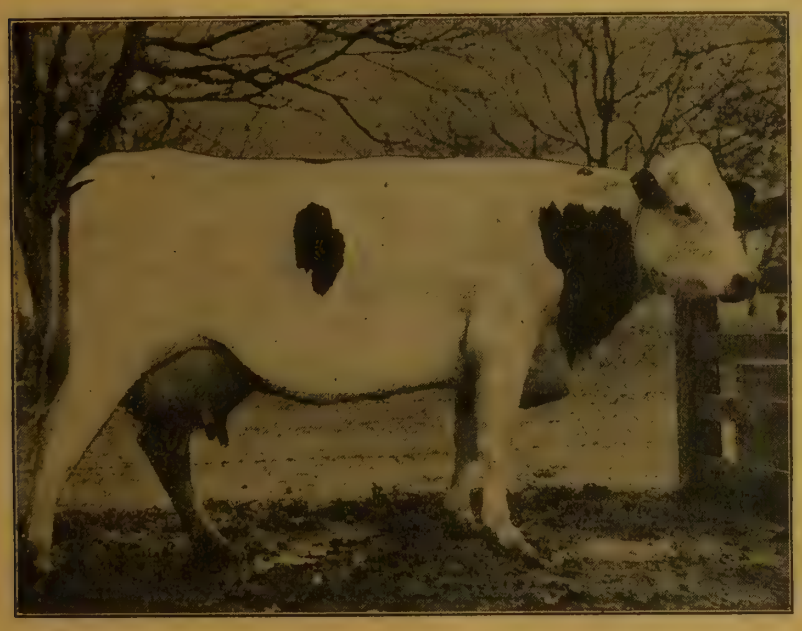
The California Pet Stock Association has been organized and is making an effort to secure membership in all counties of the northern end of the state. Its slogan is: "Together for a bigger and better pet stock fancy for Northern California." The dues are one dollar per year. The officers for the first term are: President, A. E. Bettes, San Francisco; first vice president, J. J. Berry Auburn; second vice president, W. C. Parsons, San Mateo; secretary treasurer, Hale Prather, Ukiah.

TWO FLEECES

The American Sheep Breeder is calling on every sheep owner in the United States to offer for army use two fleeces of wool. The appeal reads in part:

"Listen, Shepherds! Are you willing to offer Mother Columbia 'Two Fleeces of Wool' to clothe her 'Boys' who march to the front? The boy who wears your wool will be your soldier boy, fighting for you and yours. Your soldier boy will be numbered in the 'Legion of the Golden Fleece'. He will be clothed from head to foot in pure wool, the gift of the shepherds of Americaa. Let this be a free gift to Mother Columbia.

"Select two choice fleeces—the first fruits of your sheep harvest—and ship in a nice clean sack by parcels post to American Sheep Breeder, Record Building, Union Stock Yards, Chicago. The donor's name should be plainly written on a strong tag tied firmly to the outside of the sack. These fleeces will be turned over to the government authorities, who will arrange for its manufacture into clothing for the Legion of the Golden Fleece.



Better Than 30 Pounds

Christeria Overton Mechthilde 4th, 31.25 pounds butter in seven days. Owned by Rio Vista Holstein Farms.

VISALIA GETS A GOOD ONE

Written for California Cultivator
By C. A. Briggs

A splendid Berkshire sow has been added to Arlington M. Smith's A1 Ranch at Visalia. She is from F. R.

Continued on Page 577

PATRIOTISM DEMANDS

That All Butter-Fat Waste Be Stopped

President Wilson's powerful appeal for the conservation of the nation's resources is still ringing in our ears. "The supreme need," he says, "of our own nation, and of the nations with which we are cooperating, is an abundance of supplies, and especially of food stuffs;" and again, "Upon the farmers of this country, therefore, in large measure rests the fate of the war and the fate of the nation."

Wasteful methods must be abolished. Every device that makes for the saving of time and labor on the farm must be utilized. Every plan that makes for the conservation of our food products must have the farmer's hearty cooperation.

And nowhere is there greater opportunity than in the production of dairy products, particularly butter-fat.

"Fats, fats, fats, more fats," that is the demand of the warring nations in Europe. The men who toil and the men in the trenches must have fats. They are the fuel that the human machine must have.

And no fat is so palatable or so easily assimilated as butter.

When it was simply a question of the farmer's own loss of profit, the tremendous waste of butter-fat on American farms was bad enough, but under present conditions such waste is nothing short of criminal.

And it is wholly unnecessary.

It is conservatively estimated that about a million cow owners in the United States are still skimming milk by some wasteful "gravity" method.

At an average of four cows to the farm, and an average waste of thirty-five to fifty pounds of butter-fat per cow, all of which could be saved by the use of a De Laval Cream Separator, this alone represents an annual waste of at least 140,000,000 pounds of butter-fat.

Then there are, perhaps, a million inferior or half-worn-out separators in use whose owners could save fifteen to twenty pounds of butter-fat per cow per year by replacing such machines with New De Lavals; and this represents another waste of at least 60,000,000 pounds of butter-fat annually.

Also there is the loss of time and labor that a De Laval would save and which could be better devoted to other productive work on the farm. This waste is hard to compute, but it is almost as important as the loss of butter-fat.

These are startling statements, but any dairy or creamery authority will agree that these estimates of waste are really very conservative.

Shall this tremendous waste continue? Will the loyal American farmer permit such waste when he appreciates the duty that is laid upon him to conserve the only article of food that above all others is necessary to the life and health and energy of the men who serve the nation in the field, the factory, the mine—and soon in the trenches?

We have always had an abiding faith in the American farmer, and we believe that if he is made to appreciate the full purport of the President's appeal to him, the appeal will not be in vain; and when he further appreciates what the De Laval can do to save the butter-fat which is now being wasted, and that his patriotic duty demands that such waste be stopped—NOW—our plants will not be big enough to take care of one-half the demand for De Laval Cream Separators.

DE LAVAL DAIRY SUPPLY CO.
61 BEALE STREET - SAN FRANCISCO

Classified Liners

The direct selling method from producer to consumer, and a clearing house for over 31,000 readers, weekly.
Liner rates: Single insertions 3c per word; yearly contracts 2½c per word. 35c per issue minimum charge.

TREES

For Sale—7000 Eureka lemons, 500 Washington Navel orange trees, budded from selected buds, on sour root in May, 1915. Very healthy, clean and uniform. Will caliper around one inch. No better trees anywhere. Price 15c per tree in the ground at San Dimas. W. B. Richards, 935 N. Park Ave., Pomona. Phone Pomona 6302.

Here is Your Opportunity to Secure A1 citrus trees. We offer several thousand 2-year-old lemons; Eureka and Villa Franca, also Washington navels; also several hundred Valencias on sweet root. We call these good trees and we know whereof we speak. ALBERT JACKSON, Upland, Cal.

Lemon, Orange and Grapefruit Trees—Fine, strong, sturdy trees. Best root system. Grown at San Dimas. No frosted stock. Get our prices. Special prices on Eureka lemon trees. Smith Citrus Nurseries, 320 Marsh-Strong Building, Los Angeles. F2729, Main 3604.

By Far the Lowest Priced means of reaching a buyer for what you have to sell is through classified advertisements in California Cultivator. The cost is only 3 cents per word per issue, with a minimum of 35 cents.

Citrus Trees—All leading varieties. Large line, Lisbon and Villa Franca Lemon and Washington Navel trees. All first class and clean. Special prices to dealers or in carload lots to growers. Randall Bros.' Nurseries Co., Whittier, Cal.

For Sale—6000 fine thrifty two-year-old Lisbon lemon trees. Bud selection the best. Address Chas. Story, Rivera, Cal. Phone Whittier 4721.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

For Sale Citrus Trees—Valencia, Navels, Grapefruit, Seedless Lemon, Villa Franca and Eureka; also Manzanillo olive and walnut trees. W. W. Burns, 631 Security Bldg., Los Angeles. F-3110.

For Sale—1000 Eureka Lemon Trees at 25c per tree, first class; free from scale. ¾ inch and up; must take them out this spring. Peter Arth, Redlands.

Citrus Trees—Extra fine Eureka Lemon, Navel, Valencia orange trees, one-year buds, sour stock, 5¢ up. Low price. Geo. N. King, Fillmore, Cal.

Valencias, one and three years old. Eureka lemons, three years old. Selected stock. May A. Miller, Glendora, Cal.

Citrus Trees—All kinds, any quantity. Butler's Morning Side Nursery, Lamanda Park, Cal.

For Sale—1600 very choice Valencia trees on sour stock. A. O. Hayes, San Dimas, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Quality Trees—Prune trees 10c each. Cash Nurseries, Sebastopol, Cal.

WANTED

Wanted—From four to ten cars of White Rose potatoes, first class stock for table use. Delivery to commence in June, Imperial and San Gabriel Valleys stock preferred. Will have for delivery this winter, a few cars hill selected prize strain of White Rose seed from Oregon. Order early. H. A. Hyde, Watsonville, Cal.

Experienced Couple Wanted for farm work near Watsonville. Man to make himself generally useful. Must understand handling of horses, ploughing, etc., and wife willing to cook for owner and family whenever desired. References required. Address P. O. Box 34, Menlo Park, Cal.

Position Wanted as separator tender. Either as combined or stationary thresher $5.00—$7.50 per day, fare paid one way. Not less than 40 days' run. W. T. Francis, 85 Hellor St., Santa Cruz, Cal.

One of the Most perplexing problems to farmers and ranchers is that of help. A small liner ad in California Cultivator is the quickest and easiest means of securing farm help.

Wanted by Practical Man—Pruning and budding of citrus trees. Gummed trees doctored. All work guaranteed. J. W. Woodworth, Lemon Grove.

Wanted—Second hand tread mill to use in exercising a bull. Power attachment not necessary. Box 175, Holtville, Cal.

Wanted—Sweet Potato Plants by Imperial Valley Nursery & Seed House, El Centro, Cal.

FOR EXCHANGE

I Want a Good Ranch—Will exchange income property, bringing in $450 per month, consisting of large brick building containing seven store rooms, 12 apartments, also flat building adjoining. Value equity $40,000. Harrison Lewis, 1023 Investment Building, Los Angeles. Main 8790.

Wanted—By retired owner, improved Southern California property. Have section choice improved Texas Gulf Coast land near market. Will produce any crop. Wish to deal with owner. No agent. Address with full description, H. H. Eberhardt, Salina, Kansas.

RABBITS

Raise Rabbits for Us—Good profits. We furnish stock and buy back all that you raise for $2 each. We have a market for thousands of rabbits. Our proposition strictly on the square. Send 25c for our book on rabbit culture, our proposition in full and catalog of rabbit supplies. Gilmore's Rabbit Farm, Santa Barbara, Cal. (The Rabbit Farm of International Reputation.)

HOGS

Bred Gilts—Bred Gilts—Bred Gilts—Chester Whites, the Billiken Herd. Every rancher should carry at least one good brood sow; are you going to help out our future meat supply? I have the following to offer, first class in every respect and priced low; 1 bred gilt to farrow the last of May; 3 bred gilts to farrow in June; 2 young tested sows to farrow in July; 6 spring gilts to farrow in September; 18 fall gilts to farrow in October. Weaned pigs, both sexes, to be delivered during the month of June; 3 young boars that will be ready for service in about a month. Write for prices and circulars. C. B. Cunningham, Mills, Cal.

Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

Make Big Money with our famous Whitten Ranch Big Type Poland-China. Prolific breeders and profitable feeders. Grow rapidly, fatten quickly. Top the market at 225 lbs. in six months. Make greatest profit for feed consumed. Prices reasonable; satisfaction guaranteed. Send for free illustrated book, "Hogs for Profit". Finest ever issued. Packed with valuable information; tells how to become successful. Ranch in Tulare County, but address owner, R. H. Whitten, 610B Security Building, Los Angeles.

Large Number of excellent young boars ready for immediate service. Weanlings of either sex. Sired by Joker, first prize boar at Wisconsin State Fair 1915. Sows and gilts, sired by Iowa Wonder and bred to Joker and Sunnydale's Chief. For prices and further information write to Geo. A. Smith, Corcoran, Cal.

Cholera-Immune Berkshires. A dandy 750-lb. son of Star Value, $75. Sons of above ready for service $35. September gilts $30 each. November Ames Rival boars $25 to $30. 3 months pigs $15 each. All bargains. All registered. Order now and get choice. W. H. WAUGH, Riverside, Cal.

Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P.P.I.E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

Superba, World's Grand Champion Poland-China boar and one of the greatest sires of the breed. Spring boars ready for service, also few sows bred to this noted sire, reasonably cheap. Rough's Greenfields, Arlington Sta., Riverside, Cal.

Rancho Rubio Durocs. Only a few September gilts left. One corking good fall boar by Orion Model, son of the last International grand champion. Place your orders now for weaned boar pigs. Best I ever raised. Elmer Lamb, Ceres, Cal.

For Sale—Duroc-Jersey weanlings, either sex. World's grand championship stock. Registered. $25 each. This is your opportunity to get started right. Rosenberg Co., Hayward, Cal.

Duroc-Jerseys—Finest herd of brood sows on the coast, bred to and sired by the best boars in the world. Peters, Lamson & Walker, breeders for Fontana Land Co., Devore and Fontana, Cal.

Crawshaw's California Chinas are prolific and profitable. Weanlings $15.00, boars $25.00. Dr. J. A. Crawshaw, Hanford, Cal.

Poland-China Swine Recorded. Stock for sale at all times. We please you or refund your money. W. A. Young, Lodi, Cal.

Choice Boar Pigs for Sale. Sired by Superba 220620, champion Poland boar at San Francisco. Prices right. C. R. Hanna, Riverside, Cal.

Duroc-Jersey weanlings direct from Iowa herd of 25 years standing. Always selected for large, prolific litters. W. M. Taylor, R. D. 1, San Bernardino.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, Cal.

Cholera Immune Duroc-Jerseys of the large type. Bred for show and utility. Derryfield Farm, I.O.O.F. Temple, Sacramento.

Normandy Farms herd of Berkshires are now to be found at A-1 Ranch. Write for catalogue. Arlington M. Smith, Visalia, Cal.

One Large and two medium type boars, extra choice, 9 and 10 months old. W. Bernstein Ranch, L. C. Trewhitt, Mgr., Hanford, Cal.

Carruthers' Farm Berkshire Hogs. Our herd won Premier Exhibitor prize at the P. P. I. E. Exposition. Mayfield, Cal.

Duroc-Jersey—Sow and boar pigs from registered stock. Low prices. Delta Farm and Livestock Co., Colton, Cal.

Berkshires—Two hundred pounds at six months. Ray C. Hannan, Corning, Cal.

Durocs—A few gilts of exceptional quality. H. E. Boudier, Napa, Cal.

Poland-Chinas—A few good breeding boars. S. F. Williams, Orland, Cal.

Big Type Durocs—Quick maturing, easy keeping. F. M. Johnson, Napa, Cal.

LUMBER

AAA—Lumber, New and Second-Hand; rough, $10 M; finished, $15 "A"R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St., San Francisco, Cal.

LIVE STOCK

D. E. Kelliher, importer and breeder of Hampshire sheep, Eugene, Cal., offers for sale a choice lot of Hampshire ram lambs, sired by Walnut Hall and Butterfield Rams, purchased at Salt Lake, August, 1916. Lambs ready for delivery after July 15th, 1917. Inspection and correspondence invited.

Butte City Shorthorns, Shropshires, Berkshires and Ponies. Stock of all ages for sale. Can supply one or a carload. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., Cal.

At Last the Perfect Silo—the Stay Round. No hoops, no bolts. No experiments. Any one can erect. Close price. Address D. O. Lively, 125 Hobart Bldg., San Francisco.

Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco, manufacturers of Calf Meal, Balanced Dairy Feed, Balanced Hog Feed. Write for samples.

Registered Shires — Blackhawk Stock Ranch. Importers and Breeders. Easton & Ward, Burlingame, Cal.

CATTLE

For Sale—From 1 to 70 extra fine, straight, well marked, light colored, registered Holstein heifers, from 8 to 20 months old. Those old enough are being bred to a first prize son of Prince Gelsche Walker, whose dam has a high yearly record. Some of these heifers are sired by bulls whose dams have from 35 to 37-pound records. They carry the very best blood of the breed and are good enough for any herd, anywhere. Prices to fit any pocketbook. Geo. A. Smith, Corcoran, Cal.

D. O. Lively Stock Farm, Inc., 215 Hobart Bldg., San Francisco. Breeders of Hereford cattle. A few choice heifers for sale. We buy and sell live stock on commission. Farm at Mayfield, Cal.

For Sale—Ayrshire Bull, 4 years old February, Santa Maria Prince No. 16266 Ayrshire Breeders' Association. Bred by Brown & Brandon. Santa Maria Ranch Company, Watsonville, Cal.

Venadera Jerseys, the herd with official yearly records. Calves of both sexes for sale. Guy H. Miller, Route 1, Modesto, Cal.

For Sale—Ten heifers, 12 hogs. Some registered jennies and colts. A. L. Allen, Perris, Cal.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

FARM LANDS FOR SALE

Finely Improved 20 acres of almonds and alfalfa. For prices and description write George Arbuthnot, Manteca, Cal.

State, Government and Indian Lands. Bargains overlooked. Free New Blue Booklet, Joseph Clark, Sacramento.

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FOR SALE—WHY BUY NEW?
SAVE HALF

Material guaranteed. It's 2nd hand after used few times, but not necessarily worn out.

NOTICE TO OUR CUSTOMERS

Our prices on used windmills, used redwood tanks, and ranch tools are same as they were years ago. Advance on great many articles is a fad which we refuse to follow.

Price on new galvanized iron tanks and pipe we have been compelled to raise on account of new material costing us more.

WINDMILLS

Let the wind do it. 8-ft., $21.50; 10-ft., $28 to $32.50; 12-ft., $45 to $55. Have three 16-ft. mills; cost new $285; our price $125, and $95. Pumps as much as 4-h.p. engines for nothing once installed. Beats gas at 19c.

TANKS—TANKS
USED AND NEW GALVANIZED AND REDWOODS.

1000-gal., $32.50; 2000, $44. Have used galv. 500, 1000, 1500, 10,000-gal. storage, $125; 14,000, $200. 20,000 heavy corrugated, nearly new; cost $600, for $235. Redwoods all sizes.

ENGINES. PUMPS. PIPE.

Most all sizes—in good shape.

Centrifugal pumps, 2-in. $24; 3-in., $35; 4-in., $45; 5-in., double runner, $95; all size plunger pumps, $5 up; new pump jacks, $12.50; double-acting No. 3 Ames, $200, cost $660; Means double-acting deep well pump, $275; pumps 50 inches; 12-h. Lambert engine; 9-h. Foos, $135; 6-h. Stearns, $89. Many other first class engines very cheap.

Brass Cylinders, All Sizes.
Plunger rods, pipe, pipe fittings.
Ranch Machinery. Sundries.

Walking, riding plows, $15 to $22.50; fine 2-gang mouldboard plow, $45; 2 or 4-gang disc tractor plow; alfalfa renovator, $25; 24-disc, 4-horse harrow, $38; fine Bull tractor, $295; cement mixer, $35; sprayer, $19.50; mowers; buck rake, $25; power hay baler; bone grinders, $5 to $12; corn sheller, feed grinders.

Wanted to buy first class material. No junk wanted. Pioneers in our line. DEMMITT CO., Upstairs, 120 N. Main. Yard, 816 Yale, Los Angeles.

For Sale—Good as new, one 2-stage centrifugal pump 1¼-inch, cost $100. Will take $40. United Iron Works make; One 1-inch American make centrifugal pump, cost $30, will take $15; one American Bean thresher, cost $450, used 20 days. Will take $250. Chas. Maha, Arroyo Grande, Cal.

Several new and slightly used engines at a bargain. Best makes. 1 to 35 h.p. Arnott & Company, Wholesale Machinery and Implements, 112 South Los Angeles St., Los Angeles, Cal.

For Sale—New and second hand distillate engines, pumping machinery of all kinds. Be sure and get our prices, it will pay you. Wm. Gregory & Sons, 602 N. Main St., Los Angeles.

For Sale—38 H.P. "Otto" gas engine in good shape, at a bargain. E. A. Hayes, El Monte, Cal. Phone 48 R.

For Sale—Yuba tractor No. 12 in A1 condition. Plow and cultivator if wanted. Satisfactory reason given for selling. Address P. O. Box 306, Colton, Cal.

FARMS WANTED

Wanted to hear from owner of farm or fruit ranch for sale. O. O. Mattson, Minneapolis, Minn.

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Roofden Ranch Chicks are well hatched from first class utility breeding stock; money making egg producers our aim, and the prices are right. 7 to 14c, depending on breed, month, quantity (dozen to thousands). White, Buff, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks. For Dollars and Sense. Send card for circular. Roofden Poultry Ranch and Hatchery, Campbell, Cal.

Your Opportunity! 200-290 Egg Early Maturing, Winter laying Leghorns, Reds, Anconas; White, Buff Wyandottes; White, Barred Rocks; Buff Orpingtons, $3-$10 yearly profit every breeder. During May-June, EGGS HALF, CHICKS FOURTH OFF. Few pens, all breeds bargain make room. Guaranteed profit feed high. C. Beeson, Pasadena, Cal.

East Side Poultry Yards, Established 1904. Our object egg type and size for ideal utility stock. Thoroughly Hoganized, correctly hatched baby chicks, dozen or thousand. White Leghorns $7 per hundred, R. I. Reds, 12c for May and June. Satisfaction guaranteed. 255 S. 18th St., San Jose, Cal.

Baby Chicks, reasonable prices—White Leghorns, R. I. Reds, settings, 100's-1000's. Hatched right in our $60,000.00 brick and concrete hatchery from our quality heavy layers. Stock, hatching eggs. Pebbleside Poultry Farm & Hatchery, Sunnyvale, Cal.

Baby Chicks from my carefully selected, thoroughbred flock of S. C. White Leghorns, June and July delivery at $9 per 100, $85 per 1000. A strong, thoroughbred chick at a reasonable price. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

Free—How to Mate and Breed Rhode Island Reds. Just what you want to know, but could not get correct information. Send stamp. Trap-nested stock, both combs, big dark velvety red strain for sale. Ava Poultry Yards, Ava, Mo.

Baby Chicks—Hatching Eggs. White, Buff, Brown Leghorns, R. I. Reds, Barred Rocks; sturdy chicks from well mated fowls. Prompt, efficient service. Write for circular. Campbell Poultry Ranch, Campbell, Cal.

White Leghorn Breeding Cockerels, 10 months old, from our famous heavy laying, prize winning stock. To make room we offer our regular $5.00 VALUES at $2.50 EACH while they last. RANCHO DEL MARTINO, Downey, Cal.

Model Poultry Farm, White Leghorn specialists. Baby chix and hatching eggs from heavy laying stock, bred by us for thirteen years. Our prices are right. W. C. Smith, Prop., Corning, Cal.

Petaluma Hatchery, Established 1902, Capacity 16,000 chicks a week—the kind the hen hatches. Five varieties. Send for free circular. L. W. Clark, Petaluma, Cal.

Baby Chicks—White Minorcas and Golden Buff Leghorn. Two popular breeds. Cockerels for sale. Sandridge Hatchery, Kerman, Cal.

Earl E. Sanders, Modesto, Cal., breeder of M. B. Turkeys, S. C. White Minorcas, S. C. Black Minorcas and S. C. Barred Plymouth Rocks. Nothing but the best.

Incubators—Essex Model Incubators at factory prices. Write Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco. Poultry supplies.

"Eastman's Bred-to-Lay" Barred Plymouth Rocks. Chicks, eggs, cockerels. We Hoganize and trapnest. Fairmead Poultry Farm, Fairmead, Cal.

Baby Chicks—White Leghorns, Brown Leghorns, Reds, Barred Rocks, Black Minorcas, Anconas. Prices on application. Orland Hatchery, Orland, Glenn Co., Cal.

Rainescourt Reds—Eggs from prolific laying strain and exhibition winners from $1.50 up. Day old chicks $15 per 100. Rainescourt Poultry Ranch, Zeizah, Cal.

Day Old Chix—Barred Rock, R. I. Reds, White Leghorns, Black Minorcas, Light Brahmas, Buff and White Orpingtons. Enoch Crews, Seabright, Cal.

Baby Chix — White Leghorns, White Rocks, "quackless" White Muscovy ducklings. White Star Hatchery, Kerman, Cal.

For Sale—Rhode Island Red Baby Chicks from our carefully selected matings. $12.00 per hundred. Williams Poultry Place, 236 No. Gage, Los Angeles.

Turlock Hatchery—Baby chicks. A chick that will live. Turlock Hatchery, Turlock, Cal.

Bantams—Cochins, Seabrights, all colors. Selling 100 birds. Ben Kuechel, Orange, Cal.

Guinea Eggs $1.00 per setting, postpaid. E. A. McKinley, Ukiah, Cal. R. D.

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Large Assortment slightly used and agents' sample plows, harrows, cultivators, wagons. Call and see them before buying. Save 50 per cent on some. Four floors. Largest stock. Arnott & Company, Ranchers' Supply House, 112 to 118 South Los Angeles St., Los Angeles.

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For Sale—175 to 250 colonies Italian bees with extra equipment; in eight-frame hives; can remain in present location if desired. Geo. A. Sill, Watsonville, Cal.

For Sale—148 dovetailed, 10-frame, bee hives, with extra fine covers and bottom boards. James McKee, Riverside, Cal.

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As has been our custom in the past, we are offering alfalfa seed both retail and wholesale. This is tested stock and up to our usual high standards. Samples, prices, etc., on application. Wire, write or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

• ALFALFA SEED OUR SPECIALTY •

• • SEEDS • •

Don't You Want pure home grown seeds? Of course you do. Ours are all tested and are good enough for anybody. Prices, information, samples, etc., upon application. Write, wire or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.

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Giant Winter Rhubarb Plants. Big profits. From ⅝ acre first season after planting I sold 675 boxes rhubarb, receiving $673.70. Grand prize San Diego Exposition. Big discount on plants for prompt orders. Booklet Free. W. A. Lee, Covina, Cal.

Seed Beans—We sell direct to the grower. Buy now before the advance. Our stock is carefully selected. Satisfaction guaranteed. Tell us the nature of your soil and we will suggest the best variety. Modesto Farmers' Union, Modesto.

Seed Corn—Egyptian white, large, pure white kernels. High germination test. None better offered. Also milo maize, feterita and Egyptian wheat. MODESTO FARMERS' UNION, Modesto, Cal.

Plant a Few Acres of Dwarf Milo Maize for seed. Good seed requires about 2 pounds per acre. Choice pedigreed Dwarf Milo 10c per lb. Delivered your station. Fred M. Mahoney, Box 420, Tulare, Cal.

Dwarf Milo Maize, grown from seed personally selected yearly from field. Samples and prices on application. Chas. N. Tufts, Brawley, Box 46A.

Alfalfa Seed—The very best, guaranteed 16c. Wm. Stuthman, 1239 West Pico St., Los Angeles, Cal.

Sudan Grass Seed—100 per cent pure, state analysis 40c lb. Kelly's Nursery, El Centro.

Nurserymen—Pot grown conifers, palms, shrubs and ferns for lining out or potting. Ballou's Nursery, Pasadena, Cal.

SUDAN GRASS SEED
C. Meyer, San Bernardino, Cal.

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Money to Loan—On improved farms, city property, or for building loans, also on cattle or cotton crops. C. G. Paul, 407 Chamber of Commerce Building, Los Angeles, Cal.

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Strong, healthy stock is PROFITABLE stock. Increase your profits by freeing your cows, calves, hogs and horses from sickness and disease.

Use "Kow-Kure" for abortion, barrenness, bloody milk, colds, cow-pox, diarrhea, milk fever, tuberculosis, etc.

"Bag Balm"—a soothing, healing, penetrating ointment that produces immediate relief.

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We also recommend Conkey's and the International foods, and worm remedies, and Pratt's Animal Regulator—for cows, hogs and horses. Send for free literature.

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Established 1871
328 - 330 SOUTH MAIN STREET
LOS ANGELES - CAL.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit". It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

Second Hand Pipe For Sale—All sizes standard water pipe and screw casing, half inch to ten inches. Also valve and fittings. Guaranteed good as new. Cheap for cash. Write for our prices. Weissbaum Pipe Works, 169 Eleventh Street, San Francisco.

While the War Lasts—To help farmers grow larger crops at lower cost I reduce my charge for soil analysis from $11.50 to $7.00. Get particulars from R. R. Snowden, Agricultural Chemist, 320 Stimson Bldg., Los Angeles, Cal.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

TURKEYS

Bronze Turkey Eggs—$2.00 per ten from now on. Baby turkeys, choice lots of 15, with turkey mother, $10. Brehm Bros., St. Helena, Cal.

Eggs For Sale from my prize winning Mammoth Bronze turkeys. Hens weigh 20 pounds, gobblers over 40, $5 per dozen. N. E. Mulick, Willows.

PATENT ATTORNEYS

Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS".

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CASE TRACTORS
Threshers and Road Graders
IMMEDIATE DELIVERIES

VISALIA GETS A GOOD ONE

Continued from Page 575

Steele's Grants Pass, Oregon, herd, and brings with her the prestige of the best of breeding as well as show ring records. She is called Duke's Lady Value 10th, was first under year sow in 1913 at the Indiana, Tennessee and Kentucky fairs winning same award that year at Memphis and at the American Berkshire Congress. She was grand champion at Indiana, Tennessee and Memphis Fairs and junior and reserve grand champion at the American Berkshire Congress in the same year. As to breeding it could hardly be better. She is sired by Baron Duke 170th, who was grand champion boar of America in 1911. She is out of produce of dam champion of America 1913. She is bred to Laurel Champion, the twice grand champion of the Northwest Circuit, who has sired more prize winners than any other boar in the United States. She and her progeny should do much for the breed in California.

PREPAREDNESS, TRAIN

Three states and the Salt Lake railway are uniting in a great "Preparedness' agricultural demonstration train. This train started on May 1 from Sandy, Utah. It passed through that state and a part of Nevada and on Thursday of this week reached Victorville, this state. Friday and Saturday it is at Ontario and San Bernardino. Monday, the 21st, it spends a day at Riverside, 22nd Pomona, 23rd Whittier, 24th Pasadena, 25th Long Beach, 26th Glendale, and 28th Los Angeles.

This is said to be the most elaborate educational special ever operated by American institutions combined with railways. There are 12 cars of exhibits in the train. The agricultural colleges of California, Utah and Nevada unite in supplying the educational force of 20 instructors.

The 12 cars are filled with exhibits of nearly all kinds of farm implements and farm machinery. Tractors are exhibited from three of the largest tractor manufacturers. One entire car is given over to electric devices, including generators, dynamos, motors, etc., and one car is devoted to bean culture and to demonstrating forage crops. In addition there is one car devoted to a demonstration of Red Cross work, and another is used by the Utah and Idaho Sugar Company, combined with the Southern California companies, in displaying exhibits illustrative of every phase of sugar beet culture. We believe the exhibition cars will be placed in the yards of the Salt Lake railway in each town.

ORCHARD PLANTING IN MERCED COUNTY

Horticultural Commissioner Beers of Merced County sends in the following plantings:

Number of trees and vines planted in Merced County season 1917: Grape vines, 1,131,383; almonds, 42,145; cling peaches, 24,481; figs, 7584; freestone peaches, 5047; apricots, 4971; prunes, 2502; olives, 2080; walnuts, 1444; other fruit trees, 1649.

PROFITABLE SILOS

Note the "Prosperity Sign" on front cover this week. "Silos everywhere" should be the slogan of California live stock men. These silos are the "Perego" made by the Redwood Manufacturers Company, 1904 Hobart Building, San Francisco. Write that concern for other photos and information.

These silos are on the ranch of the Stanford University at Mayfield and have proved entirely satisfactory. Read page 554.

Gombault's
Caustic Balsam
The Worlds Greatest and Surest
Veterinary Remedy
HAS IMITATORS BUT NO COMPETITORS!

SAFE, SPEEDY AND POSITIVE.

Supersedes All Cautery or Firing. Invaluable as a CURE for
FOUNDER,
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BONY TUMORS,
LAMENESS FROM SPAVIN,
QUARTER CRACKS,
SCRATCHES,
POLL EVIL,
PARASITES.
REMOVES
BUNCHES or BLEMISHES,
SPLINTS,
CAPPED HOCK,
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SAFE FOR ANYONE TO USE.

We guarantee that one tablespoonful of Caustic Balsam will produce more actual results than a whole bottle of any liniment or spavin mixture ever made Every bottle sold is warranted to give satisfaction Write for testimonials showing what the most prominent horsemen say of it. Price, $1.50 per bottle. Sold by druggists, or sent by express, charges paid, with full directions for its use.

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VETERINANY REMEDY
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NOTHING BUT GOOD RESULTS.
Have used GOMBAULT'S CAUSTIC BALSAM for more than 20 years. It is the best blister I have ever tried. I have used it in hundreds of cases with best results. It is perfectly safe for the most inexperienced person to use. This is the largest breeding establishment of trotting horses in the world, and use your blister often.—W. H. RAYMOND, Prop. Belmont Park Stock Farm, Belmont Park, Mont.

USED 10 YEARS SUCCESSFULLY.
I have used GOMBAULT'S CAUSTIC BALSAM for ten years; have been very successful in curing curb, ringbone, capped hock and knee, bad ankles, rheumatism, and almost every cause of lameness in horses Have a stable of forty head, mostly track and speedway horses, and certainly can recommend it.—C. C. CRAMER, Training Stables, 990 Jennings Street, New York City.

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TORONTO, ONT. CLEVELAND, OHIO.

Sunnyside Herd Registered HOLSTEINS

This herd contains many of the daughters of ARCADY PONTIAC WAYNE HENGERVELD, 26 A.R.O. daughters, with records up to 28.08 lbs. butter in 7 days. He has the largest number of A.R.O. daughters of any bull yet developed in California. These, with other well bred cows and heifers, many with good official records, are now headed by

Sir Veeman Korndyke Pontiac

the only son of Sir Veeman Hengerveld on the west coast. His dam is a 30-lb. cow, and combined with his great record backing he is a first class individual and is siring a fine lot of calves.

A few young bulls for sale.

R. F. GUERIN - Visalia, Cal.

LADY LEOLA HENGERVELD 28.08 lbs. butter in 7 days. Sire: Arcady Pontiac Wayne Hengerveld 26 A.R.O. daughters

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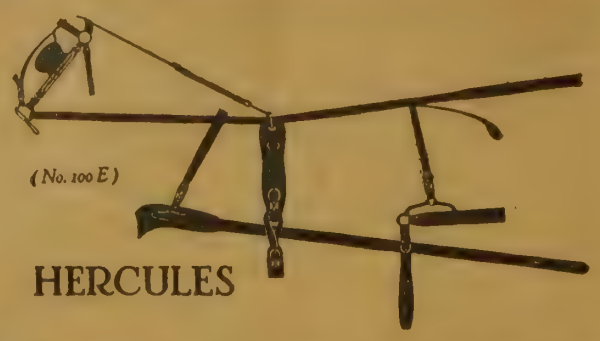

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California oak-tanned leather lasts longest.

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Anoakia Breeding Farm

ARABIAN-THOROUGHBREDS: Two-year-olds, sired by imported Stallion Ibn Mahrusa, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahrusa, world renowned imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three-year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars, Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Geischo Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent - Santa Anita, Cal.

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Flush Out the Cow After Calving

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B-K is more effective than lysol, carbolic acid, Lugol's solution and oily coal-tar disinfectants, which all make the uterus more acid, and do not clean. B-K heals the uterus and vagina by cleaning and removing the slime and acid. It kills the germs because it is much more powerful. The application of B-K as a douche is simplicity itself.

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El Dorado Holsteins
Headed by
SEGIS PONTIAC DE KOL BURKE LUIT.

Out of a 32.76-pound 4-year-old. His sire is a son of Riverside Sadie De Kol Burke, 32.29 pounds butter in 7 days.

Herd officially tested for 7 and 30 days.

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The Demand for Horses

Wayne Dinsmore, secretary of the Percheron Society of America writes:

"The United States, now actually at war, confronts the tremendous task of increasing its production of foodstuffs sufficiently to provide amply for its own people and to supply all the foodstuffs needed by the allied nations.

"Maximum crop production requires plenty of horses, men, and efficient farm machinery. Powerful draft horses do more to compensate for labor shortage than any other factor. Gang plows of two 14-inch bottoms, with five powerful draft horses, will turn from five to five and a half acres per day; will, on a 20-wheel disk harrow cutting nine feet in width in the field, disk from 14 to 18 acres per day; and on a 20-hole disk seed drill will seed from 18 to 20 acres per day and cover it in the same operation. Only heavy draft teams can make such efficiency possible. Horses weighing over 1600 pounds each in working condition are needed, and five of them to each farm teamster employed. Where such heavy draft horses are not available, smaller implements are used, and the daily turnover in work accomplished falls to approximate half that which is being done by men with heavy teams and plenty of them.

"The United States does not need an increase in mere numbers of horses and mules. It does need an increase in well proportioned, powerful draft horses. There is no danger of overproduction of good thick farm chunks weighing from 1300 to 1600 pounds. This latter can be, and are being, produced by breeding common light mares of mixed blood weighing from 900 to 1400 pounds each, to sound well proportioned Percheron stallions. Every mare of this kind should be bred to the best draft stallion available, and every draft mare should be bred to the best stallion within reach.

"The breeders of small numbers of Percheron horses, who make up 90 per cent of American breeders, are unanimously of the opinion that they have never had so prompt sales for good stallions rising two or rising three nor received so satisfactory prices as during the past eight months. Importations are practically nil, and the steady increase in demand for good draft horses gives promise of a most excellent future for the shrewd farmer who realizes the advantage of using Percheron mares in his farm work.

"Exports of horses to Europe for war purposes from September 1, 1914, to March 1, 1917, totaled 853,116 head, valued at $182,994,406 and 289,062 mules, valued at $58,051,914. British army officers have given unstinting commendation to the grade Percherons which have been sent from this country to Europe for artillery purposes. The effectiveness of the Percheron has been so great that studs of pure bred Percherons have been established in Great Britain in consequence."

Silage Increased Profit on Cattle

Scott Cunningham of Palmyra, Missouri, has found a more profitable cattle feeding plan after three years of careful study and accounting. His first two trials with cattle were less profitable than he had expected, although they were conducted in the usual manner. His first car of cattle, averaging 598 pounds a head, was bought in March, 1913, at $7.15 per hundred. From March 29 to May 23 they consumed 35 tons of silage and five tons of wheat straw. Then they were pastured until September 20. The pasture was valued at 90 cents per head per month. From September 20 to November 1 they received gain on pasture. These cattle consumed 890 bushels of corn, 8 tons of clover hay and 1½ tons of cottonseed meal up to January 12 when they weighed 1051 pounds and were sold for $8.10 a hundred, or a total of $2085. The cost of the cattle, including feed, was $2055.92 or only $29.08 below the selling price. This plus $185 worth of pork produced behind the cattle constituted the $214 profit on the 25 head.

A similar lot of cattle was purchased in the winter of 1915 and handled in much the same manner with the exception that the cattle were fed 200 shocks of corn and five tons of mixed hay, instead of silage and straw, before they were turned to grass. From May 1 to October 1 they were pastured. During the four months following October 1 the cattle were fed 800 bushels of corn, ten tons of mixed hay and three tons of cottonseed meal. On February 5, 1916, they averaged 1149 pounds a head and were valued at eight dollars a hundred. The sale price was $221.16 less than the cost of the cattle and the value of the feed they consumed. However, $307.50 worth of pork was made behind these cattle, and consequently they returned a profit of $86.54.

Grazing operations as a whole proved profitable. Realizing that he must continue in the cattle business to find a market for his roughage and grass, he began to seek a means of finishing his cattle at less cost. The next lot of cattle was bought in February, 1916, at $7.25 a hundred and averaged 638 pounds at home. From February 6 to May 1 they were fed 25 tons of silage, four tons of clover hay and one ton of cottonseed meal, after which they were grazed until October 1. The feed from October 1 to December 19 included no corn except that in the silage. During this period the cattle consumed seven tons clover hay, 3½ tons cottonseed meal and 36 tons silage. They were valued at $8.50 a hundred December 19 when they were sold for $2108.95. This minus $1587.15, the original cost including feed, left a profit of $521.80. No hogs followed the cattle. The feeding plan in 1916 not only proved more profitable on high priced feed than in 1915 but made a larger gain on less feed.

According to S. T. Simpson of the Missouri College of Agriculture, Mr. Cunningham's 1916 feeding plan is similar to that of many other feeders. The use of silage and the reduction of the corn ration is the latest departure in beef making. While Mr. Cunningham's experience in itself is not conclusive, yet feeders and experiment stations are finding similar plans equally profitable and it is safe to assume that the principle is sound.

Holstein Bulls

Well bred, vigorous, registered Holstein bulls of good type for sale. Steady sales have moved all our bulls of service age, but we have a few unusually good calves to offer at moderate prices

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Berkshire Hogs—Milking Shorthorns
Breeding Stock For Sale
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A Minimum Ration

Written for California Cultivator By Jean A. Koethen

A FRIEND who has been quite successful with her back-yard flock writes: "So far with my two dozen Rhode Island Reds I have come out ahead every month, but at the present prices I am fearful that it is asking too much for the good hens to pay their board."

The problem is a serious one, and some flocks are going to the butcher because of it, while many poultrymen, unwilling to see their hens and their living go, are making a gallant fight to find some way of cutting down with advantage, not for Leghorns, perhaps, but for hens of the heavy breeds, which so readily put on fat. Some breeders maintain that if you can only keep a hen laying she will not lay on fat; others see the reverse of the shield and say, "Feed her so she will not put on fat and she will lay."

Lee R. Wellington of Inglewood is one of the latter. He has studied the feeding of White Rocks and Light Brahmas for a number of years and is convinced that these breeds, at least, can be fed much more cheaply than they generally are. He has worked out a ration which keeps his hens in the pink of condition at the minimum expense, and has used it for three years, long enough to test its merits. During that time some of his Light Brahmas have made remarkable records, not only in their pullet year, but in the second and third, an age when most heavy hens have put on so much fat that they are of little use.

Mr. Wellington prepares the following mixture, to be used as needed: Three pounds each of fish meal, beef scrap, bone meal, oil cake meal, chilt pepper (chopped fine), and blood meal; two pounds charcoal, two pounds sulphur, one pound Epsom salts, half pound table salt. For the morning mash one pint of this mixture is added to one gallon of bran, and to this is added ten gallons of cut clover. When all is thoroughly mixed, sufficient water is added to make the bran stick to the clover. The hens are given all they will eat of this in half an hour or thereabouts. If any remains in the trough it is removed. No more food of any kind is given until late in the afternoon, when rolled barley and whole oats are thrown in deep litter. By this time the whole flock is hungry enough to scratch for its supper, and each hen gets a good square meal with exercise to digest it. Mr. Wellington finds that his Rocks need more of the mash than his Light Brahmas. When the mixture is fed to Mediterraneans the proportion of mash to clover is doubled. The above formula, one gallon of the bran mixture and ten gallons of clover, makes a breakfast for 75 heavy hens.

Even on this ration a hen sometimes begins to put on fat. The flock is inspected every week or two, and when a hen is found with a fat, flabby abdomen instead of a hard, muscular one, she is given a capsule of Epsom salts and another of sulphur. These capsules cleanse the system and help it to dispose of the extra fat, and the hen is soon back on the job.

The same egg mixture, slightly modified, is used for baby chicks. The chicks are started on rolled oats and chick feed. After two or three days the following mixture is placed before them in hoppers: One gallon bran, one gallon shorts, one pint of the egg formula used in the laying mash. At the end of three weeks this is replaced by the regular laying mash. The chick feed is exchanged about this time for growing chick feed, and later another change is made to the rolled barley and whole oats which is given layers. These changes in the grain mixture are gradual, as all such changes must be. No definite time can be set for changing from a finer to a coarser grain, for all depends on the way the chicks have been fed. Chickens will turn away from Egyptian corn at two months of age if it has not been given them before, while three weeks' old birds that have had it before them from the start will eat it eagerly.

When Mr. Wellington's chicks are about two months old, a mixture of bran and alfalfa molasses is put before them in the hoppers, and is kept before them, while the laying mash is given only in the morning when it is given to the hens. This simplifies the feeding program, while the bran and alfalfa is an excellent food for developing size and hastening growth. On such a ration as this Brahmas can be raised to laying age as cheaply as Leghorns, and when carefully fed they lay nearly as many eggs—quite as many, their admirers say, but this is probably a matter of strain rather than breed. Without doubt the Light Brahma, properly fed, is one of the best of dual purpose fowls and a bird to please the fancier's eye as well. But the Brahma, like the Rock and the Orpington, is not a bird that can be left to select its own ration or be brought up on a haphazard diet.

Stale Bread for Poultry

We have a communication from Mrs. L. M. Larson, Santa Barbara County, in which she advises looking to the wastes and saving all that is possible, especially feed concentrates which at this time are exceptionally high. As she says, with eggs selling wholesale at 20 and 25 cents the small poultryman will be glad to find a substitute for high priced grains. She says that stale bread may be purchased from bakers at from one and a half to two and a half cents per pound. If so, this is an economic question which calls for correction, that is, if such waste is made by bakeshops to any general extent. With flour over five cents per pound it is a criminal waste which in present times should not be permitted, but admitting that great quantities of this stale bread might be purchased, is it as economical as it first appears? Analysis shows that bread contains around 35 per cent of moisture. Stale bread naturally would contain a less percentage, but approximately not far from one-third water. In a good hard grain feed there should not be to exceed ten per cent of moisture. This factor must be taken into consideration in figuring actual feed values. With stale bread at two and a half cents per pound and wheat at three cents, wheat is much the cheaper feed. Excepting possibly for young chicks, there is no advantage, in fact the reverse, for actual experiments have shown that the cooking of feed for animals as a rule lowers its nutritive value.

However, w quote a portion of Mrs. Larson's letter:

"Stale bread, dry, soaked in milk or water, has produced such excellent results at less than a third the cost of grain that both the large and small poultry raiser will find it very beneficial to his flock and purse. Stale bread can be bought at from one and a half to two and a half cents per pound, and if bought in large quantities, even cheaper. A large gunny sack of bread will average about 40 cents. Stale doughnuts and snails may be bought for the same price. One regular ten-cent loaf, if soaked in either milk or water, will feed 12 hens at a feeding. The water that has been poured off vegetables may be saved, and is found very helpful where milk cannot be obtained. For baby chicks there is nothing to be found that will promote the growth that bread and milk does.

"Soak the bread first in warm water and ring out dry. Take either sweet or sour milk and pour on just enough to make it soft, but not enough to make it sloppy. Feed on clean boards and be sure there are enough boards so the chicks will not crowd. One half loaf of bread will feed 55 baby chicks the first week and a half, it fed in small quantities four times a day while they are small. Keep adding to the amount of bread gradually until at the end of two months you are feeding one and one-half loaves. Make this into two feedings. I always feed a small amount of grain before feeding them the bread. This forms a grit and helps digest it more readily, and the bread does not stick together in the crop. I have found chickens fed in this way, with but little grain and plenty of green stuff, to lay at four and a half and five months of age. They must always have plenty of grit before them. Clean ashes are found fine to let them pick the bits of charcoal and grit from, also fine for dusting purposes.

For Rabbits

"For rabbits bread fixed the same as it is for baby chicks (except do not use the sour milk) and fed in small amounts will keep them very fat and make the meat a fine flavor. One loaf will feed eight grown rabbits."

NATIONAL EGG LAYING CONTEST AT MOUNTAIN GROVE, MISSOURI

By C. T. Patterson

April report.—The contest is moving along nicely, the hens making a record average of 20.88 eggs per hen for April, which is the highest average ever made in any contest at this place.

Many ties occurred for the five highest places for April. The honors were distributed among many varieties. The pens occupying the five highest places for April are as follows: S. C. W. Leghorns, Pennsylvania, 130 eggs; Barred Rocks, Missouri, 124 eggs; White Wyandottes, Missouri, 124 eggs; White Rocks, Missouri, 124 eggs; S. C. W. Leghorns, Missouri, 124 eggs; Missouri White Fluffs, Missouri, 120 eggs; S. C. W. Leghorns, Missouri, 119 eggs; Black Orpingtons, Missouri, 119 eggs; S. C. Reds, Iowa, 117 eggs; R. C. R. I. Whites, New Jersey, 117 eggs; S. C. W. Leghorns, Pennsylvania, 117 eggs.

The hens holding five highest places for six months are as follows: Pen 35, White Wyandotte, Missouri, 152 eggs; Pen 11, Barred Rock, Missouri, 148 eggs; Pen 29, Buff Orpington, Missouri, 142 eggs; Pen 35, White Wyandotte, Missouri, 142 eggs; Pen 19, R. C. R. I. White, New Jersey, 140 eggs; Pen 28, S. C. Red, Iowa, 138 eggs; Pen 52, S. C. White Leghorn, Missouri, 138 eggs.

All hens in the ten highest producing pens to date have averaged more than 100 eggs each in the six months.

Since 1902

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Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface. Send for catalog 115.

One Pump Will Do Your Work.
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PRICES RIGHT—QUALITY RIGHT
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PLANT YOUR POTATO LAND WHEN CROP IS OFF TO
Rhubarb
If planted then you can expect BIG PROFITS by fall or early winter.
OTHERS MAKING $2,000 PER ACRE ANNUALLY — SO CAN YOU. Don't put it off any longer. April, May, June positively best months to plant. Write
J. B. WAGNER
"Rhubarb Specialist"
PASADENA - CALIFORNIA

DRY MASH
GLOBE A-1
The food with the punch. Gets the eggs. Highest analysis, cheapest price $2.95 per 90-lb. bag. Special price on quantities. Write for free feeding sample and descriptive circular. At your dealers or
GLOBE MILLS
Los Angeles, Whittier, Fullerton, Santa Ana, San Pedro, Inglewood

KILLS
Lice and Mites
Simply apply to the roosts and dropping boards. Fumes do the work.
Sold Everywhere Globe Mills, Los Angeles

Free Books on Poultry
Lee's Poultry Book.
Secrets of Success with Chickens.
Common Sense Chicken Talks.
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How to Treat Poultry Diseases.
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Right Now use DEVIL'S DUST and Kill Lice and Mites
Devil's Dust is a deadly poison to all insect life; harmless to poultry, stock, plants
Globe Mills Los Angeles, Cal
Sold Everywhere

Tells why chicks die
E. J. Reefer, the poultry expert, 4265 Reefer Bldg., Kansas City, Mo., is giving away free a valuable book entitled, "White Diarrhoea and How to Cure it." This book contains scientific facts on white diarrhoea and tells how to prepare a simple home solution that cures this terrible disease over night and actually raises 98 per cent of every hatch. All poultry raisers should certainly write Mr. Reefer for one of these valuable FREE books.

At the bottom of your letter to advertisers just say "California Cultivator" and prompt reply is assured.

Baby Chicks Many Varieties
Ten, 12 and 15 cents. We ship everywhere. Free 66-page illustrated catalog. Ducks, Turkeys, Rabbits, Guineas, Pigeons, etc.
Pioneer Hatchery, 320 S. Spring St., Los Angeles

Los Angeles Market

LOS ANGELES, May 16, 1917.

BUTTER

Wholesale prices:

Rcts. wk. ending May 15, 315,790 lbs.

California extra creamery 35
Prime first 33
Fresh extras 33

Extr. Cr'y Exch. past week.

May	9	10	11	12	14	15
'17	.34	34	35	35	34	35

CHEESE

Brokers' prices:

California fresh, lb. 24
Oregon Longhorn 28
Tillamook Trip. 27

EGGS

Exchange quotations:

Rcts. wk. ending May 15, 3415 cases.

Fresh extras 33
Case count 31
Pullet 29

Fresh Ranch Exch. past wk.

May	9	10	11	12	14	15
'17	.32	32	32	32	33	33

POULTRY

We quote from growers:

Broilers .....18@21
Fryers 25
Hens—Leghorns 12-15; Heavy Col'd..20
Roasters 25
Geese 15
Ducklings, lb. 20
Squabs, doz. .....3.00@4.00
Roosters, old 9
Turkeys .....23@25

LIVE STOCK

We quote cwt. f.o.b. D. A.

Cattle—
Beef steers, av. 1000 to 1100 lbs.....10.00
Heifers, good 8.00
Cows, good .....7.00@7.50
Fair .....6.50@7.00
HOGS—
Av. 125 lbs. 11.75
Av. 150 lbs. 12.50
Av. 175-225 lbs. 13.00
Rough, docked 20 lbs.; piggy sows, 40 lbs.; stags, 40%.
Prime wethers .....9.50@10.00
Ewes .....9.00@9.50
Lambs 13.00
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:

Northern .....4.25@4.50
Oregon .....4.25@4.50
Russets .....4.50@4.75
Sweet, lb. 8
New, lug .....1.60@1.75

ONIONS

Wholesale selling price:

Onions, Brown, lb. .....8@10
Crystal Wax, cr. .....1.85@2.00
Bermuda, cr. .....1.85@2.00
Garlic, lb. 10

VEGETABLES

Wholesale prices:

Artichokes, doz. .....50@75
Asparagus, lb. .....6@7
Beans—Wax .....6½@7½
Ky. Wonder .....9@10
Beets, doz. bunches 45
Cabbage, lb. 4
Red, lb. 6
Carrots, doz. 45
Chicory, doz. .....40@50
Cauliflower, doz. 1.00
Celery, doz. .....1.00@1.20
Cucumbers, Hothouse, doz. ....1.00@1.50
Outdoor 1.70
Eggplant, lb. 20
Horseradish, rt. lb. 15
Lettuce, doz. 25
Leeks, doz. 30
Mint 40
Onions, green, doz. 25
Oyster Plant, doz. 45
Peas, lb., Telephone .....4@4½
Peppers, Chili, lb., 20; Bell .....30@40
Parsnips, doz. 50
Radishes, doz. 25
Rhubarb—Crimson Winter 85
Strawberry 1.25
Giant 1.35
Romaine, doz. 45
Spinach, doz. 25
Squash, Summer, cr. .....80@85
Turnips, doz. 45
Tomatoes, lug .....1.85@2.00

FRUITS

Wholesale prices:

Apples—W. W. Pearmain.....2.35@2.50
Newtown Pippin, Yellow.....2.10@2.35
Avocados, doz. .....6.00@10.00
Apricots, cr. 1.50
Bananas, lb. 5
Cherries, lb. .....12@15
Loquats, lb. 10
Blackberries .....9@10
Raspberries .....7@8
Gooseberries 10
Strawberries, basket .....4@5
Pineapples, lb. .....8@10

CITRUS

Lemons .....1.75@3.00
Juice 1.25
Grapefruit .....2.50@3.50
Limes, basket 1.00
Navels .....2.50@2.75
Tangerines, lug 1.50

HONEY

Wholesale prices:

Extr. lb. White 8½@9½c; A. 8½@9c; W.W. .....10@11
Comb., lb. W. 12½c; Lt.A.....12½@14c
W.W. 14½
Beeswax, lb. 32

NUTS

Peanuts, raw 11
Pine Nuts 20

BEANS

Wholesale Prices:

Lady Washington 17.00
Limas 17.00
Pinks 13.50
Manchurian Reds 11.00
Baby Mex. 8.50
Garbanzos 8.50
Small White 17.00
Blackeyes 12.00
Tepary 12.00
Lentils 18.00

HAY

We quote ton f.o.b. L. A. to producers:

Barley .....19.00@23.00
Oat, tame .....19.00@24.00
New Imperial Barley and Alfalfa .....21.00@22.00
Alfalfa, local, new 21.00
Stock 16.00
Straw .....10.00@12.00

GRAIN

Wholesale selling price f.o.b. L. A.

Wheat—No. 1 .....5.60@5.65
Corn—No. 2 yellow, 3.85; white.....3.95
Oats—White 3.05
Barley—Recleaned 2.95
Milo 4.15
Egyptian Corn 4.15
Rye 5.15

FEED STUFF

Wholesale, cwt. f.o.b. L. A.

Alfalfa Meal 1.75
Bran, Heavy 2.75
Shorts and Middlings 3.35
Alfalfa Molasses 1.80
Meat Scraps 3.60
Beet Pulp 1.80
Cracked Corn 3.90
Cracked Wheat 6.00
Cotton Seed Meal 2.60
Oat, C. L. 3.10
Bone Meal 2.45
Feed Meal 3.95
Green Bone 2.25
Fish Meal .....3.60@3.70
Rolled Barley 2.90
Rolled Oats 3.10
Hulled Barley 3.40
Hulled Oats 5.60
Scratch Feed, 10-sk. lots $4.75; 5-sk. $4.80; 1-sk. 4.85
Scratch Feed with grit, 20c less.
Oat Chop 2.10
Oil Cake Meal 3.30
Pigeon Feed .....4.65@4.65
Chick Feed 4.65, 5.00, 5.25
Blood Meal 4.20
Cocoa Meal 2.05
Rice Paddy 3.70
Gritless Chick Feed 5.25, 5.30, 5.35
With grits 20c less.

The Riverside County Council of Defense is making arrangements to secure ample storage facilities for the increased supply of food products which will be grown this year.

Alfalfa Land

For Dairying

Also First Class Orchard Land 10 Acres and Up

BRENTWOOD IRRIGATED FARMS

in Contra Costa County

(63 miles from San Francisco)

Easy terms of payment. For prices, etc. address

Balfour, Guthrie & Co.

Land Department

350 California St. -:- San Francisco

MORE CROPS

In these days of war and strife, the things we hear most about are more crops, and more abundant crops. Some eminent personage has said, "Whether for peace needs or for war necessities the use of fertilizer is the basis of crop production." The truth of this saying no one knows better than the man who uses Hauser's Organic Fertilizers. He gets more crops, more abundant crops and better crops.

Don't delay, communicate with Hauser Packing Company about your fertilizer needs, use fertilizer and get results.

HAUSER PACKING CO.

Los Angeles, U. S. A.

San Francisco Markets

SAN FRANCISCO, May 15, 1917.

BUTTER

Dairy Exchange quotations, lb.:

Rcts. wk. ending May 14, 757,700 lbs.

Fresh extras 35
Prime firsts 34½

Extr. Cr'y. Prod. Exch. past wk.

May	8	9	10	11	12	14
'17	.35	35	35½	35	34½	35
'16	.24	24	24½	24½	25	..

CHEESE

Dairy Exchange quotations:

Cal. Flats ...21@21½; Y. Am..23½@25½

EGGS

Rcts. wk. ending May 14, 21,455 cs.

Dairy Exchange quotations:

Fresh extras 34
Firsts 32½
Select Pullets 31
Firsts 30

Fresh Extr. Prod. Exch. past wk.

May	8	9	10	11	12	14
'17	.33	33½	33	32½	34	34
'16	.21½	22	22	..	22½	..

POULTRY

We quote from producers, lb.

Hens, large 22@24; Leghorns .....14@17
Small Colored .....19@21
Fryers, lb. .....33@35
Broilers, large, 26@27; small .....23@25
Roosters, old 12@14; young .....33@35
Squabs, doz. .....2.25@2.75
Ducks .....18@20
Geese .....19@20
Turkeys, live, lb. .....20@22
Belgian Hares, live 14@15; dr.....17@18

LIVE STOCK

Prices gross weight:

Cattle:
The following prices are for grass fed stock. Hay fed bring ½ to ¾c more.
Steers, lb., 7@9¼, cows an heifers, 4@7¼; calves, 7@9.

Sheep:
Wethers, 11; shorn, 1½@2c less; ewes, 10; lamb, lb., 12@12½.

Hogs:
Hard grain fed, wt. 100 to 150 lbs., 12
150 to 300 lbs., 14½@14¾; 300 to 400 lbs., 14@14¼; undesirable, 6@9.

POTATOES

Wholesale selling prices at wharf:

Delta Burbanks .....3.50@3.75
Oregon Burbanks .....3.75@4.00
New Potatoes, lb. .....4@5½
Garnet .....6@6½

ONIONS

Wholesale selling price on wharf:

Australian, cwt. .....5.50@6.00
Crystal Wax, cr. .....2.00@2.25
New Red, sk. .....2.50@3.00
Bermuda Seed, cr. .....2.00@2.25
Garlic, lb. .....1@3

VEGETABLES

Wholesale selling price:

Asparagus, bx., White .....2.50@2.75
Green .....1.50@2.00
Canners, bx. .....1.25@1.50
Artichokes, doz., large 50; small...25@35
Beans, String, lb., 6@8; Wax.....7@9
Ky. Wonder, 10; Winters .....8@10
Celery, cr. .....1.00@1.50
Cucumbers, bx., hothouse.....1.50@2.50
Lettuce, cr. .....50@75
Peas, sack .....1.25@1.75
Peppers, gr. lb. 30
Rhubarb, bx. .....75@1.00
Spinach, cr. .....50@75
Squash, Summer, cr. .....90@1.10

FRESH FRUIT

Wholesale selling price:

Apples—Newtown Pippins .....1.25@1.75
Bananas, bunch .....1.25@1.75
Cherries, Purple Guigne .....8@11
Other Varieties .....7@8
Strawberries—
Longworths, chest .....6.00@7.00
Large varieties .....4.50@5.00
Blackberries, cr. .....1.00@1.50
Gooseberries, lb. .....7@9

CITRUS FRUIT

Wholesale selling price:

Lemonettes .....1.25@2.25
Lemons .....1.75@3.50
Limes, Mex., cs. .....5.50@6.00
Grapefruit .....2.00@3.00
Navels, bx. .....1.50@2.90
Tangerines, half orange box.....1.75@2.00

PEACH PRICES

Please note the following advance in prices, effective Saturday, April 14, 1917, at 6 p. m. All prices are f.o.b. factories, California common shipping points. We reserve the right to refuse confirmation, at the following prices, unless f.o.b. factories where grades and varieties desired are available. All quotations are subject to our approval of variety and assortment, subject to our confirmation and subject to advance without notice; April-May shipment.

Price list No. 7 is hereby withdrawn and ineffective at 6 p. m. Saturday, April 14, after which time prices herein quoted shall apply.

	Yellows.	Muirs.
Standard Peaches	.06⅝	.06⅝
Choice Peaches	.07	.07
Fancy Peaches	.07½	.08½
Extra Fancy Peaches	.08	.08⅞
Slab Peaches		.06¼
Choice Peeled Peaches		.10
Fancy Peeled Peaches		.11½

Above prices, bulk basis.

For 50-lb. bxs., unfaced, add ..... ½c
For 50-lb. bxs., faced, add ..... ⅝c
For 25-lb. bxs., unfaced, add ..... ⅝c
For 25-lb. bxs., faced, add ..... ⅞c
For 10-lb. bxs., unfaced, add 1¼c
For 10-lb. bxs., faced, add 1½c

For prices on Graded Peaches, Original, in bags, add 1c to the bulk basis prices above quoted.

Ungraded, Original, bags, nothing to offer.

	Per Lb.
Choice peeled, 2-lb. cartons	.12
Choice unpeeled, 1-lb. cart.	.08½ .08⅝
Choice unpeeled, 5-lb. cart.	.08¼ .08⅜
Fancy unpeeled, 1-lb. cart.	.09¼ .09⅞
Fancy unpeeled, 5-lb. cart.	.09 .09¾
	Per Lb.
Choice peeled, 5-lb. cartons	.11¾
Fancy Peeled, 2-lb. cartons	.13¾
Fancy peeled, 5-lb. cartons	.12¾

The above prices are guaranteed against our own decline to June 30, 1917, and apply only to sales and shipments made direct to the recognized jobbing trade. No goods will be confirmed at above prices to coast or eastern brokers, or to speculators, it being our desire to eliminate speculation in dried peaches, we preferring to carry our stock in storage here on the coast until actually required by the jobbing trade.

DRIED FRUITS

Wholesale quotations:

PRUNES—Bulk basis, per lb: 30s, 8¼c; 40s, 8½c; 50s, 8¾c; 60s, 70s and 80s, 9c.

Other fruits, 50-lb. bxs:

	Standard.	Extra Choice	Extra Fncy.	Extra Fncy.
Apples	10¾c	11 c	11½c	....
Peaches	7⅝c	7¾c	8¼c	8¾c
Pears	6½c	8½c	9½c	11¾c

NUTS

Jobbers' Prices:

Almonds.—Exchange opening prices: Nonpareil, 19c; Ne Plus Ultra, 17c; IXL, 17½c; Drake, 16c.
Peanuts, Jap, 7@7½c; Eastern 7½
Pecans .....19@20
Pine Nuts .....15@17

BEANS

Jobbers' prices, cwt. recleaned:

Cranberry 12.00
Limas .....16.25@16.50
Bayous .....11.50@11.75
Garbanzos .....6.00@6.50
Cranberry 12.00
Small White .....15.75@16.50
Mexican Red .....11.50@12.00
Large White .....16.00@16.50
Pinks .....11.85@12.15
Horse Beans 6.50
Black Eyes .....10.25@10.50
Red Kidneys .....13.00@13.50

NUTS

Peanuts, Jap, 7@7½; Eastern 7½
Pecans .....19@20
Pine Nuts .....15@17

HONEY

Jobbers' prices:

Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. .....11@12
Ex. Fy. W. lb.....10c; Lt. A.....8
Beeswax, lb. .....30@32

HOPS

Prices to growers at shipping points:

Sacramento .....5½@8
Sonoma .....7@8
Mendocino .....7@8
Oregon and Wash., lb. .....5@8

RICE

Price to growers:

Cal. Rough cwt. .....3.50@3.75
Lower Grades .....3.00@3.50

HAY

Wheat, Fy., lt. bales.....33.00@35.00
Wheat or Wh. and Oats, No. 1.31.00@33.00
Wheat, or Wh. and Oat, No. 2.28.00@30.00
Oats, Choice Tame .....31.00@33.00
Other Tame .....28.00@30.00
Wild .....24.00@29.00
Barley .....27.00@30.00
Alfalfa, first cutting .....10.00@15.00
Stock Hay, new .....10.00@13.00
No. 1 Barley Straw, Baled.....1.00@1.25
Oregon Hay .....25.00@29.00

GRAIN

Grain Exchange prices, ctl.

Wheat—No. Bluestem .....5.25@5.40
Corn, California .....3.35@3.50
Corn, Egyptian White .....4.15@4.25
Oats, White Feed .....2.85@2.90
Barley, Feed .....2.85@2.90

FEEDSTUFFS

Wholesale prices per ton:

Bran .....47.00@48.00
Cornmeal .....71.00@73.00
Cracked Corn .....71.00@73.00
Cocoanut Meal .....35.00@36.00
Middlings .....58.00@60.00
Alfalfa Meal, carlots .....33.00@34.00
Shorts .....50.00@51.00
Rolled Barley .....61.00@63.00

SEEDS

Prices in round lots, lb.:

Millet, recleaned .....3¼@4
Alfalfa .....20@21
Flax .....5@6

Citrus Fruit Market

LOS ANGELES, May 16, 1917.

A much stronger condition obtains in the orange market, off sizes, however, showing a bit of weakness.

Lemons are also higher and every offering quickly picked up.

FROM THE AUCTION

May 8

New York: 34 cars Nav., 2 mixed, 2 lem. Prices slightly higher. Nav., $1.45@3.25.

May 11

New York: 22 Nav., 1 mixed, 1 lem. Nav., $1.45@3.15.

May 14

New York: 53 Nav., 2 Seedlings, 2 mixed, 1 lem. Nav., higher, $1.85@3.20; Seed., $1.95@2.15; bloods, halves, $1.05@1.40; lem., $2.30@2.95.

May 15

New York: 42 Nav., 1 Mike, 3 mixed, 3 lem. Nav., $1.85@3.10; lem., $2.10@3.35.

WEATHER CONDITIONS

For the Week Ending May 12, 1917

	Rainfall Wk.	Season	Norm.	Temp. Max.	Min
Eureka	.37	30.72	43.58	56	46
Red. Bluff	.02	17.10	23.95	84	50
Sacramento	.01	12.84	19.55	82	46
San Francisco	.01	15.73	21.70	64	48
San Jose	.00	12.41	16.32	72	42
Fresno	.00	7.07	9.31	84	48
San Luis Obispo	.00	22.54	19.95	74	48
Los Angeles	.00	15.05	15.38	82	52
San Diego	.10	9.92	9.77	80	54

Arlington, Riverside County, has decided to make an exhibit at the county fair.

Household Department

THE FLAG

Your Flag and my Flag!
  And how it flies today
In your land and my land
  And half the world away!
Rose-red and blood-red
  The stripes forever gleam;
Snow-white and soul-white—
  The good forefather's dream;
Sky-blue and true blue, with stars to
    gleam aright—
The gloried guidon of the day; a shel-
    ter through the night.

Your Flag and my Flag!
  And, oh, how much it holds—
Your land and my land—
  Secure within its folds!
Your heart and my heart
  Beat quicker at the sight;
Sun-kissed and wind-tossed,
  Red blue and white.
The one Flag—the great Flag—the
    Flag for me and you—
Glorifies all else beside—the red and
    white and blue!

Your Flag and my Flag!
  To every star and stripe
The drum beats as hearts beat
  The fifers shrilly pipe!
Your Flag and my Flag—
  A blessing in the sky;
Your hope and my hope—
  It never hid a lie!
Home land and far land and half the
    world around,
Old Glory hears our glad salute and
    ripples to the sound!

—Wilbur D. Nesbit.

THE GUEST OF HONOR

By Anne McQueen in Youth's Companion

MR. TILLER, seventy years old and spry for his age, sat on a box in the barn, patiently sewing upon a curiously shaped bag, patterned after the one he had carried on many long marches, back in the sixties.

Little Mary Ellen sat on the floor at his side, ready to thread her grandfather's needle. The rest of the family were occupied with their various duties; the father and the boys were at work in the fields, the mother was busy in the kitchen; only Mr. Tiller and Mary Ellen, one of whom was considered too old to work, and the other too young, were exempt from labor, and they kept each other company with great satisfaction.

"I belonged to the infantry, Mary Ellen," explained the old man to the child, who was a most interested listener. "And marched for almost five years. With arms, mind you Now what's to hinder a man with his faculties marching a trifle of two hundred miles to the reunion, toting nothing but this knapsack? Why, it's not worth considering! I'm not blind, neither am I deaf or dumb, and I could keep up row for row with your pa any day—only he's so hard-headed.

"There now, Mary Ellen, one more needleful, and I reckon you and I will be done with our job; and a pretty fair one we've made of it, too."

"Are you going as soon as your bag is sewed, grandpa?" inquired Mary Ellen, as she laboriously threaded the needle once more.

"Hush!" whispered the old man, warningly, and he raised his hand to his ear to listen. "Peep out and see if that isn't your pa and the boys coming from the field, honey."

After reconnoitering, Mary Ellen reported that it was only the red steer pulling shucks through the cracks of the corn-crib; and the two resumed their occupations.

"You see, honey," Mr. Tiller explained to the little girl, "if your pa or ma or the boys were to come across us making this knapsack, it might interfere with my plans. I'm aiming to light out in the morning, Mary Ellen."

"But you'll sure and certain come back, won't you, grandpa?" asked little Mary Ellen. Her lips quivered, and her blue eyes showed signs of tears.

"Now don't you cry, honey!" implored the old gentleman. "Grandpa'll come back; of course he'll come. How could he get along without his little Eyes? But you see, honey, I've never been to a reunion yet. I've meant to go every single year, but crops were a failure, or they didn't fetch a good price—something always turned up to prevent. So now, being past seventy, and living on borrowed time,"—he pondered deeply, seeking an expression that would not alarm seven-year-old Mary Ellen,—"maybe I won't be able to report at roll-call next time.

Somewhere in California

The beginnings of a dairyman and a dairy.

And as the boys are going to meet right here at home, a matter of two hundred miles away, I decided I'd say nothing about it to your pa and ma, who'd be sure to raise objections, but just light out and march, as I did when I was in the infantry.

"I have ten dollars that it took me considerable time to save—pension money is always handy to use about the farm; with that I'll buy a little truck to eat. Marching light, I aim to get there in plenty of time. And I'll write your pa and ma a card every now and then, to let you all know where I am along the road and when I get to the reunion. Think of the drums beating and the colors flying, and me marching along with the boys of our old regiment, with the governor himself reviewing us! Mary Ellen, I can hardly wait!"

Drawing an ecstatic breath, Mary Ellen looked bright-eyed into the future, and beheld a glorified grandfather marching along with soldiers in beautiful attire—wonderful to behold!

"But you won't forget to bring me a doll, grandpa?" she reminded him.

"Not I!" vowed Mr. Tiller. "I'll certainly fetch you a doll—in this very knapsack. Only you mustn't forget not to breathe a word to your ma and pa till I'm out and gone. And then you must tell them just what I've told you: that grandpa's gone to the reunion, and 'twon't be any use for anybody to try and fetch him back; and that he'll certainly write as soon as he gets there."

That night old Mr. Tiller pottered stealthily about in his room, making

Uni-Lectric
GASOLINE ELECTRIC UNIT
LIGHTING SYSTEM

Electric Light for Your Farm

Uni-Lectric lighting plant generates standard 110-volt direct current; operates from one to fifty lights, electric motor, electric iron, vacuum cleaner, electric toaster, force pump, churn, washing machine, etc. No Batteries—No Switchboard—and a better machine for less money. High speed gasoline motor, generator and automatic governor, all complete in one small, compact unit. Uses standard lamps and fixtures. Simple, easily installed, dependable, economical. Costs less than other systems to buy and to operate.

Write today for full description and low price.

KARL A. HEDBERG
ELECTRICAL ENGINEERS
104-106 Clay St. San Francisco, Cal.

When You Buy Home Furnishings from Barker Bros. in Los Angeles You Are Assured QUALITY Goods and Not "Mail Order" Merchandise.

Many concerns catering to mail order customers carry what is known to the trade as "mail order goods"—a grade made and designed to meet keen competition and afford highest possible margin of profit at the same time.

With Barker Bros. it is different. Merchandise intended for any kind of sale other than by regular selection on the floors of this store are never selected by Barker Bros. no matter how alluring the wholesale price or how great the possible profit from their sale. Every article distinguished by a place in our stock must first pass rigid inspection and possess the basic element of QUALITY which for nearly 40 years has been associated with the offerings of this house.

The same high grade goods afforded Los Angeles people are open to the out-of-town buyer with every assurance of satisfaction as though selected in our store in person.

If you cannot visit our store, you will find it distinctly advantageous to buy through our MAIL ORDER DEPARTMENT. You are urged to write, telling us just what you want, etc. We will respond quickly, intelligently and courteously. We can save you money on furniture and everything in home furnishings.

Write for our 48-page catalogue of Draperies, Floor Coverings, etc., just off the press.

WE PREPAY ALL TRANSPORTATION CHARGES to any railroad, express or parcel post point in the United States, within two hundred and fifty (250) miles of Los Angeles and make liberal allowance for transportation charges beyond 250 miles, anywhere in the world.

Barker Bros
ESTABLISHED 1880
Complete Home Furnishers
724 to 738 South Broadway
LOS ANGELES, CAL.

THE
AMERICAN BEAUTY DUST SPRAYER

SAVE YOUR FRUIT

Red spider and mite, mildew, rust, and insects are at work on vines and trees. Dust now, before they get a start. Dust sprays are better than liquids, are cheaper and more easily and quickly applied. Serve your country by protecting your crops.

GARDEN PESTS

Bean and pea mildew, rust, red spider, bugs and worms on truck and field crops.—kill them all with dry insecticides.

"A Puff in Time Saves the Vine"

The American Beauty is the fastest and easiest working knapsack duster. Throws a perfect cloud—no lumps, no clogging. Uses least dust—does most work. Ask your dealer for it. Or send us $11.00 for vineyard and garden size, $13.50 for orchard size. We ship all charges paid. Refund if not pleased after week's trial.

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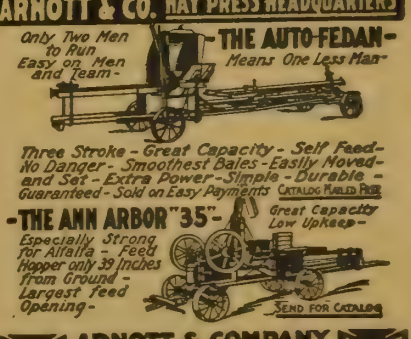
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Easy on Men and Team-
THE AUTO-FEDAN-
Means One Less Man-
Three Stroke - Great Capacity - Self Feed-
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Guaranteed - Sold on Easy Payments
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Salt Your Hay

A little commercial salt (only 20 pounds to the ton), sprinkled in a hay stack or in baled hay, prevents mildew or mold. If you feed the hay, stock likes it better; if you sell it the hay holds its weight and sells for more. Salt costs less than hay and makes hay better.

We sell commercial salt, Morton's Salt Blocks and lump Rock Salt. Send for our free booklet "THE RELATION OF SALT TO STOCK FEEDING."

Fuller, Leighton & Stratton
Wholesale Salt
615-617 E. 3rd St., - Los Angeles

Sunnybrook Holsteins

We offer a limited number of young registered bulls, from six weeks up to service age, sired by RUBY GEM CANARY LAD 98609 and out of some of our best cows. Dairymen will find these bulls attractive in breeding, type, and price. Write for price on the bull you need.

Sunnybrook Ranch H. H. Sisson, Mgr. WILLITS, CAL.

The Cultivator Patterns

8351—Ladies' Sport Blouse. Cut in sizes 14 to 20 years. Blouse may be made with or without the applied front box plait.

8045—Children's Dress. Cut in sizes 2, 4, 6 and 8 years. The dress slips on over the head and is trimmed with contrasting goods.

7980—Ladies' Waist. Cut in sizes 34 to 32 inches bust measure. One or two materials can be used to make this waist.

8323—Misses' Dress. Cut in sizes 14 to 20 years. Front and back of waist are in one piece.

8358—Ladies' Apron. Cut in sizes 36, 40 and 44 inches bust measure. The apron closes at the back, has pockets and a belt.

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California Cultivator

Los Angeles

many small preparations; and the next morning, when the big Plymouth Rock rooster sleepily crowed his first announcement of daylight, he crept softly out of the house, through the dew-drenched flowers of his daughter's yard, and marched bravely forth to the reunion, two hundred miles away!

Mary Ellen, tearful from loneliness, yet jubilant at the thought of the coming doll, faithfully repeated her grandfather's message: "And you all mustn't follow grandpa, for he isn't coming back till he sees the reunion. And he's going to fetch me a big doll in the knapsack that we sewed in the barn—the knapsack like the one he had in the war."

But not heeding this imperative command, Mary Ellen's father started immediately in pursuit of his father, only to return the next day without him; for old Mr. Tiller, despite his valiant threat, had little doubt that his family would follow him, and had therefore used a little strategy in the matter. He walked in the grass by the roadside, that they might not see his footprints; when he judged that the pursuers would be well on the way, he turned aside into the woods, where he sat on the soft grass in a sunny glade, reading the latest number of The Veteran, and lunching off the cold biscuit and bacon he had abstracted from the home cupboard. He spent the day in much content; and when darkness fell, he made a bed of soft and fragrant pine boughs, upon which, wrapped in his blanket, he slumbered peacefully through the warm loveliness of the summer night.

(Concluded next week)

LOOKING AHEAD

Written for California Cultivator
By Mrs. E. C. Hawley, El Cajon

IT has been the hardest winter on growing gardens I have seen in California, yet the high cost of living has not hurt our family table. We have fed a family of five at an average cost of seven dollars a month this winter. We keep two cows and 25 hens and from eggs and butter sold have bought their feed and paid our grocery bill as well. You want the answer? Well, it is garden stuff and the careful preparation of same for use out of season. The summer of 1916 my daughter (a high school girl) and I "put up" over 350 quarts of fruit and vegetables. Total cost was our work and fuel.

I have proven that all fruits keep without sugar and the natural flavor is retained much better.

I begin early and care for all seconds or culls of vegetables or fruit.

We raise a variety of beans, but do not can them for we like them all as dry beans. Have three kinds of Kentucky Wonder, besides red, small white and Blackeye. And not anything I can fix pleases my school children more than a kettle of Blackeye soup on back of stove when they come in from school. Sweet corn is also liked much better dried than canned at our home, and we always dry a quantity.

I can squash, pumpkin and tomatoes. And the garden always supplies onions, beets, carrots, turnips and cabbage, and we have now asparagus and rhubarb.

You can readily see we have a good variety and I consider it my business to keep my home and provide well for the nourishment of my family.

I have always used the open kettle method of preparing fruit or vegetables, thoroughly cooking, and having jars ready, filling from open kettle, boiling hot, sealing immediately, and I never have any spoil.

PRIZE CONTEST

The next prize contest in the household department will be "more of the same"—which is, of course, economy. The government, the newspapers—everybody have been telling us how to save and make things go farthest. And we have received much help from all these suggestions. But I wonder if we can't show them all a trick or two. We've been "economizing" for some time—there's nothing new about it. And we've worked out some very valuable economies, and some not so valuable perhaps. Anyway we all have our "pet economies," dear to our own hearts, our own special way of playing the game.

Is it dropping all clean potato parings, outside leaves of lettuce and cabbage, beet tops, etc., in the soup pot, using up burnt matches, putting away all string and paper that comes to the house, using every drop of grease, or what, or what else?

Cash Prizes

For best article on "Pet Economies" $2.00 cash; second best, $1.00; for all others published, three months extension of subscription.

Send Early

Send your contribution as soon as possible. All should be received by Household Department, California Cultivator, Los Angeles, not later than Thursday morning, May 24. Please write on one side of paper only.

HIGH COST OF FOOD NECESSITATES JUDICIOUS MANAGEMENT

Purchasing food supplies and planning and preparing three meals a day has always been a problem, but with the increase in food prices the problem is becoming more difficult every day. The abnormal price of certain foods leads the careful housewife to seek substitutes, but if she does not know the relative values of the different foods she cannot make her substitution intelligently. A knowledge of the part that each of the different classes of foods performs in the body upkeep is essential. Without this knowledge serious mistakes may be made. Miss Bab Bell of the Missouri college of agriculture makes a few suggestions relative to decreasing the cost of living.

Make a thorough study of the different classes of foods and the function of each in the body.

Plan meals carefully so that foods are not duplicated. For instance, do not serve Irish and sweet potatoes in the same meal; cheese and meat; rice and potatoes; spinach and lettuce; navy beans and meat.

Substitute in part, corn starch for eggs; rice for potatoes; meat substitutes for meat; some good oil for olive oil; some product for butter, especially in cooking; cornmeal for wheat flour. Milk is one of the best foods and consequently can be substituted for higher priced foods. Skimmilk has a high protein value.

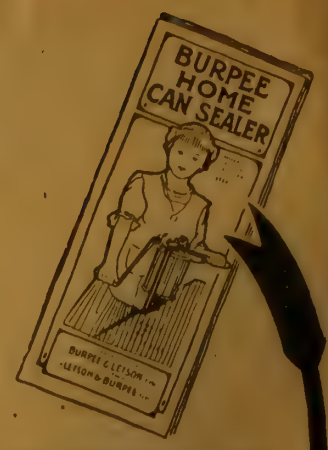
The cost of living may be reduced by:

Purchasing food supplies in large quantities when a good storeroom is available, and by purchasing foods in season.

Preparing the exact amount of food needed. Some foods cannot be warmed or made over.

Planning meals to utilize all "left overs" and thus reducing the waste which ordinarily goes to the garbage can.

Training children and adults as



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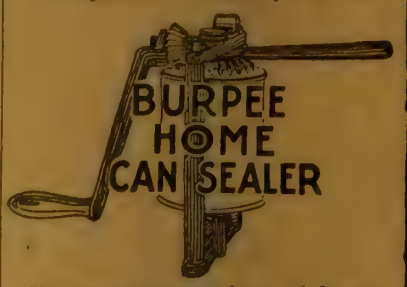

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well not to waste foods at the table by leaving quantities on their plates.

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HOW HIGH IS YOUR KITCHEN SINK?

Can you stand easily erect at your kitchen sink or do you find yourself constantly drooping over in a cramped and back breaking posture? Strange as it may seem 999 sinks out of 1000 —on a very liberal estimate—are built according to the carpenter's rule for "the way it's always done," instead of according to the height of the mistress who will spend hours every day bending over it. A bulletin recently issued by the Missouri agricultural college discusses this point, giving the following practical directions for raising working surfaces to comfortable height:

As a rule working surface—tops of stoves, tables, sinks—are too low for the person of average height. This causes straining of the muscles and undue stooping and is largely responsible for tired backs and rounded shoulders.

Tables too low may be placed on blocks of wood or the legs may be spliced with gas pipes or small slats. The stove may be blocked with brick or cement. Legs on a stove are generally regarded as unsatisfactory. The space beneath too often proves a catch-all for overshoes, mittens, and domestic pets.

Most sinks, especialily, are too low for a person of average height. The bottom of the sink should not be less than thirty inches from the floor if the housewife stands at her dishwashing.

The height of any working surface will, of course, vary with the height of the worker and whether or not she sits or stands at her work, but in general it should be about thirty-two inches for a woman of average height (five feet, five inches). It is wise for each housewife to perform the same task at different heights and see at which one she exerts least effort.

CARING FOR LAMPS

Much kerosene trouble lies in the lamp or wick rather than in the oil. If the flame is uneven the fault is usually in the trimming; or the burner may be coated with carbon scales which crumble down upon the wick, and by their pressure cut off the flow of kerosene. Such a burner should be thoroughly cleaned and boiled, then dried and brushed clean of lint.

A lamp should never be allowed to burn dry. Besides destroying the wick, it chokes the burner with unconsumed carbon and renders a thorough cleaning necessary. With low-test oil, too, there is considerable danger in permittng the reservoir to become low, as the heat evolved converts the oil into gas as rapidly as there is room for it to form, and the larger accumulation soon becomes a serious menace.

A wick should be trimmed by scraping with a dull knife, rather than by cutting; then the carbonized fibers will all be removed.

If the wick is boiled in vinegar and then dried thoroughly, it is relieved of its tendency to smoke.

Never blow down a chimney to extinguish the flame. Blow across the top, or, if that is inefficient, blow against the hand held near the top. It may save a cracked chimney.

The chimney of a lamp should never become hot at the bottom part, below the flame. If it does it indicates a hot burner and is a danger signal. Usually one can remove a chimney from a lighted lamp by grasping it at the bottom.

Lamps should be filled in the morning; then there is little space for gas to accumulate during the day. If this is neglected do not fail, before lighting the lamp in the evening, to remove the burner and agitate the wick enough to drive the accumulated gas out before lighting. This may save an explosion. For a similar reason lamps should be set away, during the day, in a moderately cool place.

Where good 150-test water-white oil is used many of these precautions are unnecessary. They are recommended because of the variation in oil and its impurities. Some grades of oil, occasionally sold for the best, are much more highly charged with dangerous gases than others.—Farm Journal.

LEFTOVER COFFEE

Coffee left over from breakfast or dinner, if saved each day and kept in a bottle, can be used in various ways.

Coffee jelly is time-honored as a utility cold coffee, but there are many other and less common recipes that it would pay the thrifty housekeeper to list.

A delicious, if uncommon, dessert, is coffee souffle. One and a half cups of coffee, half a cup of milk, one tablespoon of gelatine, two-thirds of a cup of sugar, three eggs, one-eighth of a teaspoon of salt. Soak the gelatin one hour in cold water, mix it with the coffee, milk and half of the sugar. Heat in a double boiler. Beat the yolks of the eggs slightly, add the salt and the remainder of the sugar to these and pour slowly into the coffee mixture. Cook until thickened, then add the whites of the eggs, stiffly beaten, and half a teaspoon of vanilla. Beat thoroughly and turn into a mould.

HOUSEHOLD QUERIES

Drying Blackberries

I am very much interested in the articles on canning and drying fruits and vegetables. I wonder if anyone can tell me through the Cultivator how to dry blackberries, and how about drying green beans? I remember eating both of these when I was a girl and thought they were fine.—Subscriber, Pomona.

The method of drying beans is described by Prof. Cruess on page 534 of Cultivator of May 12, which appeared after this letter was written. This article will be a very valuable one to save for constant reference this year. About drying blackberries, who has tried it? Will not some of our subscribers answer the Pomona inquirer's letter?

KINDNESS WITH A VENGEANCE

A young teacher gave the children a talk on kindness to animals. The next day, when she was busy at her desk, she felt a little hand tugging at her sleeve.

"Why, Pietro," she exclaimed, "what is the matter?"

"Nothing, teacher. I just wanted to tell you how I was good to dumb animals yesterday."

"Why, isn't that nice, Pietro! Just what did you do?"

Pietro drew himself up to his full three feet, and proudly declared, "I kissed the cat!"

IT ALL DEPENDS

It all depends on what you're living for. If you're living only to get ahead, then procrastination is a thief; but if you're living to enjoy life along the way, it is sometimes a gift-bringer.

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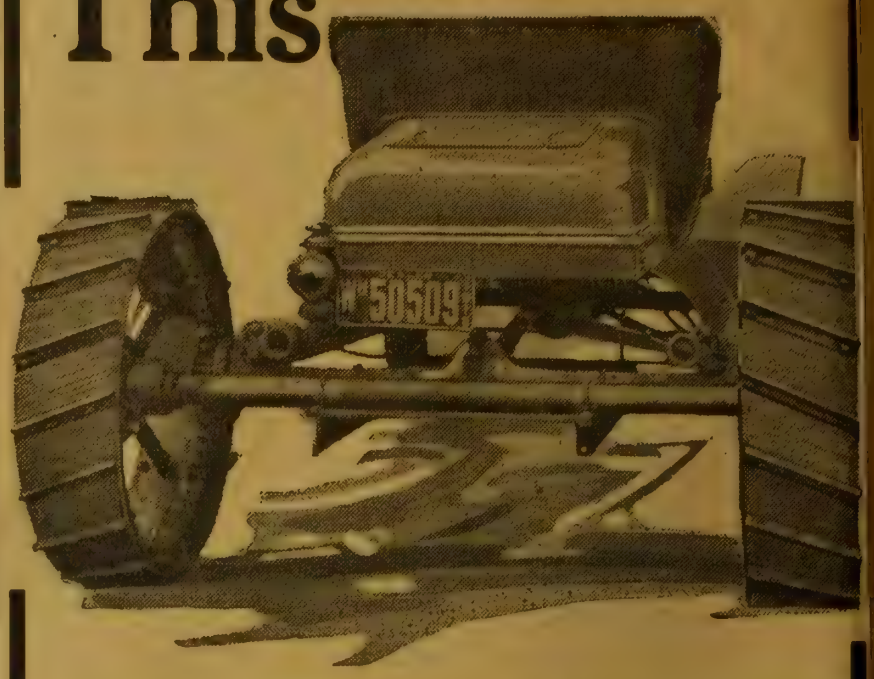

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See Editorial Page

California Cultivator

Vol. XLVIII No. 21 LOS ANGELES: May 26, 1917 One Dollar Yearly

How Can We Make More Humus?

Los Angeles Section of American Chemical Society Listens to Addresses by Doctors Breazeale, Kelley and McBeth of the Department of Agriculture, in Which Cover Crops Are Discussed

THE members of the Southern California section of the American Chemical society touched lightly on chemistry of petroleum and its various derivatives, and chemistry subjects other than agriculture, at its last banquet and monthly meeting in Los Angeles. Agricultural chemistry and somewhat of physics had the boards for the evening. Addresses were made by Dr. J. F. Breazeale, Dr. W. P. Kelley and Dr. McBeth, all of the department of agriculture, engaged in special soil investigations at Riverside.

Dr. Breazeale referred to the problem of soil fertility as the greatest which now confronts the American farmer. His discussion had to do with the problems which confront the soil chemist, and in this discussion he referred to the theory of Milton Whitney, who is soil physicist and chief of the bureau of soils, in effect that there is little difference in productive value of various soils from the standpoint of the chemical content, but that quantity and quality of crops are more influenced by toxic substances in the soil than by elements of fertility such as nitrogen, phosphorus and potash. The remainder of Dr. Breazeale's address had so much to do with ions, cations, anions, electrolysis and other scientific questions of soil make-up that the laymen became hopelessly involved. Dr. Kelley, who was supported by Dr. McBeth in an informal talk, gave us a shock in the matter of nitrate formation in soils being slower where green manure crops are permitted to ripen.

At one time orchardists generally clung to the idea that green manure crops should be plowed under while lush and green. Decay was almost immediate, the nitrates were quickly released and less future trouble was experienced with the orchard. Then came the idea that thoroughly ripened green manure crops, in which cellulose was developed, gave a far greater degree of humus and resulted in more fertility to the soil.

Now the scientists, by a series of theoretical reasonings, make a showing that ripened, woody green manure crops in which cellulose is developed to the fullest, when plowed under give opportunity for a war of cations and anions which result in slower formation of nitrates. That there was no ultimate loss was agreed. However, it is better that Dr. Kelley should state his case.

* * *

EFFECTS OF ORGANIC MATTER ON NITRIFICATION

By Dr. W. P. Kelley

There is one factor bearing on nitrification that deserves especial mention. I have reference to the effect of carbohydrate. It has been known for some time that soluble organic matter tends to interfere with nitrate formation in artificial cultures and especially in nitrification studies in solution. Likewise it has been shown that the addition of any considerable amount of such carbohydrates as sugar and starch also tend to depress nitrate formation. It has become known in recent years, however, that still another class of carbohydrates has the power of interfering with nitrate formation and that to a marked degree. The class referred to is the celluloses.

In all probability the several classes of carbohydrates interfere with nitrate formation in soils for more or less the same reason, namely, through stimulating the non-nitrifying organisms. In the presence of carbohydrate certain organisms are stimulated which have the power of feeding on nitrates, thus decomposing and reducing the nitrate supply that is present. Therefore the amount of nitrate that is allowed to accumulate in the soil is correspondingly reduced. This aspect of nitrification has a very decided practical bearing for it is now thoroughly established that the incorporation of any considerable amount of organic materials high in cellulose or other carbohydrates, such as are found in barley straw and strawy materials in general, has a tendency to prevent the accumulation of nitrates in soils. I have found, for instance, that barley straw, bean straw and certain types of manure tend to act in this way and others have noted the same thing for other substances.

This need not be interpreted to mean that organic matter should not be added to soils. Such is far from the case, but rather that organic materials high in cellulose in particular will tend to prevent the accumulation of nitrate for a limited time following its application. Consequently it would seem that such materials as barley straw and strawy manure might be more advantageously applied some weeks in advance of the time when active growth is demanded. If applied in this way the initial decomposition and fermentation of the carbohydrate material will have time to take place, and later on normal nitrate accumulation may be expected. In addition, it is important to state that the use of green leguminous cover crops does not ordinarily interfere with nitrification, but on the contrary actively stimulates nitrification. I have found, for example, that nitrification takes place rapidly from the mere use of the green cover crops such as Melilotus indica, purple vetch, Windsor beans, etc.

Concrete Septic Tank Modern Sewage System

By H. J. Baade, Farm Adviser of Napa County

IN order to have the best possible sanitary conditions on the farm there should be a practical sewage disposal system. The best and most satisfactory, as well as the most economical, sewage disposal plant is the septic tank. There are many practical types now being built. The simplest and the one most frequently built contains two compartments. Two hundred such tanks have been built on the farms of Napa County within the past ten months. To date we have received no complaints from any of these. The conveniences these tanks make possible in the farm home are making life in the country worth while. Every farm home should have an indoor toilet, sinks, bath, and stationary washtubs. These can be connected directly with the septic tank.

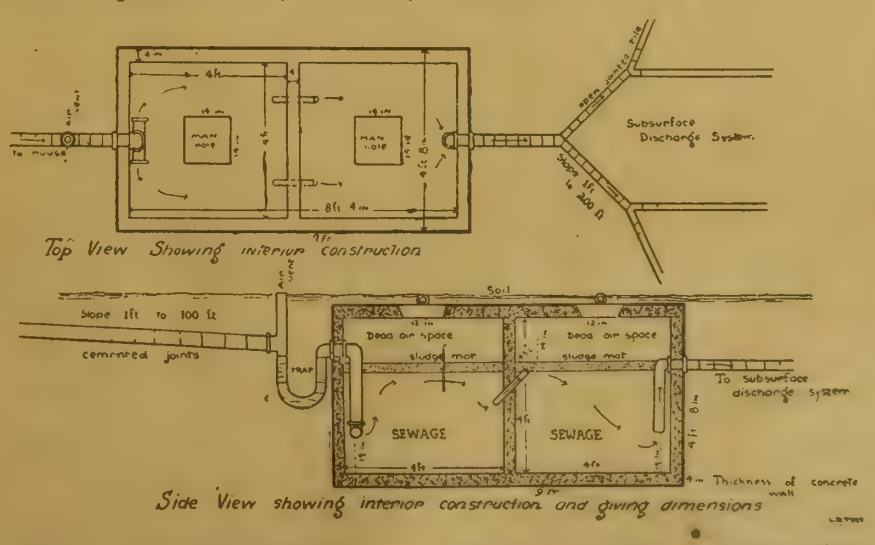
The size of tank recommended is one that is large enough to take care of 70 gallons of sewage per capita per day. The following table gives the sizes which have been found to work satisfactorily:

Six persons — width, four feet; length, nine feet; depth, five feet.

Eight persons—width, four feet; length, 10 feet; depth, five feet.

Twelve persons—width, four feet; length, 10 feet; depth, six feet.

Twenty-five persons—width, five feet; length, 14 feet; depth, six feet.



Side View showing interior construction and giving dimensions

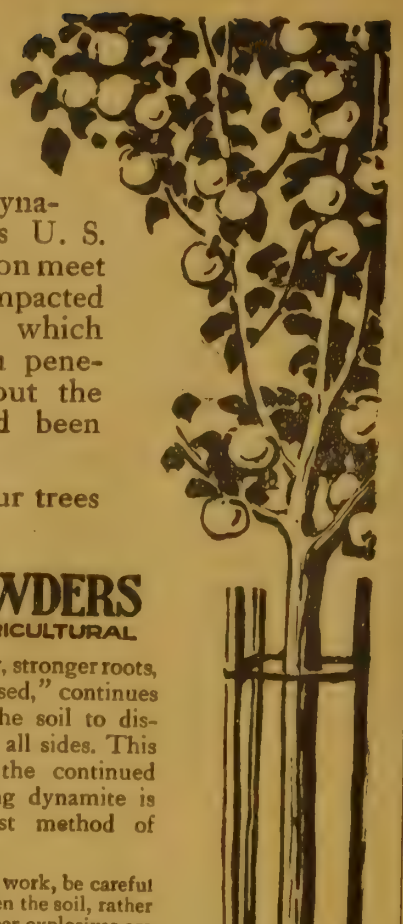
The sewage from the house is discharged into the tank through sewer pipe. The bacteria which decompose the sewage become established by a natural process. It is not necessary to add chemicals. Lye and strong disinfectants should not be thrown into the sewer in large quantities since such materials would destroy bacterial action. Nor should storm waters be run through the tank because such excessive water would carry sewage out of the tank before bacterial action would be complete. The decomposition is completed in the tile distributing system into which the liquid flows upon leaving the septic tank. From these tile the liquid seeps into the soil in a purified form.

These tanks are of concrete made of either gravel and cement in the proportion of one to five; or of sand, cement and crushed rock in the proportion of one-two-three. In mixing care should be exercised to have it of a mushy, wet consistency. It should be thoroughly spaded in the forms, the walls being 4 inches thick throughout or thicker if desired. Reinforcements of iron rods or heavy wires are put in the wall 12 inches apart.

Interior of tank should be plastered with mortar made of one part cement to three parts sand to make it waterproof. The tile and sewer pipe are four-inch. The manholes in the tank can be round or square. If square, they should be 14 inches; if round, 12 inches in diameter.

Continued on Page 603

Would you plant your fruit trees in large tubs?



"Without the use of dynamite in tree-planting," says U. S. Bulletin No. 38, "the roots soon meet with the smooth and compacted sides of the hole, through which they have great difficulty in penetrating. The tree is in about the same situation as if it had been planted in a large tub."

But when you plant your trees in holes blasted with

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the trees will grow faster, develop deeper, stronger roots, and bear earlier. "When dynamite is used," continues the bulletin, "cracks are formed in the soil to distances of five or sometimes six feet on all sides. This makes the very best conditions for the continued growth of the tree. For tree planting dynamite is recommended confidently as the best method of preparing the soil."

In selecting explosives for your orchard work, be careful to get those that will crack, powder and loosen the soil, rather than pack it or throw it in the air. The proper explosives are the Giant Farm Powders. There are two of these—Eureka Stumping Powder and Giant Stumping Powder—both improved forms of dynamite, made especially to meet western agricultural conditions. They are sold by distributors everywhere. Ask your dealer for them.

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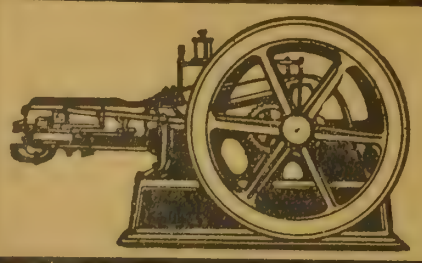

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Smyrna Figs and Caprification

By I. J. Condit

FIG varieties in California include three common classes or types, viz. common figs, Smyrna figs, and Caprifigs.

The common type of fig includes such varieties as the Mission, Adriatic, Brunswick and Brown Turkey, which ordinarily set two or sometimes three crops each season, and these crops mature without any attention being given them as far as pollination is concerned. The seeds are commonly hollow and do not contain kernels.

The Smyrna type of fig produces fruit which forms on the twigs but these fruits drop off unless pollinated (or caprified as it is usually called). If the fruit is caprified, each fertilized flower within the fig develops a seed containing a fertile embryo. It is this fertile seed which gives the Smyrna fig its superior flavor and quality, especially when dried.

The Caprifig is the wild or goat fig of Southern Europe and the fruit is different from that of the other two types mentioned above, by containing an abundance of male or pollen-bearing flowers as well as numerous gall flowers, which furnish a home for a small insect known as the fig wasp, blastophaga. These male flowers are found abundantly only in the spring or profichi crop of the ordinary caprifig. This crop matures in the San Joaquin Valley about the second week in June (later along the coast) and is used in caprifying or pollinating the second or main crop of the Smyrna fig. The figs of the over-winterting crop of the ordinary caprifig tree (known commonly as the mamme crop) do not contain pollen and cannot therefore be used in caprifying the first crop of the Smyrna tree. The first Smyrna crop consists of comparatively few figs which mostly drop off.

A variety of caprifig known as Pseudocarica is now being grown. The caprifigs of all three crops of this variety bear pollen, and the mamme figs under favorable conditions may be used for caprifying the first crop of the Smyrna fig which commonly sets the first week in April.

A single caprifig tree may produce its crops in sufficient regularity so that the fig wasp as it matures may pass from one crop to the other and keep the tree supplied with caprifigs. For best results, however, it is advisable to have two or three varieties of caprifigs in order to lengthen the caprifying season in June and insure the presence of the fig wasp throughout the year.

The process of caprification is simple. The caprifigs are mature and ready to use when the first insects begin to issue from the eye of the fig. The males are wingless and are the first to issue from the gall flowers. The proper stage of maturity to pick the caprifigs can best be learned by cutting open two or three; those in which the brownish male insects are seen crawling around are in the proper stage. The caprifigs should be picked from the trees in the late afternoon, kept in a shady cool place over night, and distributed in the Smyrna trees early in the morning. The winged female insects issue mainly between 9 and 12 a. m. As they leave the caprifigs they become dusted with pollen; they enter the Smyrna figs and crawl over the flowers in a vain attempt to find suitable flowers in which to deposit their eggs. The Smyrna flowers thus become dusted with pollen, and the resulting fertilization causes the fruit to set. The eggs of the insect are deposited only in the short styled flowers of the caprifig, which is the natural breeding place of the insect.

The season for caprifying the second crop Smyrna figs generally extends over three weeks. The caprifigs are placed in strawberry or wire baskets suspended in the Smyrna trees, the number depending upon the size of the tree. The best commercial results are secured by distributing the caprifigs as follows: At five years of age supply five caprifigs to each tree once a week or oftener for three weeks; a ten-year-old tree should have 15 caprifigs every three days. Growers who have no caprifig trees and only one or two Smyrna trees must depend upon getting caprifigs from their neighbors or have them shipped in from a distance. Mamme figs which are needed in April to colonize the caprifig trees ordinarily sell for about five cents each. Profichi caprifigs in June are usually sold for about half a cent each.

The following capri varieties are recommended: Roeding Number three or Markarian Number two for early crop; Magnissalis, Pseudocarica, or Markarian Number one for mid-season; and Milco for a late crop. The early varieties caprify the largest percentage of the Smyrna crop. Five caprifig trees for every hundred Smyrna trees should prove sufficient. On account of the greater difficulty and expense of caprification it is not advisable to plant the Smyrna as a border tree. For the same reason one or two Smyrna trees should not be planted in the home fruit orchard unless a supply of caprifigs is available in the vicinity.

Cyclopedia of Horticulture Completed

The final volume of Bailey's Standard Cyclopedia of Horticulture is now being delivered. Cultivator readers who have deferred ordering this great work until the last volume is out may well consider its purchase.

The first one of the six volumes came from the press in 1914, or 14 years after the first volume of the first edition of the same great work. The former work was a four-volume edition. In it Editor Bailey writes that the purpose of the work "was to make a complete record of the status of North American horticulture as it existed at the close of the 19th century." In it the editor made an effort to include all species which are known to be in the horticultural trade, together with outlines of horticultural possibilities of various states and sections of the country. That book for years was the standard. The present cyclopedia is founded on the former compilation but at the same time is entirely rewritten, vastly enlarged and made more complete and more correct. In closing the preface to the present edition Editor L. H. Bailey says:

"It is not wholly with satisfaction that one puts forth a work of this magnitude. The responsibility increases with the largeness of the en-

terprise, for users do not readily purchase new and corrected editions of a work of this extent. Every care has been taken to present an accurate and faithful account, and this is as far as the responsibility can extend. The editor can not expect to make another cyclopedia of horticulture; but he hopes that these six volumes will comprise another step in the collecting, assorting and appraising of our horticultural knowledge."

The book is published by the Macmillan Company, New York, at $6.00 per volume, $36 for the set. Subscribers of the Cultivator who may wish to secure the book on monthly payments may have more complete information by writing the California Cultivator.

The Home Evaporator

Written for California Cultivator By W. F. Hewlett

PERHAPS a brief description of our small home evaporator which we have used four years and which is practically as good as ever, may be of interest.

We consider it one of the most useful articles on the ranch and would find it hard to do without one.

It is 30 inches wide, 11 inches deep, and 30 inches high, and is made of galvanized iron and strap iron braces.

The back and sides are solid and the front has two doors. In the top is an opening covered with wire netting through which the surplus heat escapes. Inside are ten double trays made of one-inch strips which form the frame, and over this is stretched a heavy screen. The heat passes up from the center of the bottom through openings at each end of the trays and also through center of trays and circulates through the netting of trays on which is placed the fruit or vegetables to be dried. The evaporator is made to cover two holes of an ordinary cook stove and the work of drying is hastened or retarded as it is placed directly over the firebox or moved to back of stove.

In our household my wife places the evaporator on back of stove while cooking the meals and moves it to the front when through cooking. Then by putting a little fuel in stove occasionally to keep up a slow, steady fire the work of drying is not much trouble.

Ours is an apple ranch, and every year we dry all the apples we need for our own use and some to sell. We dry corn, beans, squash, and in fact anything that can be evaporated, and for drying meat for jerky it is simply all right, as there are no flies to bother and pollute the meat. If there is anything that disgusts me it is to pass a place and see a lot of fruit or vegetables laid out for drying and the outfit covered with flies crawling all over it.

It seems to me that meat drying on the farm has been overlooked. Many a farmer has a calf or young animal to butcher, which he saves until cool weather or sells to some butcher and then pays two prices for fresh meat as he needs it. With this small evaporator butchering can be done any time of year regardless of the weather.

After saving fresh meat for home use and perhaps what a neighbor or two may want, cut the balance into one-inch strips convenient to place on the trays, dip in boiling salt water and place on trays, and in a few hours you have as fine jerky or dried beef as one could desire. The fat melts and runs into the lean meat and the product is one that would make anyone sit up and take notice if he had never tasted it before.

After the meat is thoroughly dried, we run it through a meat cutter, place in fruit jars and thus taken care of it keeps indefinitely. It is very convenient to use in cooking for soups, gravy, Irish stews, etc., and takes the place of fresh meat to a certain extent.

1916 Peaches Gone

Manager Niswander of the California Peach Growers' Association, is sending out notice that, "effective May 17, all grades and varieties of dried peaches of the 1916 crop are withdrawn from the market. From best information obtainable at this time, our stocks are exhausted. By June 1 we will have completed an actual inventory of stocks in our various plants throughout the state, from which we will deduct goods actually sold to this date and unshipped at that time, and should it develop that we have any surplus, announcement will be made. Do not anticipate our placing before the trade any further quantity of unpeeled peaches of the 1916 crop. We think, at most, we will have only a few tons, with assortments badly broken. We may possibly be in position to accept orders for eight or ten cars more of fancy peeled peaches. However, until further advised, we will decline any and all business."

Beans are being planted on stiff adobe land near Gridley.

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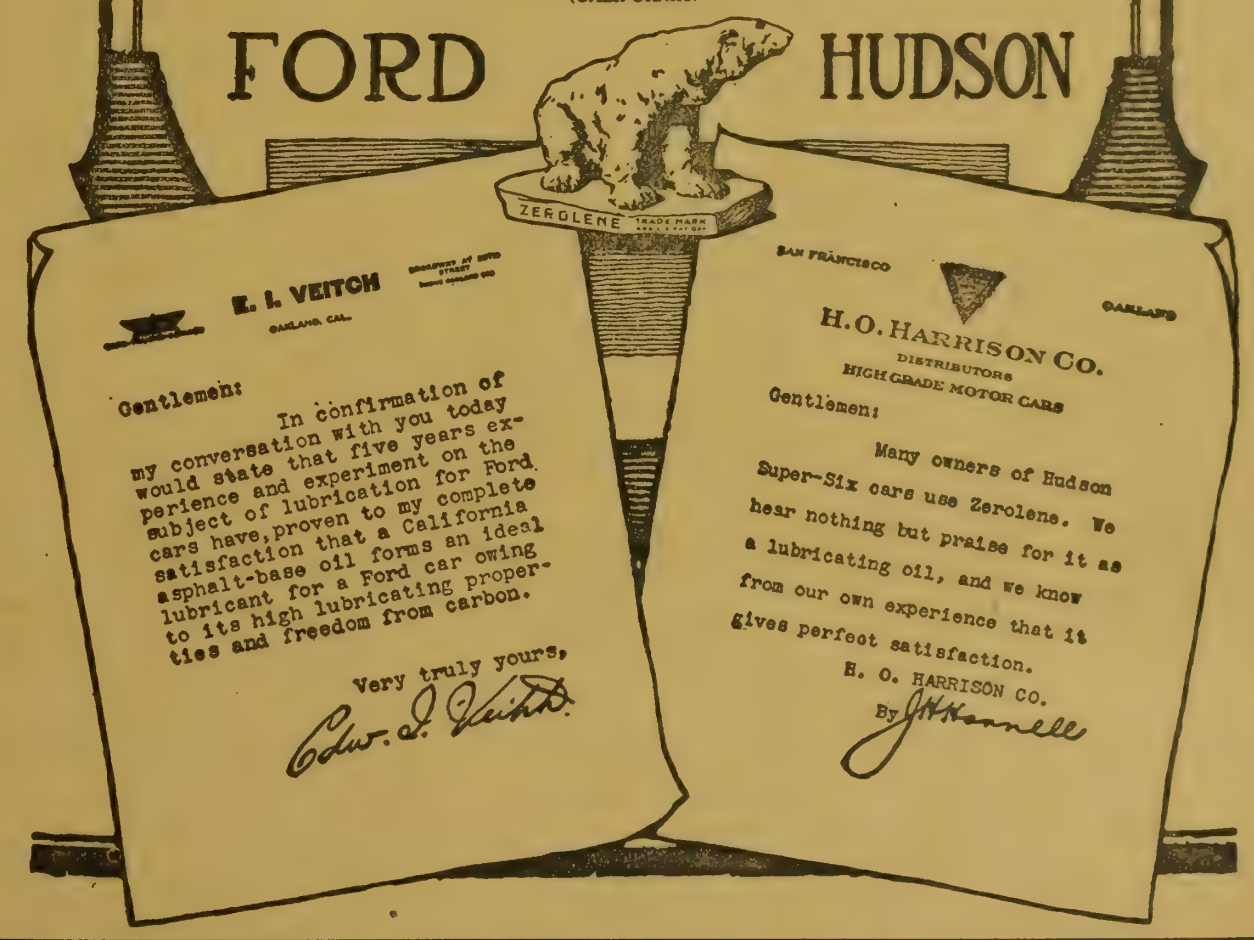
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Gentlemen:
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By J. H. Kennelle

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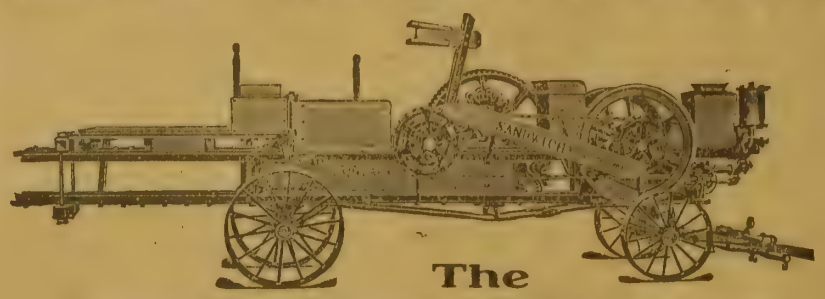

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Avocado Growers Meet

Annual Session of California Avocado Associatio Held in Los Angeles

THE finest exhibit of avocados ever made in California was that at the fourth annual meeting of the California Avocado Association, held in Normal Auditorium, Los Angeles, last Friday and Saturday. There were nearly 30 exhibitors of fruit and some of the exhibits were exceptionally large. At this season of the year when only the larger, thicker skinned varieties are available the number of those exhibited was surprising.

The most pleasing feature to the avocado growers was the fact that the membership of the association, which a couple of years ago was approximately 30 but had gradually increased to about 150 before the meeting, was augmented by over 50 new members and the list now is materially above 200, and this includes some of the representative fruit growers of California. When it is considered that the membership fee is five dollars per year it may be seen that these members are such because of keenest interest in the industry.

There are no very definite statistics, but as near as can be gathered from various sources, it appears that in excess of 15,000 avocado trees have been planted this season. Probably most of these have been used in the planting of exclusively avocado orchards. However, some were interset with lemons as a matter of insurance.

The annual business of the association was conducted, one feature being amendments to the constitution and another the election of the board of directors. These nine directors were elected for varying terms of one, two and three years. These elected are: H. J. Webber, F. O. Popenoe, Chas. D. Adams, T. U. Barber, Wm. H. Sallmon, E. E. Knight, W. L. Hardin, B. H. Sharpless, Thos. H. Shedden.

The directors have not yet organized but will meet at the home of Mr. Flinn of Monrovia June 2 and from their number elect a president and secretary. During the past year I H. J. Webber of the citrus experime station has been president and C. Adams of Ontario secretary.

The avocado is a new fruit in Ca fornia, though it is a native of Me co and Central America and has be very generally utilized in those cou tries. From an unknown fruit 15 yea ago it has rapidly assumed imp tance in California and is doubtle destined to become one of our mo important industries. Fifteen yea ago we had only a few unknown see lings; now growers have about 1 varieties from which to select. Th large number gives variation to t fruit exhibit and furnishes a fine e ample of man's skill in finding a producing varieties to meet his d mands.

QUESTIONS AND ANSWERS AS TO U. S. RECLAMATION

What acreage is irrigated under projects at the present time?

The area actually irrigated during 1916 was about 1,000,000 acres. There were 1,400,000 acres under contract and the service was prepared to supply water to 1,750,000 acres of land. The ultimate area to be irrigated by the projects at present under construction will be about 3,000,000 acres.

What is the total amount of material excavated and mileage of canals constructed?

The total amount of material excavated to December 31, 1916, including the amount of dams, levees, canals, etc., was over 145,000,000 cubic yards, and the total length of canals and drains was 11,200 miles, including 10,000 miles of irrigation canals and 1200 miles of waste-water ditches and drains.

How many canal structures has the service built and what proportion are of concrete and of wood and metal?

The service has constructed up to December 31, 1916, a total of 75,000 canal structures, of which 20 per cent were concrete. Of the flumes, 2300 of which were built, over 600 were of metal. About 5600 brides have been built and 6600 culverts. The amount of pipe laid in connection with structures and drainage was over 2,000,000 feet, or about 380 miles.

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Notes on Tree Growth in Blasted Ground

By J. R. Mattern

ONE in a judicious frame of mind may often wonder, after ten years or more of active propaganda by the powder companies for the use of explosives in preparing the ground for trees, just what the average results of such blasting may be. It is certain that literally thousands of planters of fruit trees have made use of the method. In some of the famous fruit sections of America blasting the ground has become the universal, standard practice.

An examination of a good many orchards where the trees are growing in land prepared for them by blasting shows first of all that the trees are anchored more securely. There is far less of that leaning away from the wind that characterizes too many orchards. It not only is unsightly—it often means the breaking down of the trees under their usual loads of fruit. I do not know whether this can be attributed to a deeper root system or to more extensive root systems. Probably it is a combination of both.

I have not observed that in young trees the blasing of the ground results in much thicker growth of trunk, though only a few trees have been measured within my observation to check up this point. But in older trees that are growing in the ground containing hardpan there is a decided increase in the thickness of the trunks of the trees where the ground has been blasted. Probably the young trees do not yet have vital need of the underlying strata of soil. Probably the trees begin to suffer from the lack of food and lack of water that stunts them and keeps them back only after they have thoroughly worked over the top soil within reach of the roots. In one instance apple trees over hardpan were lifted by the forces of growth till the roots were exposed above the ground, simply because the hard ground beneath offered no opportunity for root penetration.

There probably are a good many soils that will not be benefited much by blasting, particularly if the blasting is not immediately followed in the right way with heavy rooted cover crops. But these soils do not often occur in the fruit growing sections, for there are problems in moisture storage and in the making available of insoluble plant foods which the blasting helps to solve, and these problems are present in clay and loam and highland and lowland alike.

As for length and thickness and number of the twig growth of trees, I personally can bear witness to the fact that in blasted ground there is every reason to expect superiority. In only a half dozen instances out of a hundred that I have seen have the trees failed to make huskier, bigger tops in blasted ground. It is the rule rather than the exception to see whole blocks of 1000 or 10,000 trees so planted show an average growth of 18 or 20 or 24 inches in a season, and alongside of this I reflect that on similar soils I have seen many orchards planted with inferior tillage, that would average only seven, or eight or ten inches in twig growth in a season. It is only fair to say that I have seen a few orchards in light sandy soil and in very heavy soil, where blasting apparently did no good, or even did harm. The sandy soil seemed to lose in moisture holding capacity by the blasting. The clay seemed to hold water around the trees too long.

There may be some question about the value of blasting an open, fertile soil, but there can be no question at all when there is the least indication of plow sole or hardpan or a layer of clay. Blasting is intensive tillage. If you believe in tillage you automatically believe in the use of explosives to secure it, because there is no other method so effective and none that you can use to get the same results or to get results of a similar nature for so little money.

NITRATE OF SODA

Nitrate of soda is a valuable fertilizer in the garden in early spring. Especially is this true when the season is cold and backward as it has been this year. Gardeners who are desirous of giving their vegetables a good start and of bringing about early maturity, particularly with the leaf crops, will find a light application of nitrate of soda to be a stimulant. For the backyard gardener, a teaspoon dissolved in a gallon of water, applied to the soil along the row, is a good practice. It can be purchased from houses handling seeds or fertilizers.

SHORT COURSES

The University of California is mailing announcements of Farmers' Short Courses which are to be held at Davis September 24-November 2. There will be courses in dairy husbandry, butter making, cheese making, general agriculture, horticulture, in fact every feature of California's diverse agricultural practice .

APRICOTS-PRUNES

In the issue of May 12 on Page 549 we gave report from State Horticultural Commissioner Hecke as to conditions of fruits up to that date. There was an error in the third paragraph under the heading "Apricots", and a correction of this was sent from Sacramento but not soon enough to catch up with the misinformation. This paragraph refers to prunes and should have read:

"Santa Clara produces 55 per cent of California's prunes and reports a 100 per cent crop, while Sonoma produces 12 per cent of the total, reports a 60 per cent crop. Solano 75 per cent and Tulare 100 per cent."

SMALL FRUIT CULTURE

The gardener will find interest in Circular 164, "Small Fruit Culture in California" by A. H. Hendrickson, instructor in pomology, University of California. It takes up the matter of small fruits of all kinds under California conditions.

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Mitchell Junior—a 40 h. p. Six
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Over 440 parts are built of toughened steel. All safety parts are vastly over-size. All parts which get a major strain are built of Chrome-Vanadium. The gears are tested for 50,000 pounds per tooth. The springs we use—Bate cantilevers—have never yet been broken.

Several Mitchells have already run over 200,000 miles each. The Mitchell of today is built to be a lifetime car.

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But the Mitchell, in addition, has 31 features which nearly all cars omit. Things like a power tire pump, ball-bearing steering gear, dashboard engine primer, etc.

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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

The Alfalfa Caterpillar

Noting the article in the issue of April 28 on the corn ear worm, with formula for killing the larva on the corn silk, are there not many other moths, the larva of which is just as destructive to other crops? For instance the little white, yellow, blue or pink butterflies sometimes come in swarms over entire alfalfa and corn fields. I have had a whole crop of alfalfa totally eaten by the larvae of these butterflies and have come to look with distrust on the whole family of butterflies. Have noticed also a great difference in the size, shape and color of the larvae.

For the corn ear worm you recommend the use of dry arsenate of lead, to be applied to the silk, which would of course succeed in killing only the larva. This may be all right, but it occurs to me that it might be possible to generate noxious gas or fumes which in settling on and through the crop, might succeed in destroying the moths before the eggs are deposited, or possibly the use of creosote, nicotine, carbolic acid or something of that nature might help materially. No doubt experiments have been made along this line and the results of same would no doubt be of interest to Cultivator readers.—Subscriber, Manteca.

The alfalfa caterpillar is entirely different from the worm which infests the ear of the corn. The parent of the caterpillar, as noted, is the bright yellow butterfly, while the corn ear worm is from the long grayish moth. Regarding the control of the alfalfa caterpillar Essig's "Injurious and Benecial Insects of California" says: "To successfully control such a pest one must resort to a number of practices, all of which judiciously combined will give very good results. The alfalfa should be cut, as soon as the larvae begin to apper in any numbers in the spring, to starve this first brood and thus keep down the next generation. Other cuttings should be made when blooming begins. Successive irrigations immediately after cutting to stimulate vigorous growth are very important. Disking the fields in the fall of the year will kill many of the over-wintering pupae. The food plants should not be allowed to grow wild around the fields, as they serve for excellent breeding places. Pasturing the land also helps to keep down the pest."

By the way this excellent book, if not out of print, may be secured by writing to State Horticultural Commission George H. Hecke, Sacramento. This book should be in the library of every California farmer.

Keeping Worms Out of Potatoes

Is there any method of keeping worms from potatoes after they are dug from the ground? Would like to keep some for home use, but the worm always take possession of them as soon as they are put away.—Subscriber, Long Beach.

The potatoes should be left exposed as short a time as possible. They should be stacked and stored where the moths cannot get to them to deposit eggs. Of course there may be some infested potatoes which have grown near the surface and on which the eggs were deposited before digging, but the infestation is greatly lessened if this care in digging and sacking is observed. The infestatic may be still further lessened by e posing in air tight bin to the fume of carbon bisulphide, which is use at the rate of one pint to 1000 cub feet.

Rabbit Trouble

Please advise what is wrong wit little rabbits when the eyelids stic together; also why should health looking young rabbits die off when a parently they are not sick? Am fee ing ground Egyptian corn and var ous green feeds, no cabbage or le tuce, however, and none of the rabbi have the slobbers. — Subscribe Bakersfield.

This question was referred to C. Gilmore, Western Secretary Nation Rabbit and Pet Stock Associatio who writes:

"Eyelids sticking together caused from slight cold. Bathe the twice daily in a solution of one pa boracic acid and ten parts war water. Reason for apparently health young rabbits dying is probably ove feeding of greens or feeding too we allowing to remain in the hutch an become soured, feeding irregularly o occasionally. Would suggest that yo feed rolled oats or barley in prefe ence to kafir corn, or, better still, good rabbit mash."

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Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answe legal queries in this department.

Immediate mail replies cannot b given except where fee to Mr. Stanto is paid. When replies are wished b Cultivator address query to 116½ N Broadway, Los Angeles.

Unsigned communications receive n attention.

Taxes on Homestead

Can a homestead be assessed an taxed after having made final proo and before receiving patent? Is i legal to assess 80 acres of land th same as 160 acres, other things bein equal?—Subscriber, Victorville.

When a homestead settler has com pleted his prescribed term of resi dence and is entitled to a patent hi interest in the land is taxable, as i such cases the United States holds merely the dry legal title and has n real ownership therein. The only rem edy for an alleged over-assessment i to make application to the board o supervisors sitting as a board o equalization; this application must be on file before the first Monday in July.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Hard Milker

I have a young cow with her first calf that is very hard to milk; aside from that she is an ideal cow. Is there any remedy for it?—Subscriber, Ontario.

The openings in the teats can be enlarged by cutting or stretching the sphincter muscle that surrounds the opening. In cutting great care must be exercised as one is liable to cut too much and do more harm than good. It is better to stretch the openings by inserting an instrument that is made for that purpose. There are several different kinds that can be purchased from veterinary instrument manufacturers. Some are of the form of a small collar button. These can be inserted after milking and left until the next milking. The instruments are of different sizes, and by using the small ones at first and

changing to the larger ones you will soon get the desired results. The instruments should be thoroughly cleaned every time before inserting them to avoid introducing any dirt that will irritate the parts and cause inflammation.

Founder

I have a mare that is stiff in the front legs. Working her on the land she seems all right but on the road she is stiff next day and it is hard for her to turn out of the stall. The stiffness lasts for several days after a 30-mile drive, but not so long after shorter trips. There are puffy swellings on the front legs at the fetlocks which increase after a long drive but go down again after a rest. The hoofs are hot to the hand and do not look right. I think it is called "contracted" About a year ago while driving her with another horse she slipped and stumbled, which I thought was due to the other horse biting her and annoying her. On the advice of a friend I blistered her once and it did good for a time. What would you advise doing for her?—"No Horseman".

The soreness is all in the feet. At some time she was overheated and given too much water or allowed to stand in the wind and cool off too quickly. Or she may have been overfed and had a case of indigestion. Such treatment is often followed by laminitis (inflammation of the lamina of the feet) but why nobody knows. This inflammation is likely to become chronic and interfere with the growth of the hoofs which become contracted and squeeze the inner parts of the foot and cause pain. Probably the first of her trouble was about the time you took the long drive. That was the cause of the stumbling. The remedy is to remove the shoes and pare the soles of the feet thin and allow her to run barefooted and if possible to run in a wet pasture. Also blister just above the hoofs every two or three weeks until several blisters have been applied. A good blistering ointment can be made by using one part of cantharides, one part of biniodide of mercury and six parts of lard. Mix thoroughly and rub a little into the skin. Rub it in well and tie the horse so she can not reach the blister with the nose for 24 hours, then rub on some lard and turn her out. By following this treatment, in time the feet will grow out larger and the soreness will be much relieved, but a permanent cure is not known for such cases. By allowing the horse to go barefooted she will last a long time on the farm but can never stand much road work. If there was anything serious with the puffs at the ankles they would cause lameness when working on the land, but as the lameness only follows the pounding of the feet on the hard road it is evident that the trouble is all in the feet.

DISPERSAL OF WILLOWWOOD JERSEYS

Written for California Cultivator

THE dispersal sale of C. G. McFarland's Willowwood herd of registered Jerseys at Tulare on May 17, established a new high-price average for Jerseys in California, and many of the great animals in the herd sold far below their real value at that.

Buyers were present from widely separated points as thorough publicity had been given the sale by the management. Many of the established breeders of the state turned out, but it is noteworthy that practically the entire herd was sold to breeders just founding herds.

Grant A. Brown of El Monte was the heaviest buyer and took a great herd of 13 head to Southern California with him. A. L. McCulloch of Alpaugh bought a foundation herd that has every qualification to make good in his bands. Ed Whaley of Tulare bought five of the best things in the sale, including the $400 two-year-old heifer, Pearl of Willowwood 2nd, that topped the sale. Mark L. Requa purchased three topnotch females for his Anchorage Farm at Orland.

Twenty cows averaged $245. Twenty-one heifers and heifer calves averaged $189, making a grand average of $216 for females in the sale. The sale was capably managed by California Breeders' Sales and Pedigree Company, with Col. Ben A. Rhoades as auctioneer. The sale totalled $10,075, a large number of young bulls swelling the total.

Following is list of females sold with price and name of buyer:

Rioter's Miss Gertrude, $370; Philadelphia's Glory Jennie, $135; Lottie's Glory Bird, $235; Loretta of Willowwood, $145; Bonnie of Willowwood, $190; Philadelphia's Glory Zella, $160; to Chambers and Wilbur Inc.

Lottie of Willowwood, $385; Jennie of Willowwood, $190; Rioter's Golden Gladys, $300; Dot of Willowwood, $300; Dot of Willowwood 2nd, $200; Gene of Willowwood, $190; Elodine of Willowwood, $300; Fawn of Willowwood, $180; Neoma of Willowwood, $175; Brown Irmalia, $220; Irmalia of Willowwood, $175; Daisy Witch, $135; Gertie of Willowwood, $180; to Grant A. Brown.

Lottie of Willowwood 2nd (calf), $90; Pearl of Willowwood 2nd, $400; Zella of Willowwood, $240; Rioter's Glory Gretchen, $300; to Ed Whaley.

Pearl of Willowwood, $310; Rioter's Miss Lady, $315; Moravia's Fawn, $290; to Mark L. Requa.

Kate of Willowwood (calf), $105; Dot of Willowwood 3rd (calf), $115; to P. Staufer.

Mattie of Willowwood, $300; to W. H. Wilbur.

Meridale Melia Kissam, $230; Gem of Willowwood, $110; Lulie's Coomassie, $200; Blue Stocking Ona, $240; Eurotas Pogis Fawn 4th, $365; Marigold of Willowwood, $190; Emma of Bellview, $120; to A. L. McCulloch.

Lulie of Willowwood, $135; Gertie's Son Royal Fawn, $230; Evelyn of Willowwood, $205; to S. C. Harshbarger.

Ona of Willowwood, $145; to O. G. Gismegian.

1916 YEAR BOOK

The Year Book of the United States department of agriculture for 1916 is just from the press. Readers of the Cultivator may secure this book by writing to California senators or to the representatives of the district in which the applicant lives.

This is one of the most completely illustrated numbers ever issued by the department, is rather larger than for the preceding two or three years and has a fund of information invaluable to California farmers. It contains the annual report of the secretary, description of the meat inspection service of the department, also of some other activities of department work and discussions as to color as an indication of the picking maturity of fruits by Corbett, farms, forests and erosion by Dana, introduction gardens of the United States Department of Agriculture by Dorsett, the dasheen, its use and culture, by Young, supression of brown-tail and other moths, by Burgess, handling the wool clip by Marshall, business essentials for cooperative fruit and vegetable canners by W. G. Kerr, practical use of insect enemies of injurious insects, Howard, development of our own resources of potash by Brown, and farm tenantry, sewage disposal, rodent pests, Thanksgiving turkey, mutual fire insurance and innumerable other questions.

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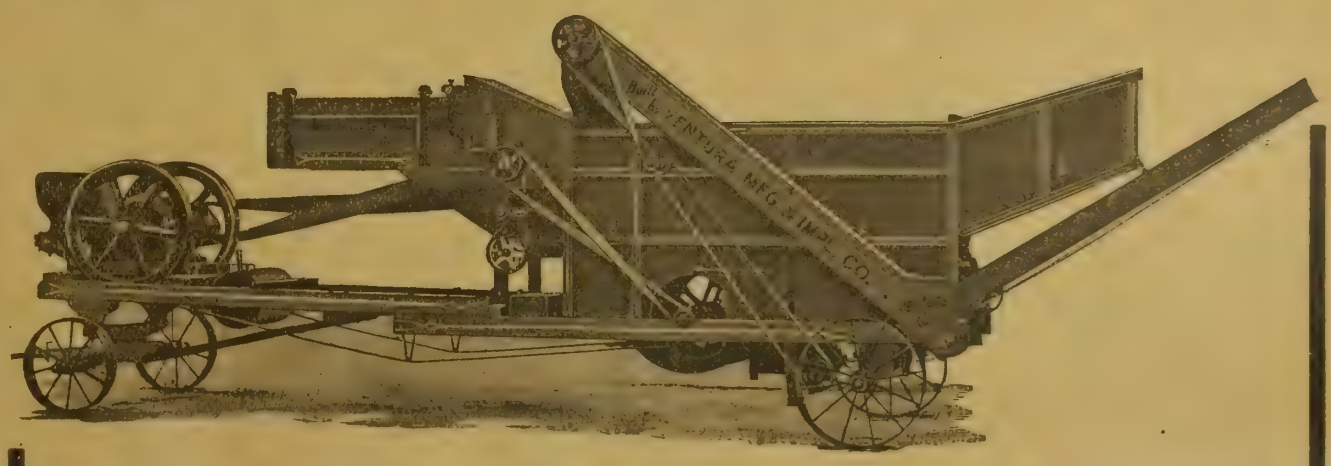

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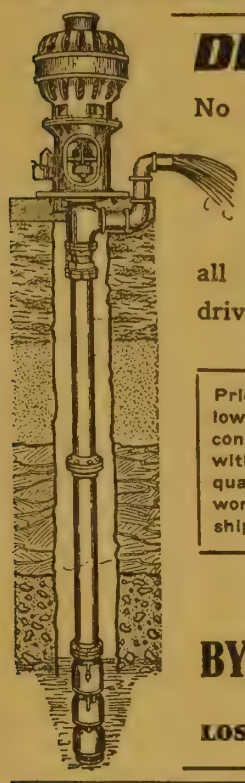

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Corn a Profitable Crop

CONTINUING discussion of corn and its production in California speakers at the convention at the Sperry Mills in Stockton have given a fund of information which we are glad to print for the benefit of our readers. We believe California's capabilities as a corn producer are not fully appreciated. On the other hand we know that for years corn culture has been tried and many have been discouraged with lack of success. But some are succeeding in growing this crop and securing good cash from the corn. With modern methods of shredding a good coarse fodder is easily converted into a high grade product. Besides the addresses given by Messrs. Luke and Westgate in a former Cultivator we quote from discussion by Mr. Bigger.

J. M. Bigger

Thorough cultivation—that is the keynote to success in growing corn as well as in all other branches of agriculture, and in the planting of your corn another thing I would like to emphasize is not to plant too much seed. If you have your corn planted too thick it will not yield well, and the husks will be poor in size. That is one of the faults I find with my tenants, they think that by getting a certain amount by planting three pounds, they can get a third more by planting four pounds.

• • •

The questions which follow were put by members of the audience:

How about suckering?

I have not found it practical, especially in the King Phillip variety, which is the worst variety for suckering, but it will stand more thinning than any other variety. We have had as good results by not suckering but planting thinner.

How about irrigating?

It is a great mistake to over-irrigate corn. Cultivation will retain the moisture. Corn does not require as much water as beans.

How many times, and at what times do you irrigate?

As soon as we notice that the moisture is leaving the ground, and when the color is not quite right on the growing corn.

How quick should the water go on after you notice the color?

Right away—as soon as the corn begins to turn it shows that it needs a little more moisture. If your land is a little too wet the corn will be too light a green. What is true of corn is true of all other plants. They all indicate a want of moisture by the color of their foliage.

I want to caution you against too deep cultivation. After the corn is well along you have to take care of those small lateral roots, being careful not to cut these off by deep cultivation.

How about the distance of planting?

The rows should not be closer than 42 inches, and not over three plants to a hill. We don't believe in hilling corn very much in California.

On your land what is the water depth?

While I have said that corn does not require as much water as beans, it will stand more abusage from water than most other crops.

Will corn grow on land where the water is two or three feet from the surface, or will corn do better when the water is farther from the surface?

My experience in the Delta section has been that I could grow corn on subirrigated land not adapted to growing potatoes, beans or other vegetables, and required very little irrigating.

I have been in the business 30 years and have seen a good many failures by my neighbors in planting too late, in selection, cultivation, difficulties in harvesting, and sometimes the blackbirds harvesting for them.

In California we are troubled with a worm cutting down the blossom end of the corn, and the hard Flint varieties on that account have been found to be the safest. The King Phillip has done well in the Delta and brought a good yield, less than 400 acres yielding a crop worth $30,000.

Do you know anything about the lister?

Yes. We have not had as good results with the lister as with other planters, although in a dry country the lister would be especially good, but on the wet low lands it is better to plant near the surface, and like all other plants if conditions are ripe it will germinate quickly and come up, producing better results.

How early do you plant?

The first of April if the winter is short and the nights are not too cold and frosty, or your corn should be in about the middle of April, not later than May. Corn will stand one cutting down by frost and will come up without replanting. Corn is not a crop that will do to plant too late. California has not an ideal climate for growing corn. We have too many cold nights which are not good for the corn grower.

How late in May can you plant?

I have had corn planted the middle of June produce a good yield. Corn is not hard on land and is a good crop to alternate with. We had our best stand of barley this year from land that had grown corn. This is one of the best advantages in raising corn; you can alternate it with other crops.

How late did you say?

The middle of June. I have seen it mature when planted the middle of June, but as a rule you must plant the seed by May, and if cold weather should come, you can, of course, replant. Ten pounds of seed is about the most you can use and the cost of the seed isn't much.

Do you test your seed?

No. We have never tested it. I don't know whether or not I have touched upon the selection of seed, but the careful selection of seed by the Eastern farmer has brought up the yield in the United States from 17 bushels to 37 bushels. We have always selected our seed from the crib.

Will corn tolerate much alkali?

Corn will tolerate more alkali than either potatoes or beans. It will stand considerable alkali if you can get it to germinate; that is one of the advantages in growing corn. You have to be more careful about irrigating on alkali land. You must have irrigation where you have alkali, and drainage. You can grow corn on land that has considerable alkali.

Which seed do you think would be the better, seed grown here or in the East? Would selected seed from Iowa have to become acclimated?

It took seed purchased from the Funk Seed Company of Iowa a year or two to become acclimated, and then it did not do as well as the King Phillip variety, but if people are going to continue in the business it would be well to get seed from the East and get it acclimated. They are more careful in the selection of seed.

Is this King Phillip a native of California?

I first got the seed in the southern part of the state. They had been growing it in Orange County on similar land, and that is how I came to select that variety to start in with. It is good for ensilage.

One quesion more. In harvesting, have you had any experience in cutting the stalks early and putting them in shock to dry out?

I have had some experience. It is an open question as to cutting it and shocking it compared with other methods of harvesting, but the advantages are in the fodder; you can get it off two weeks earlier. Our way has been to put a crew in and husk it and have it shocked and thrown into piles, harvested and put in the cribs. We sell to the sheep men at $1.50 an acre, and we never have had any trouble in getting rid of the stalks. We plow them under, or sometimes if too thick, burn them.

Have you had any experience in gathering the corn in that way, by cutting and shocking it up, then husking and shredding it?

Have had some experience but not in a large way. When I cut it and put it in shock, I first put it up that way, then I would husk it and feed the shuck to the cattle as I required it, but my experience in this line is not up to date.

It is noticeable, isn't it, that the really important people do not insist on having the most important places given them.

The Box-Tree

Written for California Cultivator by E. Braunton

IN Isaiah 41:19 it states: "I will set in the desert the fir-tree, and the pine, and the box-tree together." This, and 60:13 are the only places in the Bible where the box-tree is mentioned. It is native to Europe, Asia and Africa. This is Buxus sempervirens, though another species, B. longifolia is now more common in Palestine. Like the myrtle, the box makes an excellent hedge but is much slower in growth. Not all species of box do well in California, and the dwarf variety of B. sempervirens gets its foliage scorched by the fierce summer sun, but among the dozen or more varieties of this species there are some that do not suffer from the exactions of a semi-arid clime. One plant native to this state has been called Buxus Californica but is a Simmondsia and bears a seed pod very closely resembling an acorn with its cap. It is a showy shrub and well worthy of cultivation as a local member of the box family.

The Lily of the Bible

The lily is many times mentioned in the Bible, and because we consider the lily emblematic of purity and therefore white in color, we have come to think only of white lilies as we read Scripture. But there are no white lilies native to Palestine and I can find no intimation in the Bible that the lily is white or was at that time considered emblematic of purity. That the lily was one of showy color is certain, for it is stated that: "Solomon in all his glory was not arrayed as one of these," and again in Song of Solomon, 5:13 it states: "His lips are like lilies," wherefore they should be red. It is said Lilium Chalcedonicum grows abundantly in Palestine though Bailey's Cyclopedia gives only Greece and the Ionian Isles as its native habitat. This lily is a brilliant scarlet and is known as the scarlet Turkscap lily and is no doubt the lily spoken of in the Bible generally.

Palestine Oaks

Many persons who for sentimental reasons would like to grow plants native to the Holy Land will be pleased to know that three species of oaks grow there as native species. One of these is a live oak or evergreen species, though but a large shrub. It is known as Quercus pseudococcifera, the "prickly oak." Another species is Q. aegilops, the Valonia oak, and bears a really gigantic acorn. The third species is Q. infectoria and is rather rare in Palestine. So far as I know Q. aegilops is the only one of these species offered for sale in California, being offered by a Fresno firm. Whether or not it has yet borne acorns in California I cannot state.

The Camphire or Henna

The camphire mentioned in the Bible is held by some to be camphor, but as the latter does not grow in Palestine or nearer to that country than China or Japan, another plant must have been meant. Nearly all authorities agree the plant is Lawsonia inermis, a shrub sometimes grown in California. It is found in but one place in Palestine, and that is Engedi by the Dead Sea. In Song of Solomon 1:14 it states: "My beloved is unto me as a cluster of camphire in the vineyards of Engedi." It is a handsome shrub with fragrant flowers which grow in clusters. In the Far East it furnishes a yellow dye which is used in Egypt by the women to color their nails and by the men to dye their beards.

The Common Myrtle

Myrtus communis, often called English myrtle, is native to many countries and is not particularly English. It grows as far away from that country as the Holy Land and is many times mentioned in Scripture. It thrives splendidly in California and is a general favorite for it has numerous attractions. Both foliage and flowers are bright and shining and both have a delightful fragrance. Very old specimens grow to be a dozen feet high but ordinarily they are found not more than one-half that height. As a hedge they are scarcely surpassed by any plant locally used for that purpose.

The Clackamas County, Oregon, Fair will be held September 19-21.

CALIFORNIA, A SEED GROWER'S EDEN

From the standpoint of the seed-grower, California is a veritable Garden of Eden. For untold centuries the elements have washed down from its mountain sides the soil that now fills the valleys with unmeasured fertility. For six months of the year, Nature accommodates the grower with cloudless skies. Rain at seed-harvest time is a rare occurrence in California; hence the seeds grown there are bright, plump, full of vigor and vitality. To carrots, lettuce, onions, and radishes, Californian soils and climate present ideal chances for perfect development such as probably no other part of the world can claim. As a result, crops of 600 tons of carrot seed, 500 tons of lettuce seed, 600 tons of onion seed, and 400 or 500 tons of radish seed are an annual occurrence in the Golden State—almost inconceivable quantities from the standpoint of the home gardener who is accustomed to handle these seeds in "packets" containing a fraction of an ounce.—Adolph Kruhm, in The World's Work.

England has suspended prohibition on importation of farm tractors.

Book Review

STRAWBERRY GROWING

"Strawberry Growing," by S. W. Fletcher, professor of horticulture, Pennsylvania State College, published by the Macmillan Company, New York, at $1.75.

This is a 326-page, well bound, fully illustrated treatise on the strawberry. Its preface says:

"The strawberry is distinctively North American. Most modern varieties sprang from species found only in the Americas. Progress in the domestication of this fruit was coincident with the introduction into Europe of American types. The acreage under commercial culture in the United States and Canada has grown from 1400 acres in 1854 to 150,000 acres in 1910. This is more than the combined acreage of all other countries. This book aims to reflect modern commercial practice in North America."

There are 15 chapters and an appendix touching upon locations and soils, planting methods, rotation, manure and fertilizing, tillage and irrigation, training the plants, mulching, pollination, packages, picking and packing, marketing, cost of production, propagation, varieties, frost, diseases and pests. The appendix contains a fund of information as to acreage and production.

"The Car of No Regrets"

KING EIGHT
60 HORSE POWER

You "make hay" when you buy a King

IT is an automobile sufficiently reliable under severe official road tests to have its chassis adopted by the United States Government for armored cars, though it shares this honor with several other good makes of cars, some of higher price.

Its four bodies were designed for unusual grace of line and elegance of finish, and one of them may appeal to you as being more beautiful than any other car among the many attractive models now on the market.

The King is build by a long-established company with a reputation for good cars and fair dealing, ranking high among a number of worthy competitors.

It is a car which may be conservatively described as economical, considering its high power and bigness, and one that "handles" easily,—its all-round road competence, especially on hills, has surprised and delighted many.

In all, we believe the King Eight does offer a quite remarkable combination of power, economy, reliability, comfort and style, which, considered with the price, makes it a purchase absolutely safe for anybody and one thoroughly consistent with our slogan "The Car of No Regrets."

Foursome (shown above), $1700; 7-passenger Touring model, $1650; Sedan, $2300; Roadster, $1585. Prices F. O. B. Detroit and subject to increase at any time. A catalog in color will be sent on request together with the name of a near-by King dealer.

KING MOTOR CAR COMPANY, DETROIT, MICHIGAN

Established 1888. Twenty-eighth Year

The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, May 26, 1917

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

If more intensive cultivation means patriotism we have a patriotic cover illustration this week. Even among trees which have almost arrived at maturity other crops may be grown. It is not yet too late for beans, potatoes and many other valuable food crops. And don't forget the live stock; there is great need of feed for them all.

RIVERSIDE CONVENTION

State Commissioner Hecke has announced that the State Fruit Growers' Convention at Riverside has been postponed until 1918, this because of activities of all the workers in the "patriotic-produce-more" campaign.

That convention would have been an opportunity for giving a greater impetus to the campaign, but perhaps this is a case of work not impetus, or as one has expressed it "more perspiration and less inspiration."

DECORATION DAY

Next Wednesday is Decoration Day, or the day we observe in memory of the veterans of the Civil War and of all who have served their country.

To a degree it has become a day of games and sports. We believe, however, it would be far more fitting if it could be made a day when patriotism should predominate, and certainly this is a year when the nation might well think most seriously on the great problems which are before us, as well as honor the memory of those who have solved some other great problems of our nation. Honor the Blue and the Gray and the boys who gave up their lives that Cuba might have freedom.

THE LIBERTY LOAN

On this page is given form of application for bond of the liberty loan, with explanation of what a liberty loan is and other valuable information regarding this, the greatest of all bond issues.

It appears this early that this issue will be greatly over-subscribed, and the treasury department has been assured that the entire issue will be taken at once if so wished by the department. But to make it true to name it has been offered to the people of the United States at par and accrued interest. Banking houses and many other institutions, especially newspapers, are receiving applications for these bonds and transmitting them direct to the federal reserve bank without any charge. Newspapers are freely advertising them. Every penny subscribed goes directly into the liberty fund which in the belief of the American people will carry American freedom to other countries as well as preserve it for our own.

Sign blank on this page and send to the office of the California Cultivator which will be glad to transmit to the reserve bank. Two per cent of the amount of bond to be purchased must accompany application. Send money in draft or money order payable to Federal Reserve Bank.

MORE LABORERS

Will the United States open the Golden Gate to a half million Chinese laborers? We think not, for international complications would doubtless result which would be most embarrassing at this time. There certainly is a shortage of competent labor, but we believe it will be greatly relieved by the use of the forces which are at command in this country. It now appears that the draft will not be effective until September, permitting most of this season's work to be completed. Further, the appeal to the patriotism of thousands of others who might not ordinarily enter into productive work will result in securing many thousands of competent laborers. For example, the high schools and colleges should release during the summer months a large force which will be very efficient after a little training. If as much patience is exercised in the training of this force as would be required in the training of a half million Chinese coolies an efficiency would be given to American productive agencies which has never been realized. Again, may not our employing producers give better housing facilities and increase the good will of the present working force?

Let us make American farming a white man's work.

MAXIMUM AND MINIMUM

Many producers have questioned as to what may be the action of the government regarding maximum prices on food products. We believe this question has been raised so often that it has to a degree affected the amount which will be produced this season.

Replying to a question along this line Secretary Huston has said: "Your inquirer seems to think that it is contemplated to fix a price to producers which would be so low that they could not secure a reasonable return. Of course there has been much confused writing in the papers. Only two suggestions have been made: One is that the government be given power to fix a minimum price with a view to stimulate production. This price would be sufficiently high to insure producers against loss. It could not have the effect feared by your correspondent, because the very object would be to stimulate production by assuring sufficiently high prices to producers. The other suggestion is that the government be given power to fix a maximum price in extreme emergencies to break corners or to control extortion. It is not contemplated that the government, if it had the power to fix a maximum price, would announce the existence of such a price in reference to any one or more commodities in advance of the appearance of an acute situation; nor is it contemplated that such a price, if fixed, would be of continuing operation. The single thought in this connection is that the power might be used as a club, to be applied only in individual cases where it is clear that an individual or corporation had established a corner or was practicing extortion. The power, it is suggested, would be used against such individuals or corporations, and when that particular situation was controlled or the abuse eliminated, the incident would be closed. Any further exercise of the power would depend upon the appearance of a similar condition."

BUY A LIBERTY LOAN BOND

Written for California Cultivator By Herbert Quick

MONEY used to save liberty to the world becomes sacred. The Liberty Loan is money devoted to that great cause. Constitutional liberty was born in England, and was transplanted in America by our forefathers. Our history and England's are the same down to 140 years ago.

A hundred and forty years ago through France's aid we formed our own separate government for the administration of our share of this liberty. Since that time we have been engaged in the great task of developing it, and to the best of our imperfect ability perfecting it. It is a long look from Magna Charta to the constitutional conventions of Illinois, Massachusetts and North Dakota, to the initiative, referendum and recall in California, but the latter rest on the former. So the Ship-Money struggles of the British kings and the new tariff board in Washington seem remote from each other, but the one is descended as directly from the other as are the laws of Kansas from the British constitution.

War is not our business. We hate it. So does France. So does England. "The irony of it," said many a French soldier as he marched to the front; "that we, with all our culture and learning and civilization must go into the trenches and fight like savages!" And how they have fought! The British people for months could scarcely believe that they must go down to this foul death; and how they went, and how they are fighting! War is not their business either.

The Liberty Loan will save France, redeem Belgium, preserve Britain, safeguard ourselves. For we must carry the war to the Germans, or they will bring it to us. If we cannot win with the most powerful allies in the world, we shall be forced to fight it out alone with Germany and such allies as she may bring against us. It is not an incident of this war only that Germany sought to combine Mexico and Japan against us. It is a part of her policy. It is connected with the German uprising in Brazil.

Fifty thousand Robert Morrises are enlisted in a great army in the subscribers to the Liberty Loan.

In the Liberty Loan we send our money to keep in the field the men who will make it possible for our men to successfully bear the flag in Europe. For that flag to take its place among the banners displayed in the tortured line from the Swiss frontier to Antwerp in a terrible and wonderful thing. We all hoped that Columbia might always live her old retired provincial life without mingling in the society of the world's courts and chancelleries; but it was not so to be. Willing or unwilling she must make her debut—and she must make it in blood and smoke and thunder.

In the Liberty Loan the wealth of America salutes the flag. It speeds on before our soldiers, and tells our friends fighting and dying for our cause that the flag will soon be with them, and to be of good cheer. It tells the dazed people of Russia that the greatest of the republics is in the field for her new born rival in greatness. It tells Russia to look for the flag and collect her wandering thoughts and arouse her resistless might. Without the Liberty Loan Columbia can never take her place in that mighty company without disgrace With it the flag will make good our boast:

Flag of the free heart's hope and home!
By angel hands to valor given;
Thy stars have lit the welkin dome,
And all thy hues were born in heaven.
Forever float that standard sheet!
Where breathes the foe but falls before us,
With Freedom's soil beneath our feet,
And Freedom's banner streaming o'er us!

Information Regarding Liberty Loan Bonds

What Is the Liberty Loan Bond?

A Liberty Loan Bond is a solemn promise of the United States to pay at maturity the amount of the bond to the holder thereof, and to pay interest semi-annually each year from the date of the issuance of the bond until it is fully and finally paid.

The bonds will bear interest at 3½ per cent, payable semi-annually June 15 and December 15, and run 30 years, except that the government reserves the right to pay 15 years after date. They may be paid for, two per cent of the amount desired to accompany the application, the balance on June 28 or, if preferred, one may send two per cent with application, 18 per cent on June 28, 20 per cent on July 30, 30 per cent on August 15, 30 per cent on August 30.

What Is the Nature of a Liberty Loan Bond?

There are two kinds of Liberty Loan Bonds. Bearer Bonds are to be issued in denominations of $50, $100, $500 and $1000. These Bearer Bonds, which are made payable to bearer, have interest coupons attached which are detached by the holder when the interest installments they represent are due, and can be cashed at any bank the same as a United States Treasury note.

Registered bonds are to be issued, which are registered as to both principal and interest, in denominations of $100, $500, $1000, $5000, $10,000, $50,000 and $100,000; checks for the amount of interest due will be mailed out semi-annually to the holders of these registered bonds.

These bonds are non-taxable and contain the provisions that the holder may exchange them for other bonds, dollar for dollar, which the government may possibly find it necessary to issue, bearing a higher rate of interest. The bonds are issued in small denominations that every American citizen may have opportunity to purchase.

APPLICATION FOR BONDS

This application should be transmitted through the Cultivator Publishing Co., 115½ North Broadway, Los Angeles, or the subscriber's bank, trust company, or other agency acting on his behalf, or it may be filed direct with the Federal Reserve Bank, San Francisco, or the Treasury Department at Washington.

Dated.....

To the Secretary of the Treasury:

According to the terms of Treasury Department Circular No. 78, dated May 14, 1917, the undersigned hereby apply for $.....par value of the 15-30 Year 3½ Per Cent Gold Bonds of the United States, and agree to pay par and accrued interest for any bonds alloted on this application. The sum of $.....is inclosed, being 2 per cent on the amount of bonds applied for (or payment in full for the one $50 or the one $100 bond applied for).

Signature of subscriber, in full, ...

Address—number and street, ...

City or town, ...

County, ... State, ...

Agricultural News Notes of the Pacific Coast

Northern California

Beekeepers of Yolo County have formed an association.

The Vacaville Reporter records sales of prunes on a 7½ cent base.

Cherry shipments are beginning to go forward steadily from Vacaville.

Del Paso Heights, Sacramento County, is organizing a farm bureau center.

A movement is on in Butte County to secure the appointment of a farm adviser.

Los Molinos, Tehama County, last week shipped out several carloads of first cutting alfalfa.

Plantings of Tepary and Pink beans are being made in the Fruit Ridge district of Eldorado County.

The Glenn County farm bureau will hold farm center meetings at Elk Creek May 21, 22, Plaza 24, 25.

Various uses are being suggested for rice straw from winter feed for cattle to manufacture of brooms.

W. E. Scearce of Orland made a sale last week of $30,000 worth of ewes and lambs to a Nevada firm.

Mt. George is holding its monthly farm bureau meeting today at the Coombs Ranch. There will be a picnic lunch.

The Sperry Flour Company is considering the establishment of a depot at Vacaville for the upper end of Solano County.

The Yolo Independent suggests that a good way to go after the food shortage would be to lift the embargo on the killing of wild geese.

The first shipment of cherries sold in Philadelphia this season came from Vacaville. It was a half box of Purple Guignes and sold for $25.

A mass meeting of citizens of Eldorado County was recently held to consider advisability of establishing an agricultural course in the county high school.

State Veterinarian Charles Keane announces that every precaution will be taken to control an outbreak of hog cholera in the Ione district of Amador County.

In the change of the boundaries of the Sacramento and San Joaquin drainage district all of Glenn County and practically all of Butte has been cut out of the district.

President Stephens of the Pacific Rice Growers' Association denounces tactics employed by some millers who, he says, are attempting to corner the crops of the growers for the sake of holding up prices.

At a recent meeting of the state defense council at Woodland, Yolo county, it was estimated the county would require 10,000 more laborers than in normal years to handle the immense crops being planted.

Central California

The Valencia crop of the Porterville district is reported unusually large.

The Terra Bella district of Tulare County is acquiring many new orchard tractors.

Fresno County dairymen have decided to take a census of all the cows in the county.

The state convention of county horticultural commissioners will be held in Modesto June 6-7.

The Terra Bella Fruit Growers' Association has leased the cannery building for next year.

The California Grape Protective Association has called a mass meeting in San Francisco May 26.

Irrigation bonds of the Terra Bella district have been validated by the state bonding commission.

Orange growers of Lindsay have decided not to begin shipping of Valencias until the first of June.

Contracts have been let for packing houses for the Peach Growers' Association at Hanford and Reedley.

The chamber of commerce of Fresno County has begun the taking of a food and labor survey of the county.

The first full carload of olives packed by the Lindsay Ripe Olive Company was shipped to New York May 15.

Many farmers of Tipton, Terra Bella and Woodlake, Tulare County, have signed contracts with canners to grow tomatoes.

Milk producers of Fresno County held a meeting at Fresno yesterday to plan organization to take care of the marketing problem.

An effort is being made in the Turlock district to encourage the planting of Spanish peanuts and the establishment of an oil and meal cake mill at Turlock.

The California Associated Raisin Company and the California Peach Growers have increased wages in their packing plants two and a half cents an hour.

The picking of Valencias will probably begin June 10 in the Lindsay district but packers are trying to induce growers to leave fruit on the trees until thoroughly ripened.

J. W. Jeffrey of the Dinuba viticultural experiment station announces a meeting of grape growers and shippers at Fresno on June 2. This meeting is under the auspices of the state viticultural commission.

Demand for California peaches has been so great that the California Peach Growers' announces withdrawal of choice peaches from the market; stating that less than 3000 tons remain of standard Muirs and Extra and Fancy Yellows.

Southern California

Riverside County will hold its fair October 9-13.

First apricots were shipped from Indio on May 7.

The Hemet Valley expects to market 5000 tons of apricots.

Mowers are at work on first cutting of alfalfa in the Perris section.

Pomona reports a very heavy crop of apricots, demanding thinning.

Redlands has shipped out this season 3575 carloads of citrus fruit.

Riverside County begins its farm bureau work with 13 locals organized.

The California Lima Bean Growers' Association closed its 1917 pool May 12.

W. H. Fleet has resigned as director of the California Lima Bean Association.

The Orange County Fruit Exchange expects to ship 1800 cars of Valencias this season.

The 1916 crop of lima beans in the hands of the association is practically cleaned up.

The Beaumont Fruit Growers' Association expects to market 25,000 boxes of apples this year.

The beet sugar companies have announced an increase in price of beets to induce larger planting.

Governor Cantu of Lower California has agreed to allow no cottonseed brought into the state without inspection.

Horticultural Commissioner Waite of Imperial County has distributed 350 colonies of lady birds to clean up the melon aphis.

Hemet and San Jacinto people are uniting in a fair to be held October 16, 17, 18, 19, the week following the Riverside fair.

Riverside's citrus shipments for the season up to May 10 totaled 2701 cars, which is 352 cars above the total at this date last year.

Coachella Valley property owners are protesting against filings on Snow Creek and White Water River in the interests of Imperial Valley irrigationists.

The postmaster general has issued an order that berries and soft fruits sent through the post office must be placed in containers heavy enough to prevent crushing.

At the first series of farm bureau meetings in Riverside County the newly appointed adviser, W. B. Parker, will discuss preparation of ground for beans and sorghum.

Sugar beet companies of Southern California have agreed to turn over to growers for each cent above five cents per pound for sugar received by the factories one dollar per ton for the raw beets.

The Coast

Caldwell, Idaho, is cultivating 1000 acres in vacant lots this year.

Gooding County, Idaho, has a county farm labor bureau which is doing good work.

Large shipments of California beef steers are being received on the Portland market.

Washington state prison has a large herd of Holsteins which it is planned to increase to 90 by fall.

Fifteen hundred Arizona boys and girls have signed up in different kinds of agricultural club work.

The Rocky Ford district of Colorado reports 2500 acres planted to cantaloupes and 300 to Honey Dews.

Both butter and egg prices have dropped considerably in the Seattle market owing to heavy supply.

The Spokane land bank has made its first farm loan to the Eureka, Montana, farm loan association.

Apple growers of Wenatchee, Washington, are getting together to fight the proposed freight rate increase.

Farmers of the Northwest are considering advisability of bringing in Oriental labor to correct shortage of help.

The farm market bureau of Idaho has just purchased 100 tons of alfalfa hay in Canyon County for shipment to Bear Lake County.

Several counties of Arizona are considering appointment of county agents. Among them are Pima, Pinal, Coconino, Yavapai and Yuma.

Boys and girls of Washington, who were members of pig clubs, garden clubs, sewing clubs, canning clubs, etc., last year earned $118,000.

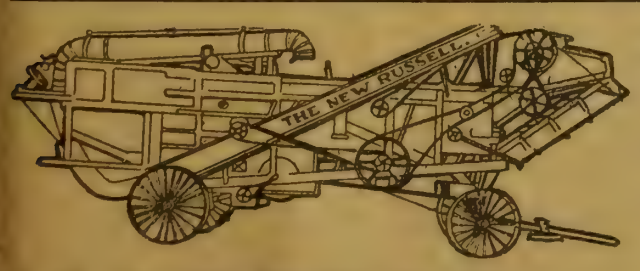
The state of Idaho pays bounties on wild animals; $2.50 on coyotes, minks and wild cats; $10.00 for bears and wolves; $25 for cougar and mountain lions.

The annual meeting of the Oregon State Grange has been postponed to June 12 because of lateness of the planting season. The meeting will be held at Astoria.

Apple and pear growers in the district about Dallas, Oregon, have formed the Dallas Fruit Union, with the object of bettering handling and packing of fruits.

Saturday, May 12, was Farm Defense Day in Oregon, when meetings were held of agricultural associations all over the state to make plans to relieve the food situation of the nation.

Business men and orchardists of the Hood River section of Oregon have decided to put into force a working day from sunup to sundown. Women and children are expected to help in the fields when the berry season comes on.



Russell Bean Threshers

Gas Tractors

Built Specially for California Conditions

CATALOGS UPON REQUEST

A. H. Averill Machinery Co. - San Jose

END the Morning Glory PEST with *Nonpareil*

"We have given Nonpareil a very good trial and find that it destroys not only morning glory but also horse radish. We consider it a thoroughly satisfactory weed exterminator."
—Luther Burbank.

If you want full profits from your crops you should use Nonpareil. It is easy to apply and economical to use—one gallon is sufficient to kill 250 plants. It does not injure the ground but acts as a tonic. It is the most successful weed killer known. Write today for interesting folder.

WHEELER REYNOLDS & STAUFFER
626 California Street San Francisco, Cal.

Farm tools and machinery left out in the open have an average life of 5 years. With proper protection they will last *25*.
If *your* implements are rusting out of doors, start an implement shed at once. Use California Redwood for posts, mudsills, frame, siding and shingle (or shake) roof.

California Redwood

Resists rot and fire

Redwood contains a *natural* preservative which gives it wonderful living power in contact with the ground, or when exposed to the elements. Redwood does not have to depend on *artificial* preservatives for its durability.
And Redwood is *fire resistant*. It gives you real protection.
Redwood is light in weight, easily worked, and the seasoned lumber does not warp, swell or shrink.
Its use for *any* farm purpose is a real economy.

FREE BOOKLET: Write today for "California Redwood on the Farm." And consult your local lumber dealers. When writing, please give us their names and addresses.

California Redwood Association
770 Call Building, San Francisco, Calif.

Ask for the child's story of the "big trees" of California—there's a copy for every child in the nation.

Santa Anita Rancho
Anoakia Breeding Farm

ARABIAN-THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three-year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars, Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent — Santa Anita, Cal.

FOREST GROVE LAUREL 8TH
First and Reserve Grand Champion
California State Fair 1916

The Type We Are Breeding For

Hardy, prolific sows of best blood lines and breeding. Strong, upstanding, prepotent boars. In short the best possible specimens of the Berkshire breed. We plan to do this by breeding large numbers and from them making a rigid selection.

James Mills Orchard Corporation
Hamilton City, California

When writing advertisers, mention The Cultivator.

April Report of San Joaquin County Cow Testing Association

By William F. Elder, Tester

THIS association is gradually enlarging and assuming a permanency that at one time seemed doubtful. The entrance of five new herds last month promises to make the production standards even higher than heretofore. The dairymen are beginning to realize that only by increased production can they keep pace with the increased cost of labor and feed, which means the elimination of the boarders and small producers.

The following are the five leading herds in butter fat production for the past month, giving name of owner, number cows in herd, average pounds butter fat: F. J. Kell, Stockton, 16, 44.1; Gotshall & Magruder, Ripon, 17, 38.5; O. Fowler, Banta, 24, 35.9; M. N. Yokum, Bellota, 24, 35.5; H. T. Bailey, Lodi, 50, 32.2.

The following are the five leading herds in milk production for the past month, giving name of owner, number cows in herd, average pounds of milk: F. J. Kell, Stockton, 16, 1317; Gotshall & Magruder, Ripon, 17, 1105; M. N. Yokum, Bellota, 24, 1005; O. Fowler, Banta, 24, 952; R. W. Fisher, Ripon, 20, 887.

The following cows produced 50 pounds or over of butter fat during the month of April, giving name of owner, cow, breed, pounds milk, test, pounds butter fat: F. J. Kell, Stockton, 447, H., 2319, 3.1, 71.9; County Farm, French Camp, 67, H., 1776, 3.7, 65.7; Mrs. E. C. Clowes, Stockton, 53, 1788, 3.6, 64.4; Gotshall & Magruder, Ripon, 2, H., 1647, 3.9, 64; O. Fowler, Banta, Daddies, H., 1708, 3.7, 63.2; N. H. Locke Co., Lockeford, 133, J., 1209, 5.3, 62.8; F. J. Kell, Stockton, 63, H., 1884, 3.2, 61.4; F. J. Kell, Stockton, 65, H., 1722, 3.5, 60.3; County Farm, French Camp, 105, H., 1755, 3.4, 59.7; Gotshall & Magruder, Ripon, 6, H., 1740, 3.4, 59.4; Mrs. E. C. Clowes, Stockton, 91, JH., 963, 6.1, 58.7; Gotshall & Magruder, Ripon, 5, H., 1782, 3.2, 57.6; N. H. Locke Co., Lockeford, 230, J., 1047, 5.4, 56.5; C. Holman, Stockton, 27, H., 1449, 3.9, 56.5; F. J. Kell, Stockton, 66, H., 2607, 2.7, 56.2; S. Gronner, Ripon, 1521, H., 1404, 4, 56.2; F. J. Kell, Stockton, 16, H., 1374, 4, 55; C. Holman, Stockton, 1, 1435, 3.8, 54.6; Oak Grove Dairy, Stockton, Nigger, HJ., 1212, 4.5, 54.5; S. Gronner, Ripon, 1506, H., 1338, 4, 53.5; H. T. Bailey, Lodi, 52, H, 1029, 5.1, 52.5; O. Fowler, Banta, Fanny, H., 1611, 3.2, 51.5; R. W. Fisher, Ripon, 24, H., 1419, 3.6, 51.1; Gotshall & Magruder, Ripon, 7, H., 1707, 3, 50.7; H. Bailey, Lodi, 31, H., 1395, 3.6, 50.2.

Southern California Duroc-Jersey Center

That the Duroc-Jersey is primarily the hog for Southern California is evidenced by the tremendous popularity the breed is showing with hog men in that portion of the state.

In the last year the demand for this red hog has been far greater than the local breeders could supply and Duroc breeders have been forced to bring in large numbers from the Eastern states, paying as high as $60 per head for express alone. Our Western breeders have not been backward in selecting what they wanted from these Eastern herds, regardless of price, and as a result Southern California is coming more and more to be thought of as the home of the Duroc-Jersey in the West. Other portions of the state and even neighboring states are drawing heavily on it for breeding stock with which to build up the herds in those localities.

The formation of the Southern California Duroc-Jersey Breeders' Association in October, 1916, was a long step towards stabilizing the breed, and to the breeders behind this association is due a large measure of the credit for the remarkable showing the Durocs have made during the last year.

Although the number of Durocs raised in Southern California probably exceeded that of any other breed, there had never been any of these prolific red hogs shown at the Riverside fair (the largest live stock show up to this time in Southern California), until 1916. In that year the backers of this association, getting together, fitted their herds for the show ring and easily outnumbered any of the other breeds shown. The association members are planning for a great showing of Durocs this year at both the Riverside fair and the new Los Angeles live stock show.

All persons, not already members of the association, interested in the production of better Durocs in Southern California, are urged to send their names to the secretary of the association at once, so that definite plans may be worked out for the coming show and sale season.—S. O. Houghton, president, Van Nuys; R. K. Walker, secretary, Devore, San Bernardino County.

Worms and Lice---Detecting and Fighting Them

By R. L. Hill, Field Secretary National Duroc-Jersey Record Association

IT is decidedly important that hog men take every precaution against worms and lice in their herds, if they expect to get the greatest profit from their efforts. Just recently I received a pamphlet, published by the agricultural extension service of the University of Missouri and prepared by Dr. L. S. Backus, giving information on the manner in which to detect worms and lice and the proper methods of combating them. The following is an excerpt from this practical pamphlet which will doubtless be of much value to any man owning hogs:

"In cases of especially severe infestations of stock by parasites, a veterinarian should be called to make a diagnosis and recommend such treatment as would be indicated under the existing conditions.

"Infestation may take place through the medium of an infested animal, infested premises, and infested foods.

Lice and scab mites may pass from one animal to another when the animals are in close contact, or a healthy animal may be infested from the harness, blankets, bedding or stalls of an infested animal.

"An animal which harbors mature worms passes thousands of worm eggs daily. In a few days, especially under damp and warm conditions, these eggs hatch. The young worms live in bedding, or the damp soil, or in pools of water, ready to be taken into the digestive tract of another animal where they grow to maturity. Animals sometimes suffer severely from parasites when they are so small they are not easily recognized on post-mortem examination. However, the immature parasites are expelled more readily by worm remedies which often have little effect on the more mature worm. This explains how the frequent feeding of some comparatively simple worm medicine often prevents severe infestation with worms.

"As the worms become larger they may form serious obstruction to the passage of food materials and excreta through the intestines. Or they may interfere with nutrition to such an extent that the host actually suffers starvation even though food is abundant.

"Intestinal parasites are commonly spoken of as round worms, pin worms or tape worms.

"The round worms vary in size in different animals. They are most common in the pig and horse and may be from five to 15 inches long. In the horse they may attain the diameter of a pencil. They are white and pointed at both ends. They inhabit the small intestines.

"Pin worms vary from one inch to several inches long and are much smaller in diameter than round worms. One end is usually somewhat blunt. They inhabit the large intestines.

"Tape worms are flat and segmented and vary in length from a fraction of an inch to many feet, and are generally found in the small intestine.

"The effect of worms upon an animal is usually in direct proportion to the number present. Where a few may apparently do no harm, under favorable conditions for their propagation they may speedily become a menace to the life of their host. Limited quarters and a large number of animals foster their propagation. The healthy animals become infested from those which harbor the parasites.

"Damp and badly ventilated inclosures, ponds and poorly drained pastures are conditions favorable for hatching parasite eggs and retaining the young parasites. Wet pastures may be unsafe for several years.

Symptoms

The symptoms vary, depending upon whether the invasion takes place gradually over several weeks, or whether it is acute. The animal has a good appetite, often eats more than normally, fails to gain or may lose weight. The skin becomes rough and dry. Horses may eat the bedding. Presence of worms in the excrement may often be noted. In severe invasions animals may die in large numbers and such invasions have been mistaken for some acute disease, such as cholera among hogs, fodder poisoning or anthrax in horses.

"The economic loss which results from stunted growth and falling off in condition is probably greater than the direct loss by death. Parasites lower the animal's vitality and often prepare the way for other diseases.

Worms in Hogs

Symptoms of worms in hogs are good appetite without proper gain, convulsions, cough and thumps, passage of worms. Post mortem showing worms within the intestine.

Treatment.—Hogs if properly handled are comparatively easy to treat for worms. The following formulas are recommended:

Formula 1.—Santonin, one dram;

HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families. Some of serviceable age.

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Whittier, Calif.

Retained Afterbirth

When the membranes remain in the uterus of a cow and decompose, inflammation of the lining of the womb may be caused, and this, with the absorption into the blood of the products of putrefaction, lead to ill-health, emaciation, diminished milk supply, failure to breed, and often blood poisoning and death. HOOD FARM BREEDING POWDER causes the afterbirth to come away naturally in a few days, and thoroughly cleanses and disinfects the parts, leaving the cow in normal condition for breeding. Write for full information and prices, mentioning this paper.
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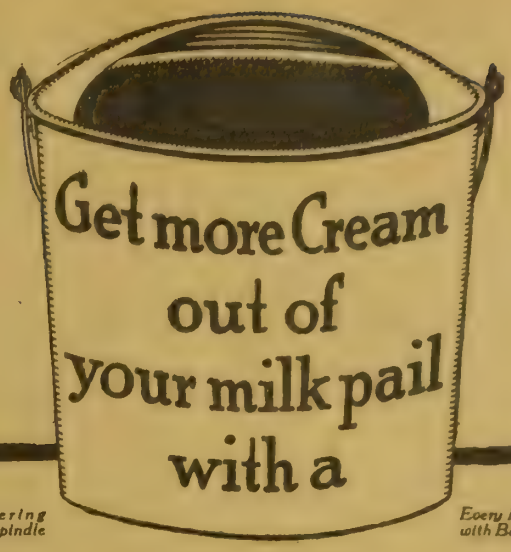

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You certainly can't afford to feed butter-fat to the calves and pigs at from 30 to 40 cents a pound.

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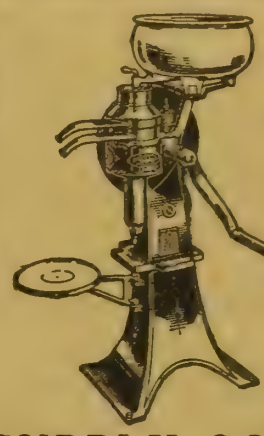
Here is the most convincing kind of proof that the De Laval is the cleanest skimming machine:

Fifteen years ago there were a dozen different makes of creamery or factory separators in use.

Today the creamerymen and large milk plants the world over use the De Laval almost exclusively. In fact, it's hard to find a large cream producer or creameryman who will allow any separator other than a De Laval in his plant, no matter what the price.



Why? Because they have found that it makes a difference of several thousand dollars a year to them whether a De Laval or some other make of machine is used. They simply can't afford to use any other machine.

This is proof of De Laval closer skimming that you can't afford to ignore. Even if you don't separate as much cream as the creameryman, you can't afford to waste it any more than he can.

Your local De Laval agent will be glad to let you try out a New De Laval on your own place. If you don't know the local agent, write to our nearest office for catalog or other information.

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We specialize in Alpha Gasoline and Distillate Engines, Ideal Green Feed Silos, Irrigation Equipment, Centrifugal and Deep Well Pumps and Alpha Spraying Outfits. Send for special catalog.
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Our herd of registered Shorthorns has been carefully selected from the leading milk producing strains of the breed and is being developed along the same lines in our hands.
The herd is headed by
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a prize winner at the 1913 International and grand champion at Panama-Pacific Exposition.
Sired by him and out of large cows of good milk production we offer for sale a few choice young bulls.
Our entire herd is tuberculin tested.
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OUR CONSIGNMENT will consist of EIGHT HEAD, including a 33-lb. bull.

He is a son of Finderne Soldene Fayne, with a record of 33.28 lbs., a daughter of that wonderful producer, KING HENGERVELD AAGGIE FAYNE, sired by KING FAYNE SEGIS, whose daughter, SEGIS FAYNE JOHANNA, is the world's ONLY 50-lb. cow.

The SIRE of the young bull is by KING PONTIAC SEGIS KORNDYKE and out of a daughter of STAR FARM PIETERTJE COUNTESS, with a record of 32.87 lbs.

Others in the consignment include some choice young stock, from 30-lb. cows, and record producing bulls.

Make your selections before the sale. A purchase from our herd means more and better milk.

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Horace L. Hill, Jr., Los Altos

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Security Calf Food

Will Bring You $27.80 Estimated Profit on Each Calf

Same Principle as Baby Foods are Used

The Old Way		The New Way	
Cream Used in Six Weeks,	$16.80	Cream Saved in Six Weeks,	$16.80
Veal Calf Sells for	15.00	Veal Calf Sells for	15.00
Loss	1.80	Total	31.80
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These are figures you can depend on and we absolutely guarantee you satisfaction or money refunded. Ask your dealer or write

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Shorthorn herd headed by Count Glory 426982, grand champion at the California State Fair, 1916. Berkshire herd won Premier Exhibitor's banner at P. P. I. E.

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GIVES GREATEST VALUE FOR LEAST MONEY.
IT MAKES THEM FAT.

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When writing advertisers, mention The Cultivator.

calomel, two drams; powdered areca nut, five ounces. Mix. Dose—One heaping teaspoon for every 100 pounds weight, or the formula is sufficient for 20 pigs averaging from 50 to 100 pounds.

"Note: Areca nut is an efficient worm remedy, but it loses its strength, and care should be exercised to procure the fresh drug.

"Withhold all feed for 24 hours. Give medicine in light feed or wet mash, and after six hours give one ounce of Epsom salts, per 100 pounds weight, mixed in a slop. This treatment will be found very effective. If the pigs are of different sizes, they should be divided into lots so that pigs of equal weight will be together. This will enable each pig to get its share of the remedy.

Formula 2. — "Powdered copper sulphate (blue stone). Dose, one teaspoon per 100 pounds weight, or one ounce to every eight pigs of 100 pounds weight each.

Directions

"Give in a thick mash (a mash of corn chops and bran is preferable) morning and evening, after having fasted the animal for 24 hours. Give the following morning mixed with the slop, one ounce Epsom salts per 100 pounds weight.

Formula 3.—Turpentine—Dose, one half ounce (or one tablespoon) per pig. One pint turpentine will be sufficient for one dose for about 30 pigs, weighing from 50 to 100 pounds.

Directions

"Prepare pigs for treatment as recommended under Formula 1. Give one tablespoon turpentine per 100 pounds weight, mixed with a light feed of thick mash or skim milk. Repeat for three successive feeds. Follow last dose with one ounce Epsom salts per 100 pounds weight, mixed with slop. There is no danger of overdosing with turpentine, since if too much is given, the pigs will refuse to eat the mixture.

"Formulas 2 and 3 are desirable because they are cheap and easily obtained. Turpentine and copper sulphate when used as previously directed, have been found safe and effective worm remedies for the hog. "Some reports hold that turpentine and copper sulphate have in some cases produced abortion of pregnant sows. We have no conclusive evidence, however, that such is the case. Pregnant sows are less frequently infested with worms. When treatment is necessary, Formula 1 is recommended.

"Many swine raisers make a practice of keeping equal parts of salt and ashes or equal parts of salt, ashes and charcoal in the pig lots for the hogs to partake of at will. These mixtures, although not very efficient as a treatment for worms, are of value as preventives, and such a simple mixture as salt, ashes and charcoal, if kept accessible to the hogs, will be of value in preventing worm infestation."

L. A. Webster, field editor of the American Sheep Breeder, is "doing" the coast, passing through Southern California last week, and is in Central California this week. With wool around 50 cents and mutton out of sight for the ordinary buyer, the wool grower is becoming some autocrat and the work of Mr. Webster and his paper should be made easy.

Every cream separator should have a good speed indicator. If you run your separator too fast you will soon wear it out, and if you turn it too slow you will lose cream.

PROTECT YOUR STOCK

increase your profits, comply with the sanitary demands of health authorities, milk companies, etc., and at a saving of time, cost and labor!

Make your stables, dairies, poultry houses and cellars, bright, cheerful and free from lice, mites and the germs of infectious diseases! Instead of using whitewash and then a disinfectant, use

CARBOLA
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It disinfects and paints at the same time.

It is a finely powdered mineral pigment combined with a germicide 20 times stronger than pure carbolic acid, but absolutely non-poisonous. Will not harm man, beast or fowl.

Ready to apply as soon as mixed with cold water—no waiting, straining or bother as with whitewash. Can be applied with either brush or sprayer. Dries a clear white. Will not blister, flake or peel off. No disagreeable odor. If your dealer cannot supply you, send us your order and his name.

10 lbs. (10 gals.), $1.00 and postage.
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Trial package, enough to cover 250 sq. ft. and descriptive booklet, 25c postpaid.

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With INCLOSED MOTOR
Keeping OUT DUST and RAIN - Keeping IN OIL

Constantly Flooding Every Bearing With Oil, Makes It Pump In The Lightest Breeze And Prevents Wear

DOUBLE GEARS — Each Carrying Half the Load
Every feature desirable in a windmill is the
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Berkshire Hogs—Milking Shorthorns

Breeding Stock For Sale
G. A. Murphy - Perkins, Cal.

Beware of Recently Imported Males

Stockmen in Arizona know that males recently introduced from the East are of little value for some months for breeding purposes. Our experience has been that during the first week or two after ariving in Arizona these males will get calves, lambs or colts, but after this time the climate seems to affect them so they do not breed until they become acclimatized. There is something in the climate or in the change from other districts that deranges the system to such an extent that the normal functions of breeding are interfered with or arrested for a period. It has been found that introduced animals are more susceptible to disease, such as pneumonia, than those accustomed to the climate. On this account there is a higher percent of mortality from animals shipped in from other places. Many of them become thin and do not look well in our climate until becoming accustomed to it.

Stockmen should plan on bringing in breeding animals, males and females at least six months before it is desired to have them used for breeding purposes. During this time the animals should become accustomed to the change and environment. Those intending to bring animals in for sale should also plan to sell them within two weeks after arriving or keep them for at least one-half year when they will recover the lost condition and appear to better advantage.—R. H. Williams, Animal Husbandman, University of Arizona.

Silage Reasons

T. E. Woodward, of the dairy division of the Kansas state board of agriculture, furnishes twelve good and well-considered reasons for the farmer providing himself with a silo. Every one of them touches some spot of vital importance to the larger profit of dairy farming. Here they are:

1. More feed can be stored in a given space in the form of silage than in the form of fodder or hay.
2. There is a smaller loss of food material when a crop is made into silage than when cured as fodder or hay.
3. Corn silage is a more efficient feed than corn fodder.
4. An acre of corn can be placed in the silo at less cost than the same area can be husked and shredded.
5. Crops can be put in the silo during weather that could not be utilized in making hay or curing fodder.
6. More stock can be kept on a given area of land when silage is the basis of the ration.
7. There is less waste in feeding silage than in feeding fodder. Good silage properly fed is all consumed.
8. Silage is very palatable.
9. Silage, like other succulent feeds, has a beneficial effect upon the digestive organs.
10. Silage is the cheapest and best form in which a succulent feed can be provided for winter use.
11. Silage can be used for supplementing pastures more economically than can soiling crops, because it requires less labor, and silage is more palatable.
12. Converting the corn crop into silage clears the land and leaves it ready for another crop.

Raising Hogs

The department of agriculture is sending out a circular calling attention to the imperative need for more hogs. It says: "At the present time a large part of our pork comes from the few states in the corn belt, where it is the common belief that hog raisers possess advantages that farmers in other sections lack. This, however, is not altogether true.

"In the extreme west the alfalfa of the irrigated valleys and the clover of the coast districts furnish a good foundation for successful pork production. In most of these regions there is an abundance of small grain, particularly barley, that may often be fed economically, and corn is successful in some localities.

"Hitherto, where corn has been cheap and abundant, it has been used so extensively for feeding to hogs that there is a widespread notion that it is the best feed. Investigations, however, have shown that it has its disadvantages as well as its advantages. When it is the exclusive grain feed, breeding stock are not as prolific as on a varied ration, and for fattening purposes an exclusive corn diet is not generally profitable. The hog is naturally a heavy and promiscuous eater. He thrives best where pastures are plentiful and grain crops, nuts or roots are most abundant. He must have water at all times and shelter in winter. If these conditions are met hog raising can be made profitable outside of the corn belt as well as in it."

Do Pure-Breds Pay?

Last week an Illinois farmer who has been in the dairy business all his life sold at public auction 16 head of grade Holstein cows, one of them with a yearly record of over 10,000 pounds of milk to her credit. He has not gone out of the dairy business, only out of grade cows. Several years ago the first pure-bred cow came to his farm, and he has been steadily building a pure-bred herd, which he now has with no grades on the place. This man is a practical dairyman. What he has his cows have brought him. He grew into the dairy business at the start, with grade cows, and now he has grown into the pure-bred business, with market milk still the chief source of revenue. It cannot be said that he has not had experience. He has worked good grade cows and pure-bred cows side by side and has made his choice. There is nothing new or unusual in this story. Many other live stock men have traveled the same route. But it should be significant for those who are depending on grade cows, and particularly for those who renew their herds by purchase. The best cows seldom change hands, and the best way to get good cows is to buy a bull out of a high-producing dam and raise the best of the heifer calves. For in these times of high cost of feed and labor there is no place for the inferior cow on any farm that is run for profit.—Farmers Review.

GREAT FOUNDATION HOLSTEINS

IN

The Quality Sale

STATE FAIR GROUNDS
SACRAMENTO, CAL.
THURSDAY, MAY 31, 1917
Beginning promptly at 9 o'clock a. m.

If you want some of the best bred registered Holstein females ever led into a sales ring; cows with good 7-day official records; cows with great yearly semi-official records; heifers that are bred in the greatest producing lines of the breed; cows and heifers in calf to great sires; open heifers of splendid breeding, ready to breed to your own herd sire

Come to the Quality Sale

If you want a real herd bull, bred in the lines that are making the pace in milk and butter records; bulls backed by generation upon generation of transmitting sires and dams; bulls backed by immediate large yearly milk and butter records; bulls backed by great individual excellence of type and themselves of show quality

Come to the Quality Sale

A daughter of Spring Farm Pontiac Cornucopia, out of a 31-pound dam; a daughter of Sir Skylark Ormsby Hengerveld, sire of a 34-lb. and a 31-lb. daughter; a daughter of King Korndyke Sadie Vale, the only 40-lb. sire with a 40-lb. daughter; a daughter of King Segis Pontiac; a daughter of King Walker 5th; a granddaughter of King Mead of Riverside; a cow with semi-official records above 19,000 lbs. milk and 800 lbs. butter in one year; and others of equal breeding and merit are among the great females to be sold.

Come to the Quality Sale

A son of a 33-lb. daughter of King Hengerveld Aaggie Fayne; a son of Finderne Pride Fayne out of a daughter of the 41-lb. cow, Valdessa Scott 2nd; a son of Prince Gelsche Walker out of a good A.R.O. cow that has a semi-official record of over 18,000 lbs. milk and over 800 lbs. butter in one year; a son of Judge Lyons out of a splendid A.R.O. daughter of Lottie Walker Spofford, the only cow to make five official records above 30 lbs. butter in 7 days; a grandson of Tilly Alcartra out of a 28-lb. daughter of Johanna McKinley Segis; and others of splendid breeding and type are among the excellent young bulls to be sold.

Come to the Quality Sale

And when you come to this sale remember: That these good animals have been selected from great breeding herds in the belief that they are the sort of animals upon which to build high class breeding herds; that there will be absolutely not a single by-bid nor reserve on a single animal in this sale; that every consignor has signed an ironclad guarantee that every animal is exactly as represented; that every precaution has been taken for your protection in buying at this sale.

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Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

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D. E. Kelliher, importer and breeder of Hampshire sheep, Eugene, Cal., offers for sale a choice lot of Hampshire ram lambs, sired by Walnut Hall and Butterfield Rams, purchased at Salt Lake, August, 1916. Lambs ready for delivery after July 15th, 1917. Inspection and correspondence invited.

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At Last the Perfect Silo—the Stay Round. No hoops, no bolts. No experiments. Any one can erect. Close price. Address D. O. Lively, 125 Hobart Bldg., San Francisco.

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For Sale—From 1 to 70 extra fine, straight, well marked, light colored, registered Holstein heifers, from 8 to 20 months old. Those old enough are being bred to a first prize son of Prince Gelsche Walker, whose dam has a high yearly record. Some of these heifers are sired by bulls whose dams have from 35 to 37-pound records. They carry the very best blood of the breed and are good enough for any herd, anywhere. Prices to fit any pocketbook. Geo. A. Smith, Corcoran, Cal.

D. O. Lively Stock Farm, Inc., 215 Hobart Bldg., San Francisco. Breeders of Hereford cattle. A few choice heifers for sale. We buy and sell live stock on commission. Farm at Mayfield, Cal.

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Our prices on used windmills, used tanks, and ranch tools are same as they were years ago. Advance on great many articles is a fad which we refuse to follow.
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Let the wind do it. 8-ft., $21.50; 10-ft., $28 to $32.50; 12-ft., $45 to $55. Have three 16-ft. mills; cost new $285; our price $125, and $95. Pumps as much as 4 h.p. engines for nothing once installed. Beats gas at 19c.
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1000-gal., $32.50; 2000, $44. Have used galv. 500, 1000, 1500 gal. with covers, $22.50; 10,000-gal. storage, $125; 14,000, $175; 20,000 heavy corrugated, nearly new; cost $600, for $235. Redwoods all sizes.
ENGINES. PUMPS. PIPE.
Most all sizes—in good shape.
Centrifugal pumps, 2-in. $24; 3-in., 4-in., 5-in., double runner; all size plunger pumps, $5 up; new pump jacks, $12.50; double-acting No. 3 Ames, $200, cost $660; Means double-acting deep well pump, $275; pumps 50 inches; 12-h. Lambert engine; 9-h. Foos, $135; 6-h. Stearns, $89. Many other first class engines very cheap.
Brass Cylinders, All Sizes.
Plunger rods, pipe, pipe fittings.
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Dandy for small rancher, pulls 2 4-gang mouldboard plows $295. Cheaper than horses.
Ranch Machinery. Sundries.
Walking, riding plows, $15 to $22.50; fine 2-gang mouldboard plow, $45; 3 or 4-gang disc tractor plow; alfalfa renovator, $25; 24-disc, 4-horse harrow, $38; cement mixer, $35; sprayer, $19.50; mowers; buck rake, $25; power hay baler; bone grinders, $5 to $12; corn sheller, feed grinders.
Wanted to buy first class material. No junk wanted. Pioneers in our line. DEMMITT CO., Upstairs, 120 N. Main. Yards, 816 Yale. Los Angeles.

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Several new and slightly used engines at a bargain. Best makes. 1 to 35 h.p. Arnott & Company, Wholesale Machinery and Implements, 112 South Los Angeles St., Los Angeles, Cal.

For Sale or Trade—A 20-horse power steam tractor in good running order. Would trade for horses value $500. C. F. Thompson, Box 44, R. 3, Bakersield.

For Sale—38 H.P. "Otto" gas engine in good shape, at a bargain. E. A. Hayes, El Monte, Cal. Phone 48 R.

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Roofden Ranch Chicks are well hatched from first class utility breeding stock; money making egg producers our aim, and the prices are right. 7 to 14c, depending on breed, month, quantity (dozen to thousands). White, Buff, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks. For Dollars and Sense. Send card for circular. Roofden Poultry Ranch and Hatchery, Campbell, Cal.

Your Opportunity! 200-290 Egg Early Maturing, Winter laying Leghorns, Reds, Anconas; White, Buff Wyandottes; White, Barred Rocks; Buff Orpingtons, $3-$10 yearly profit every breeder. During May-June, EGGS HALF, CHICKS FOURTH OFF. Few pens, all breeds bargain make room. Guaranteed profit feed high. C. Beeson, Pasadena, Cal.

Baby Chicks, reasonable prices—White Leghorns, R. I. Reds, settings, 100's-1000's. Hatched right in our $60,000.00 brick and concrete hatchery from our quality heavy layers. Stock, hatching eggs. Pebbleside Poultry Farm & Hatchery, Sunnyvale, Cal.

Baby Chicks from my carefully selected, thoroughbred flock of S. C. White Leghorns, June and July delivery at $9 per 100, $85 per 1000. A strong, thoroughbred chick at a reasonable price. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

Free—How to Mate and Breed Rhode Island Reds. Just what you want to know, but could not get correct information. Send stamp. Trap-nested stock, both combs, big dark velvety red strain for sale. Ava Poultry Yards, Ava, Mo.

White Leghorn Breeding Cockerels, 10 months old, from our famous heavy laying, prize winning stock. To make room we offer our regular $5.00 VALUES at $2.50 EACH while they last. RANCHO DEL MARTINO, Downey, Cal.

Model Poultry Farm, White Leghorn specialists. Baby chix and hatching eggs from heavy laying stock, bred by us for thirteen years. Our prices are right. W. C. Smith, Prop., Corning, Cal.

Petaluma Hatchery, Established 1902. Capacity 16,000 chicks a week—the kind the hen hatches. Five varieties. Send for free circular. L. W. Clark, Petaluma, Cal.

Baby Chicks—White Minorcas and Golden Buff Leghorn. Two popular breeds. Cockerels for sale. Sandridge Hatchery, Kerman, Cal.

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Incubators—Essex Model Incubators at factory prices. Write Geo. H. Croley Co., Inc., 631-637 Brannan St., San Francisco. Poultry supplies.

"Eastman's Bred-to-Lay" Barred Plymouth Rocks. Chicks, eggs, cockerels. We Hoganize and trapnest. Fairmead Poultry Farm, Fairmead, Cal.

Baby Chicks—White Leghorns, Brown Leghorns, Reds, Barred Rocks, Black Minorcas, Anconas. Prices on application. Orland Hatchery, Orland, Glenn Co., Cal.

Rainescourt Reds—Eggs from prolific laying strain and exhibition winners from $1.50 up. Day old chicks $15 per 100. Rainescourt Poultry Ranch, Zel-ah, Cal.

Day Old Chix—Barred Rock, R. I. Reds, White Leghorns, Black Minorcas, Light Brahmas, Buff and White Orpingtons. Enoch Crews, Seabright, Cal.

Baby Chix — White Leghorns, White Rocks, "quackless" White Muscovy ducklings. White Star Hatchery, Kerman, Cal.

For Sale—Rhode Island Red Baby Chicks from our carefully selected matings. $12.00 per hundred. Williams Poultry Place, 236 No. Gage, Los Angeles.

Turlock Hatchery—Baby chicks. A chick that will live. Turlock Hatchery, Turlock, Cal.

Guinea Eggs $1.00 per setting, postpaid. E. A. McKinley, Ukiah, Cal. R. D.

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Large Assortment slightly used and agents' sample plows, harrows, cultivators, wagons. Call and see them before buying. Save 50 per cent on some. Four floors. Largest stock. Arnott & Company, Ranchers' Supply House, 112 to 118 South Los Angeles St., Los Angeles.

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Don't You Want pure home grown seeds? Of course you do. Ours are all tested and are good enough for anybody. Prices, information, samples, etc., upon application. Write, wire or phone V. A. Peterson Alfalfa Seed Co., Arbuckle, Cal.
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Giant Winter Rhubarb—Last chance to get extra fine subdivisions at special low price; offer expires June 15. $673.70 from ⅝ acre first season. Grand prize San Diego Exposition. Booklet free. W. A. LEE, Covina, Cal.

Plant a Few Acres of Dwarf Milo Maize for seed. Good seed requires about 2 pounds per acre. Choice pedigreed Dwarf Milo 10c per lb. Delivered your station. Fred M. Mahoney, Box 420, Tulare, Cal.

For Sale—Tepary Bean Seed, limited quantity 20c per pound f.o.b. Thermal, Cal. Write or wire amount desired. Grown in Arizona. The Hollis Ranch, Thermal, Cal.

Dwarf Milo Maize, grown from seed personally selected yearly from field. Samples and prices on application. Chas. N. Tufts, Brawley, Box 46A.

Sudan Grass Seed—100 per cent pure, state analysis 40c lb. Kelly's Nursery, El Centro.

Alfalfa Seed—The very best, guaranteed 16c. Wm. Stuthman, 1239 West Pico St., Los Angeles, Cal.

SUDAN GRASS SEED
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MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit". It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

Second Hand Pipe For Sale—All sizes standard water pipe and screw casing, half inch to ten inches. Also valve and fittings. Guaranteed good as new. Cheap for cash. Write for our prices. Weissbaum Pipe Works, 169 Eleventh Street, San Francisco.

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To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

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Eggs For Sale from my prize winning Mammoth Bronze turkeys. Hens weigh 20 pounds, gobblers over 40, $5 per dozen. N. E. Mulick, Willows.

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H. S. Matthews, Fertilizer Dealer & Chemist, 360 Woodberry Rd., Pasadena, R. D. 1, Box 460.

SEPTIC TANK

Continued from Page 587

The sewer pipe leading from the house to the tank should have a slope of one foot per 100 feet. All the joints should be carefully cemented. The trap and air vent near the tank are essential. It does not give off an offensive odor and can therefore be near the house.

Where there is no great drop from the house to the tank the tee on the inside of the tank (as shown in the plans and specifications) can be left off, this tee being put on to distribute the incoming sewage and avoid stirring the surface of the sludge mat. The intake pipe should go into the tank to within 14 inches of the bottom of chamber number one. The four-inch pipe going through the partition between chambers one and two should be set at an angle of 45 degrees with the upper end in chamber number two. Two three-inch pipes placed at the same angle may be used in place of the one four-inch pipe, the lower ends being in chamber number one, 14 inches from the floor of the tank. This can be left to the preference of the person installing the tank. The object in placing this pipe at a 45 degree angle is to exclude all air from chamber number one. The outlet pipe from chamber number two should be bent down to within 14 inches of the bottom of the tank. This will make the liquid clear that escapes through the waste pipe. When the construction of the tank is completed, the manholes can be sealed with cement, which can later be broken should it ever be found necessary to get into the tank.

The underground distributing system is made of four-inch non-glazed tile so laid as not to have the joints meet too close, nor at a very sharp angle at connections, since this might cause them to stop up. The slope could be one foot per 200 feet or more. This underground distributing system will sub-irrigate a garden or field, and if the tile are laid deep enough, e. g. 18 inches, a plow will never touch them nor will there be any odor given off.

The materials necessary for constructing tank are as follows:

Four yards gravel; 18 sacks cement; one trap; two elbow joints and one cross tee; sewer pipe laid from house to tank and enough tile to make the underground distributing system.

The average cost of installing in Napa County where all the work was done by the farmer, has been $16.50 for materials. Where all labor was employed or where contractors built the tanks the average cost was $30.

According to these plans, the bacteria work in both compartments which clarifies the liquid before it escapes into the distributing system. If the installation work is properly done this equipment will need no further attention for it will work automatically. The tank can be built underground so that the farming operations can be carried on above it or a garden may be growing there. In some places it has been found necessary to build above ground, in which case they also work successfully.

SUGAR BEET CULTURE

Circular 165; "Fundamentals of Sugar Beet Culture Under California Conditions," by R. L. Adams of the college of agriculture, Berkeley, may be had for the asking and it contains a fund of valuable information to the beet grower.

Boost Your Citrus Trees Now

The grade of fertilizers determines the grade of Citrus Fruits. Chilean Nitrate has one hundred per cent of its Nitrogen Nitrated, and is ready to go into action the instant it is applied. It brings quicker, surer results than all others because they have to be Nitrated first. Why not buy your farm munitions ready for use, not subject to losses which the other Nitrogens always suffer? Common sense dictates that money is saved by its use. Its low price compared to others strongly commends it to the business grower.

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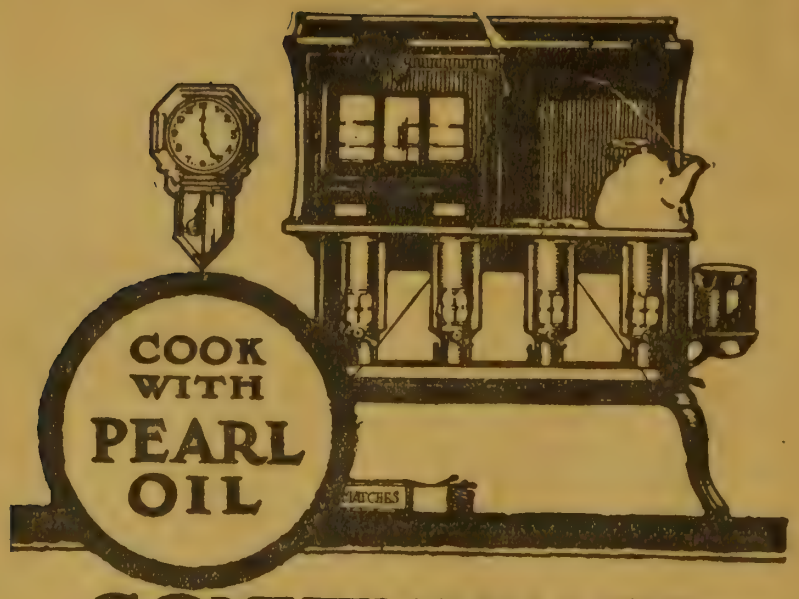
All breeders of Hereford cattle in California are requested to meet at the university farm, Davis, May 29 to June 2 to form a state association.



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Household Department

DECORATION DAY

Down the path that leads to the river,
Stands a white slab, grim and tall,
Above it wave the treetops,
And the birds in the branches call;
But all the air is silent when
Its words are softly said,
The thrilling words "Our Country,"
The sorrowful words "Our Dead."

"Our Country," its hills and valleys
Stretch far to the setting sun;
And under the Arctic Circle,
Where wonderful deeds are done.
Thence far to the suns of the South-
land,
We may find our flag afloat,
And ever, where we find the flag,
We find that other note,—

"Our Dead," the hills and valleys
Are dotted here and there,
And many the heart that sorrows,
With a glance at a vacant chair;
Yet, was it father or brother?
The soldier who marched away
To the notes of the martial music,
And is sleeping here today?

"Our Dead," to their memory ever,
Is this day in honor due,
And let each year bring tribute
From a nation, loyal, true.
Heap high the fragrant blossoms,
The roses of white and red,
In memory of our loved ones,
"Our Country" and "Our Dead."—
Nellie Fiske Hackett.

THE GUEST OF HONOR

By Anne McQueen in Youth's Companion

(Concluded from Last Week)

Rheumatism might have seized him as a result of too prolonged exposure, but it was not often that the old man slept under the stars. Every farmhouse opened to him with a hearty welcome, and no one would take a penny from him for bed or board.

At last, browned by the pleasant summer sun and wind, although somewhat stiff in his joints, old Mr. Tiller entered the great city where the reunion was to be held. He still had several of the original ten dollars in his pocket.

The roar and traffic rather bewildered the old man, and now that he had reached his goal, he was uncertain where he should apply for accommodations. The other old soldiers would come by train, and would be met by a reception committee; none of them would walk, as he had done.

Absorbed in thought, he failed to notice the warning horn of an approaching automobile, and was brushed aside in a heap before the driver could change the course of the machine.

Fortunately, he got no serious injury; only a sprained ankle. The doctors at the hospital said he would soon be about; but old Mr. Tiller confided to the nurse that it was a mighty hard thing not to be able to march with the "boys," when he had walked 200 miles to take his place in the parade.

"Two hundred miles!" exclaimed the sympathetic nurse. "Dear me, how wonderful! It ought to be in the newspapers, Mr. Tiller!"

In a very short time Mr. Tiller had a visitor, a pleasant young man who talked to him about the things nearest his heart—the little farm that for some reason had never produced enough to pay for a trip on the cars; the little granddaughter who had kept his secret with him, the long journey, and the pleasant people on the road to the reunion, and—last of all, the pitiful end—to be laid up with a sprained ankle instead of marching with the "boys"!

The newspaper the next morning printed the story on the first page with big head-lines. The consequence was that a large, opulent-looking motor-car rolled up to the door of the hospital, and a distinguished looking gentleman alighted, and asked to be taken to the casualty ward.

The sympathetic nurse hurried on ahead, and whispered joyously to Mr. Tiller that the governor himself was coming to call on him!

Presently the distinguished looking stranger was saying, in the heartiest, pleasantest voice imaginable:

"And this is Mr. Tiller of the Fighting 43d, who has marched so far to see us! I am the governor, Mr. Tiller, and in behalf of the state and of the city, I bid you welcome!"

"I voted for you!" Mr. Tiller declared, with enthusiasm, as he grasped the governor's hand. "I voted for you—and I've never had cause to be sorry I did!"

"Thank you, Mr. Tiller!" The governor laughed. "And now do something else for me. Let the nurse get you into your clothes, and we will help you out into my car. My wife and I want you to be our guest while you are in the city. She made me come bright and early, so that the mayor, or somebody else, should not get ahead of me."

Thus it happened that old Mr. Tiller, who could not march in the ranks with his comrades, viewed the parade comfortably seated in a luxurious car, by the side of the governor of the state. Later, he was tenderly assisted to the speakers' platform, where he sat between the governor and the mayor, and listened with delighted appreciation to the speeches of welcome and the responses.

Many persons wondered why the insignificant little old man in butternut jeans should occupy so prominent a place. Near the end of the exercises, the mayor told them.

"Ladies and gentlemen," said the mayor, "here is one of our beloved veterans who has walked 200 miles for the pleasure of being with us today. As a mark of the city's appreciation, I ask that you give three cheers for Mr. Tiller—our guest of honor!"

Thereupon a mighty cheer swelled and thundered from a thousand throats—a joyous welcome to the guest of honor!

Mr. Tiller's hosts sent him back in a Pullman car, with particular instructions to the conductor to take good care of him on the road. The governor's wife bought a beautiful doll to go into the knapsack for Mary Ellen, along with various other gifts that Mr. Tiller had bought with the remaining dollars, and that he intended as peace-offerings to the family at home.

"You ought to have told me how much you wanted to go, father," his son said, reproachfully. "I'd have tried to raise the money some way. It was a mighty rash thing in a man of your years, undertaking to walk that distance."

"Shucks! Didn't I march with the infantry for four years? What's a trifle like 200 miles for a man that's got all his faculties?" replied old Mr. Tiller.

But to Mary Ellen, nursing her doll in the contentment of fulfilled desire, he confided, "It was mighty lucky for me, honey, that one of those pesky things knocked me down. For it's a fine thing to be a 'guest of honor';

The Cultivator Patterns

8304—Ladies' Waist. Cut in sizes 36 to 42 inches bust measure. Any of the pretty checked materials can be used for this waist.

8286—Girls' Dress. Cut in sizes 4 to 12 years. Sleeves may be long or short and the dress has a straight lower edge.

8316—Ladies' Dress. Cut in sizes 34 to 42 inches bust measure. The dress has a Duchess closing, one-piece gathered skirt with slightly raised waistline.

7934—Ladies' Waist. Cut in sizes 36 to 42 inches bust measure. One or two materials can be used to make this waist.

8296—Children's Rompers. Cut in sizes ½, 1, 2 and 3 years. The rompers are in one piece and have a short kimono sleeve with or without cuff.

8298—Ladies' Skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is a one-piece, straight gathered model.

7962—Ladies' Apron. Cut in sizes 36 to 40 inches bust measure. The apron is cut in one piece and has a yoke facing.

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Pattern Department

California Cultivator

Los Angeles

and I was just a little grain dreading the walk back. I have my faculties, thanks be, but—I don't mind telling you, Mary Ellen—I'm not capable of holding out as long as I used to when I was young."

HOME CANNING

Written for California Cultivator
By Alice Palla, Linne

SUGGESTIONS for home gardening can well be followed by recipes for home canning. Next to raising vegetables is the art of preserving them for family use. Besides reducing the food bill it is so very satisfying to go to the storeroom for canned vegetables and fruit.

I enclose four recipes which I successfully use, hoping they may help some housekeeper. I hope to see some recipes for green corn and peas.

I like the Economy jar best for steam cooking. Covers are easily adjusted. Place rubber and clamp lids, but not tight, until vegetables are cooked. If not enough for wash boiler at one canning I use a five-gallon coal oil can with pan or board covering. This holds four two-quart or five one-quart cans.

String Beans and Tomatoes

Pick tender young beans, string carefully, cut in lengths, wash, pack in jars, add salt, fill with cold water, place in boiler. I use wash boiler with slats in bottom), fill with cold water up to necks of jars, place rubbers, screw tops on loosely, bring to boil, boil hard with cover on boiler for four hours. Remove jar covers, fill to overflowing with water from teakettle, replace covers, seal tightly, turn jar upside down. Stand in water until cold. Wipe stove. I can tomatoes the same boiling hard for about 15 minutes.

Sauerkraut

Cut nice white solid young cabbage with kraut cutter. Pack in stone jar or small keg, hammer down with wood mallet, salting as packing until jar is full. Cover with cabbage leaves and place weight on so juice will cover (if not enough juice rises add some water). Let stand until good kraut. Then cook in granite kettle (adding water if not juicy enough) until tender then seal. This keeps well if we put up enough at our house.

Olives Ripe or Green

We like ripe olives best. Pick without bruising. For five gallons olives one can Red Seal lye dissolved in about five gallons water (use enough to cover olives well). Time about 12 to 24 hours. Watch closely. As soon as lye reaches pit put on fresh water, changing often until lye is all gone. Salt slightly about third day after using fresh water. When you have lye all out and cured they are ready for canning. Proceed same as for green beans, boiling hard for one hour. These keep well and are firm and delicious for the lovers of the olive.

WHAT DID SHE MEAN?

A bishop had occasion to preach in one of the smaller Southern cities, and as soon as the service was over many people went to him to express their appreciation of his sermon. One woman in particular was most outspoken in its praise. "Why, bishop," she said, "you can never know what your sermon meant to me. It was just like water to a drowning man!"

CONTINUOUS MORTGAGE

A motorist says: "I mortgaged my house to buy my automobile. Then I mortgaged my automobile to build a garage. Now I have mortgaged my garage to buy gasoline."

ECONOMY IN TABLE LINENS

Written for California Cultivator
By A. M. H.

WHEN one must economize closely it is far better to buy the unbleached linen, and the ordinary washing and boiling will soon make it as white as desired. By watching for special sales a good grade of linen may often be bought at a very moderate price, and the short lengths of linen can be made into serviceable tray and carving cloths. Small patterns are best as they wear longer than the large designs. An undercover of canton flannel makes the tablecloth look better and it will last a third longer as it prevents the table from wearing the linen, especially around the edges where even the neatest darning is so noticeable. A tablecloth will last longer if it is not folded in the same creases every time it is ironed. The center crease should be moved an inch or so on either side occasionally, or a few inches may be cut from one end and one side and all the folds will be altered, thus giving the cloth a fresh start. The tablecloth should be hung evenly on the line, for if they are allowed to dry out of shape, stretching and pulling them will wear them more than use.

Table linen will last twice as long if it is never allowed to become so soiled as to need hard rubbing, and the best way I have ever tried for keeping the pieces soft and white is to put the pieces to soak in warm suds made with borax soap chips and let them remain for an hour, then more hot water is added and the pieces pressed and squeezed between the hands until clean. A small quantity of the soap chips are dissolved in hot water and then stirred in the wash water until a strong lather is made before putting in the pieces. This suds is especially good for the pretty embroidered pieces and the dainty crocheted articles, and it is a good plan to wash the linen separately instead of putting it in with the general washing, and it really is no more work when once you have become used to this plan.

A tablecloth will last longer if it is always hung across the line with the ends down, so that the weight while wet may come upon the lengthwise threads as the warp threads are much stronger than the filling. When a large cloth is too much worn to be used upon the table, the four corners are still good, and they can be made into tray and carving cloths, and there is nothing nicer than the large pieces for wrapping up light bread when it is put away, and the small pieces are invaluable as bandages for cuts and wounds or for hurts of any kind.

USES OF GRAPEFRUIT

Grapefruit Pie—One cup of sugar, mixed with two round tablespoons of cornstarch, one teaspoon butter, two yolks of eggs, rind and juice of one half lemon and one-half orange, juice of one-half small grapefruit, one cup of hot water. Cook in double boiler, stirring constantly until thick. Cook ten minutes longer in order to cook cornstarch thoroughly. Put into a baked crust, make a meringue of the two whites and two cups of sugar, put on pie and brown in a very slow oven.

Pineapple and Grapefruit Salad—Arrange lettuce leaves on individual plates. In the center of each put a round slice of canned pineapple which has been drained and chilled. On this arrange perfect sections of grapefruit which have been skinned and chilled, being careful to conform to the circular shape of the pineapple. Sprinkle these lightly with powdered sugar. Surround with mayonnaise dressing into which has been lightly folded a little whipped cream just before using and in the center of the fruit place three stoned California cherries or the same number of Maraschino cherries.

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The greatest Chick Grower ever produced. Prevents White Diarrhoea—Authority for this statement found in Bulletin No. 162, University of California, Berkeley, California. Write to Berkeley for this bulletin. Hale & Edwards Co., Chicago, who manufacture the RED COMB and RED HORN FEEDS are the only people who have succeeded in drying buttermilk—without killing the Lactic Acid Bacilli or materially reducing digestibility. Tests made after this Dry Buttermilk has been manufactured SIX MONTHS show 10,000 Live Active Lactic Acid Bacilli to the centimeter. Send for a small sample of this Dry Buttermilk and convince yourself of its merit.

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Costs Only $1.00 Yearly

Buttermilk Cure for Disease in Young Chicks

BUTTERMILK has been proved a cure for one of the two most fatal diseases of young chicks in California—coccidiosis. Since one of the most practical ways of increasing the food supply in the present great national emergency is to prevent needless disease among domestic animals, there is particular timeliness in this announcement, just made by the University of California.

This costly disease of coccidiosis is caused by the tiny protozoon organisms known as "coccidia." Usually the chicks thrive until they are a few weeks old, and then begin to droop, and often whole flocks of chicks die within a month or six weeks after the appearance of the disease.

An outbreak may be controlled by sanitary measures and by proper feeding. The sickest of the chicks should be isolated from the others or killed and burned. The chicken house should be cleansed with a strong, hot, disinfecting solution. The floors should be covered with a thin litter of shavings, chopped alfalfa hay, or straw, and this should be swept out and burned daily. Feeding and drinking vessels should be kept scrupulously clean.

The method of feeding is very important. The infected flocks of chicks should be fed a small amount of grain night and morning, and mash during the middle of the day, but this mash not offered for more than two hours daily. Buttermilk should be kept constantly before the chicks. This restriction of the grain ration will keep the chicks hungry, and they will consume large quantities of buttermilk. The result will be the constant presence of acid and a healthy condition of the mucous membrane of the intestines, which will prevent the multiplication of the coccidia which cause the disease.

The university last January had an outbreak of this disease in a flock of 730 two-months-old chicks. Already 60 per cent of the chicks were visibly sick when the disease was discovered. The infection was unusually severe. Use of this buttermilk method brought about immediate improvement. In less than three weeks all evidence of the disease had disappeared, with only a five per cent death rate. In spite of limiting the grain ration, the chicks made normal growth on a diet primarily of buttermilk.

Means of fighting the other most serious disease of chicks—"bacillary white diarrhea" or "fatal septicemia", which, once started, seldom kills less than half the flock—are also set forth in this same university publication. There is no really satisfactory method of treating chicks thus affected, so the great thing to attempt is prevention of the spread of infection, by separating all sick chicks from the rest of the flock, scrupulous sanitary precautions, and the use for hatching of eggs from flocks known to be free from infection.

TWO IN ONE

Mrs. Potter of Ceres writes that she has a curiosity in a large white egg which she at first supposed was a double-yolked egg but when broken open it was found to contain as much of the white as an ordinary egg. Another perfectly formed egg was found to contain a dark-colored hard shell on the inside, with an outer shell of white.

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Pioneer Hatchery, 320 S. Spring St., Los Angeles

There isn't enough Pages in this paper

to repeat even half of the enthusiastic praise which the Big Poultry Feeding Stations, Poultry Authorities, Pure-Bred Poultry Breeders and Farm Poultry Raisers have said about **Milkoline**—if you'll try it, you'll say something nice too.

We Don't Ask You To Take Our Word—Read This:

Zirkle & Coffman, Breeders Thoroughbred Poultry, Virginia, write: Enclosing check $12.50. Please ship ten gallons Milkoline. Have used with such success that neighbors want some. Will not have enough to see us thru. Have not had case white diarrhoea among chicks so far, last year we lost about half them with it.

W. G. Tainter, Kansas, writes: Have been using Milkoline for few months and getting greater number of eggs per hen than any year since going into business on larger scale. Ship me half bbl. more. I would rather be without grain than Milkoline, as it is a tonic as well as a food.

½ BBL. MILKOLINE 32 GAL. $1.00 A GAL.
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CAREFUL HANDLING REDUCES DIARRHEA LOSSES.

By observing the methods of correct poultry raising, the loss from diarrhea in little chicks can be greatly reduced. Ninety-five per cent of the diarrhea is not due to the white diarrhea germ but to other causes. Among them are the following; says a correspondent of the Missouri College of Agriculture.

A little chick is apt to become chilled, which will cause it to have diarrhea. This chilling may result from indiscreet use of the nursery tray of the incubator. If newly hatched chicks are put in a temperature of 80 degrees they will become chilled and diarrhea probably follow.

Again, many fail to warm the container which the chicks are to occupy. The hands and cloths with which the chicks are covered should be warm. After they are placed in the brooder, it should be kept at a temperature of 95 to 100 degrees the first week and reduced about one degree a day until the right temperature is reached. They should be kept warm enough so that they do not crowd at night and they should always be afforded a cool place to which they may go if they desire. Chicks raised with the hen should not be let out until the grass has become dry because a wet chick is apt to become chilled.

Another cause is the overheated incubator or brooder which may interfere with natural absorption of the yolk and cause trouble after the chicks are about a week old.

Then too, diarrhea may be caused by feeding musty or sour food or allowing them to scratch in musty chaff.

In some cases it may be caused by the white diarrhea germ which is said to be present in the ovary of the mother hen, and, if this is the case, extreme sanitary precautions should be observed. Care should be taken to use only the most vigorous breeding stock available. The incubator should be cleaned and disinfected between all hatches, and the brooder should be disinfected every time a chick dies. The incubator door should be darkened at hatching so that healthy chicks will not pick up the droppings of diseased chicks. The drinking water should be colored a claret red by the use of potassium permanganate and the chicks should be fed sour skim milk as soon as they begin to drink.

To fatten fowls quickly confine the birds in a small and somewhat darkened pen, allowing about two square feet for a mature fowl and one square foot for young chickens. Do not feed for the first 24 hours, then begin feeding rather scantily, increasing the amount gradually until at the end of two or three days they are getting all they will clean up in about 20 minutes, when fed regularly three times a day. This should continue for two weeks which is ordinarily as long as the fowl can stand heavy feeding.

As soon as the old hens become broody and as soon as the services of the roosters are no longer needed they should be disposed of. Feed at present prices necessitates reduction of non-producers.

The recently organized Washington Cooperative Egg and Poultry Association already has an enrollment of 550 members. The headquarters of the association are at Seattle.

The high cost of chick feed and the low price of eggs was discussed exhaustively at the last meeting of the Arlington Poultry Association.

Los Angeles Market

LOS ANGELES, May 23, 1917.

BUTTER

Wholesale prices:

Rcts, wk. ending May 22, 230,840 lbs.
California extra creamery 36
Prime first 34
Fresh extras 34
Firsts 34

Extr. Cr'y Exch. past week.

May	16	17	18	19	21	22
'17	35	35	35	35	35	36

CHEESE

Brokers' prices:
California fresh, lb. .....24@25
Oregon Longhorn 28
Tillamook Trip. 27

EGGS

Exchange quotations:
Rcts. wk. ending May 22, 2470 cases.
Fresh extras 34
Case count 33
Pullet 30½

Fresh Ranch Exch. past wk.

May	16	17	18	19	21	22
'17	34	34	34	34	34	34

POULTRY

We quote from growers:
Broilers .....18@23
Fryers 25
Hens—Leghorns 12-14; Heavy Col'd..20
Roasters 25
Geese 15
Ducklings, lb. 18
Squabs, doz. .....3.00@4.00
Roosters, old 9
Turkeys .....20@24

LIVE STOCK

We quote cwt. f.o.b. L. A.
Cattle—
Beef steers, av. 1000 to 1100 lbs.....10.00
Heifers, good 8.00
Cows, good .....7.00@7.50
Fair .....6.50@7.00
HOGS—
Av. 125 lbs. .....12.00@12.25
Av. 150 lbs. .....12.50@13.00
Av. 175-225 lbs. .....13.25@13.50
Rough, docked 20 lbs.; piggy sows, 40 lbs., stags, 40 per cent.
Prime wethers .....9.50@10.00
Ewes .....9.00@9.50
Lambs 13.00
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:
Northern .....4.50@4.75
Oregon .....4.50@4.75
Russets .....4.50@4.75
Sweet, lb. 8
New, lug .....1.50@1.60

ONIONS

Wholesale selling price:
Onions, Brown, lb. .....3@10
Crystal Wax, cr. .....1.85@2.00
Bermuda, cr. .....1.85@2.00
Garlic, lb. 10

VEGETABLES

Wholesale prices:
Artichokes, doz. .....50@75
Asparagus, lb. .....9@9½
Beans—Wax, String .....6½@7
Ky Wonder 9
Beets, doz. bunches 40
Cabbage, lb. 4
Carrots, doz. 40
Chicory, doz. .....40@50
Cauliflower, doz. 1.00
Celery, doz. 1.00
Cucumbers, Hothouse, doz. .....75@1.25
Outdoor, lug 1.15
Eggplant, lb. 20
Horseradish, rt. lb. 15
Lettuce, doz. 25
Leeks, doz. 30
Mint 40
Onions, green, doz. 25
Oyster Plant, doz. 45
Peas, lb., Telephone .....5½@6
Peppers, Chili, lb., 25; Bell .....30@40
Parsnips, doz. 45
Parsley 20
Radishes, doz. 20
Rhubarb—Crimson Winter 35
Strawberry 1.00
Giant 1.35
Romaine, doz. 45
Spinach, doz. 20
Squash, Summer, cr. 1.00
Turnips, doz. 40
Tomatoes, lug .....2.00@2.25

FRUITS

Wholesale prices:
Apples—W. W. Pearmain.....2.35@2.50
Newtown Pippin, Yellow.....2.10@2.35
Avocados, doz. .....6.00@10.00
Apricots, cr. .....1.35@1.50
Bananas, lb. 5
Cherries, lb. .....8@11
Coquats, lb. 9
Blackberries, basket .....9@10
Raspberries, basket .....7@8
Gooseberries, lb. .....9@9½
Strawberries, basket .....4@5
Pineapples, lb. 8

CITRUS

Lemons .....1.75@3.00
Juice 1.25
Grapefruit .....2.50@3.50
Limes, basket 1.00
Navels .....2.50@2.75
Tangerines, lug 1.50

HONEY

Wholesale prices:
Extr. lb. White 8½@9½c; A. 8½@9c; Am.W. .....10@11
Comb., lb. W. 12½c; Lt.A.....12½@14c
Am.W. 14½
Beeswax, lb. 32

NUTS

Peanuts, raw 11
Pine Nuts 20

BEANS

Wholesale Prices:
Lady Washington 13.00
Limas 17.00
Pinks 13.50
Manchurian Reds 11.00
Baby Lima 8.50
Garbanzos 8.50
Small White 13.00
Blackeyes 12.00
Calary 12.00
Pintils 13.00

HAY

Hay market is decidedly quiet and purchasers holding off for more settled conditions.

We quote ton f.o.b. L. A. to producers:
Barley .....13.00@20.00
Alfalfa .....15.00@18.00
Straw .....10.00@12.00

GRAIN

Wholesale selling price f.o.b. L. A.
Wheat—No. 1 .....5.30@5.35
Corn—No. 2 yellow, 3.85; white.....3.95
Oats—White 3.05
Barley—Recleaned 2.70
Milo 4.15
Egyptian Corn 4.15
Rye 5.15

FEED STUFF

Wholesale, cwt. f.o.b. L. A.
Alfalfa Meal 1.75
Bran, Heavy 2.55
Middlings 3.15
Alfalfa Molasses 1.80
Meat Scraps 3.60
Beet Pulp 1.80
Cracked Corn 3.90
Cracked Wheat 5.70
Cotton Seed Meal 2.60
Oat, C. L. 3.10
Bone Meal 2.45
Feed Meal 3.95
Green Bone 2.25
Fish Meal .....3.60@3.70
Rolled Barley 2.65
Rolled Oats 3.10
Hulled Barley 3.15
Hulled Oats 5.60
Scratch Feed, 10-sk. lots $4.75; 5-sk. $4.80; 1-sk. 4.45
Scratch Feed—Gritless.. 4.45, 4.60, 4.85
Oat Chop 2.10
Oil Cake Meal 3.30
Pigeon Feed .....4.95@5.05
Chick Feed 4.65, 5.00, 5.35
Gritless Chick Feed 5.05, 5.10, 5.15
Blood Meal 4.20
Cocoa Meal 2.05
Rice Paddy 3.70

San Francisco Markets

SAN FRANCISCO. May 22, 1917.

BUTTER

Dairy Exchange quotations, lb.:
Rcts. wk. ending May 21, 831,500 lbs.
Fresh extras 35½
Prime firsts 35

Extr. Cr'y. Prod. Exch. past wk.

May	15	16	17	18	19	21
'17	36½	37	37	37	36½	36½
'16	24½	25	25	25	26	..

CHEESE

Dairy Exchange quotations:
Cal. Flats .....21@22; Y. Am.....23@25

EGGS

Rcts. wk. ending May 21, 20,868 cs.
Dairy Exchange quotations:
Fresh extras 33
Firsts 31
Select Pullets 29
Firsts 28½

Fresh Extr. Prod. Exch. past wk.

May	15	16	17	18	19	21
'17	35	35½	35	35	33½	33½
'16	22½	22½	23	23½	23	..

POULTRY

We quote from producers, lb.
Hens, large 23@24; Leghorns.....18@19
Small Colored .....20@21
Fryers, lb. .....33@35
Broilers, large, 26@27; small .....23@25
Roosters, old 12@14; young .....33@35
Squabs, doz. .....2.25@2.75
Ducks .....18@20
Geese .....19@20
Turkeys, live, lb. .....20@22
Belgian Hares, live 14@15; dr.....17@18

LIVE STOCK

Prices gross weight:
Cattle:
The following prices are for grass fed stock. Hay fed bring ½ to ¾c more.
Steers, lb., 7@9, cows and heifers, 4@7¼; calves, 6¾@8¾.
Sheep:
Wethers, 11; shorn, 1½@2c less; ewes, 10; lamb, lb., 12@12½.
Hogs:
Hard grain fed, wt. 100 to 150 lbs., 12@12½c; 150 to 300 lbs., 14¾@15; 300 to 400 lbs., 14¼@14½; undesirable, 6@9.

POTATOES

Wholesale selling prices at wharf:
Delta Burbanks .....3.75@4.00
Oregon Burbanks .....4.00@4.25
New Potatoes, lb. .....4¾@5½
Garnet .....6@6½

ONIONS

Wholesale selling price on wharf:
Crystal Wax, cr. .....2.00@2.10
New Red, sk. .....2.00@2.25
New Green, bx. .....50@65
Bermuda Seed, cr. .....2.00@2.10
Garlic, lb. .....1@3

VEGETABLES

Wholesale selling price:
Asparagus, bx., Fancy White...2.50@2.75
Green .....1.50@1.75
Artichokes, doz. large 35; small..10@15
Beans, String, lb., 6@8; Wax .....6@8
Ky. Wonder, lb. .....8@9
Cucumbers, bx., hothouse .....1.00@2.00
Peas, sack .....1.75@2.50
Rhubarb, bx. .....75@1.15
Squash, Summer, cr. .....85@1.00

FRESH FRUIT

Wholesale selling price:
Apples—Newtown Pippins .....1.35@2.00
Apricots, cr. .....1.00@1.25
Bananas, bunch .....1.25@1.75
Cherries, Purple, Guigne, bx.....35@1.10
Black Tartarian, dr. .....90@1.25
White, lb. .....5@7
Strawberries—
Longworths, chest .....5.00@8.00
Large varieties .....5.00@5.50
Blackberries, cr. .....1.25@1.50
Gooseberries, lb. .....5@6

CITRUS FRUIT

Wholesale selling price:
Lemonettes .....1.75@2.25
Limes, Mex., cs. .....4.50@5.50
Limes, Mex., cs. .....5.50@6.00
Grapefruit .....1.75@3.00
Navels, bx. .....1.50@2.90
Tangerines, half orange box.....1.75@2.00

PEACH PRICES

A circular of Peach Association says:
According to inventory, we have unsold a limited quantity of both yellow and Muir peaches. We, therefore, offer our remaining stocks, each car to contain the following approximate percentages of grades, and at prices set opposite:

40 pct. Standard Muirs at 7½c
5 pct. Fancy Muirs at ..... 9 c
10 pct. Extra Fancy Muirs at..... 9½c
10 pct. Standard Yellows at 7½c
5 pct. Choice Yellows at 8¼c
10 pct. Fancy Yellows at..... 8½c
20 pct. Extra Fancy Yellows at..... 9 c

All quotations bulk basis.
For 50-lb. bxs. unfaced, add.... ¾ per. lb.
For 50-lb. bxs. faced, add..... ⅞c per lb.
For 25-lb. bxs. unfaced, add .. ⅞c per lb.
For 25-lb. bxs. faced, add ....1 c per lb.
For 10-lb. bxs. unfaced, add ..1⅛c per lb.
For 10-lb. bxs. faced, add ....1⅛c per lb.

We also have approximately three cars of slab peaches, which we offer at 7¼c, bulk basis.

We will continue to receive orders until further notice for fancy peeled peaches, either for assorted or straight car lots, at 12c, bulk basis.

All of the above we quote f.o.b. factories, California, where stocks are available, subject to our confirmation and subject to goods being unsold, for May-June shipment; prices guaranteed against our decline to June 30th, 1917.

DRIED FRUITS

Wholesale quotations:

PRUNES—Bulk basis, per lb: 30s, 8¼c; 40s, 8½c; 50s, 8¾c; 60s, 70s and 80s, 9c.

Other fruits, 50-lb. bxs:

	Stand-ard.	Extra Choice	Extra Choice Fncy.	Extra Fncy.
Apples	10¾c	11 c	11½c	....
Peaches	9¾c	9¾c	10¾c	10¾c
Pears	7½c	9½c	10½c	12¾c

NUTS

Jobbers' Prices:
Almonds.—Exchange opening prices: Nonpareil, 13c; Ne Plus Ultra, 17c; IXL, 17½c; Drake, 16c.
Peanuts, Jap, 7@7½c; Eastern 7½
Pecans .....19@20
Pine Nuts .....15@17

BEANS

Jobbers' prices, cwt. recleaned:
Limas .....16.00@16.25
Bayous .....11.50@12.00
Garbanzos .....6.00@6.50
Cranberry 12.00
Small White .....16.00@16.25
Mexican Red .....11.25@11.75
Large White .....16.00@16.25
Pinks .....12.00@12.50
Black Eyes .....9.75@10.00
Red Kidneys .....13.00@13.50

NUTS

Peanuts, Jap, 7@7½; Eastern 7½
Pecans .....19@20
Pine Nuts .....15@17

HONEY

Jobbers' prices:
Comb, lb., W.W., 13@15c; A., 8@10c; Lt. A. .....11@12
Ex. Fy. W. lb.....10c; Lt. A.....8
Beeswax, lb. .....30@32

HOPS

Prices to growers at shipping points:
Sacramento .....5½@8
Sonoma .....7@9
Mendocino .....7@9
Oregon and Wash., lb. .....5@9

RICE

Price to growers:
Cal. Rough cwt. .....3.50@3.75
Lower Grades .....3.00@3.50

HAY

Under date of May 19, Scott, Magner & Miller say:

Arrivals for the week have totalled 1582 tons, a considerable increase over arrivals of last week.

With the exception of some first cutting alfalfa, there have been no extra arrivals of new crop. The market has been steady throughout the week. A steady consumption from day to day has readily absorbed current arrivals.

No old hay has accumulated, either in the hands of dealers or consumers on account of the abnormally high prices prevailing.

Crops have been immensely benefitted during the last two weeks by the damp, cool weather that we have been having with showers in some sections; in fact, the increased yield on account of the recent favorable weather is most wonderful from the reports we have been receiving from every section of Central California. All in all, one section with another, it looks as though we would have very satisfactory crops of both hay and grain.

There has been quite a little new first cutting alfalfa moving through this market, selling at very satisfactory figures.

Wheat, Fy., lt. bales.....33.00@35.00
Wheat or Wh. and Oats, No. 1.31.00@33.00
Wheat, or Wh. and Oat, No. 2.27.50@29.00
Oats, Choice Tame .....31.00@33.00
Other Tame .....26.00@28.00
Barley .....26.00@28.00
Alfalfa, first cutting .....11.00@15.00
Stock Hay, new .....10.00@13.00
No. 1 Barley Straw, Baled.....1.00@1.25
Oregon Hay .....24.00@26.00

GRAIN

Grain Exchange prices, ctl.
Wheat—No. Bluestem .....5.00@5.25
Corn, California .....3.35@3.50
Corn, Egyptian White .....4.15@4.25
Oats, White Feed .....2.70@2.75
Barley, Feed .....2.50@2.60

FEEDSTUFFS

Wholesale prices per ton:
Bran .....47.00@48.00
Cornmeal .....71.00@73.00
Cracked Corn .....71.00@73.00
Cocoanut Meal .....35.00@36.00
Middlings .....58.00@60.00
Alfalfa Meal, carlots .....33.00@34.00
Shorts .....50.00@51.00
Rolled Barley .....54.00@65.00

SEEDS

Prices in round lots, lb.:
Millet, recleaned .....3¼@4
Alfalfa .....20@21
Flax .....5@6

Citrus Fruit Market

LOS ANGELES, May 23, 1917.

Slightly better condition prevails and with the Navel season closing Valencias are being well received. Off sizes are being shaded heavily in some markets.

Shipments

Shipments of oranges from Southern California since November 1, 1916, 24,855 cars, lemons 4207, total 29,061.

FROM THE AUCTION

May 16

New York: 36 cars oranges, 3 lemons. Market easier. Nav., $1.80@3.15; Sweets, $2.15@2.20; lem., $1.70@2.95; grapefruit, $2.80.

May 17

New York: 49 oranges, 1 grapefruit, 2 lemons. Nav., $1.65@3.20; St. Mikes, $2.50; bloods, halves, $1.30; grapefruit, $2.10@2.65; lem., $2.60@3.25.

May 21

New York: 41 oranges, 1 grapefruit, 4 lem. Market stronger and slightly higher. Nav., $1.75@3.25; Val., $2.20@2.55; grapefruit, $1.25@1.35; Sweets, $2.30@2.45; tang., halves, $1.15; lem., $1.75@3.20.

May 22

New York: 32 oranges, 5 lem. Nav., $2.05@3.10; bloods, $2.45@3.50; Val., $2.80@2.45; lem., $1.20@3.35.

WEATHER CONDITIONS

For the Week Ending May 19, 1917

	Wk.	Rainfall Season.	Norm.	Temp Max.	Min.
Eureka	.53	31.25	44.98	58	33
Red Bluff	.84	17.94	24.21	74	42
Sacramento	.04	12.88	19.71	72	42
San Francisco	.02	15.75	21.86	62	46
San Jose	.16	12.57	16.47	70	36
Fresno	.18	7.25	9.41	82	44
San Luis Obispo	.42	22.96	20.64	74	48
Los Angeles	.14	15.06	15.45	74	50
San Diego	.12	10.04	9.86	64	50

COUNTY COMMISSIONERS' CONFERENCE

State Horticultural Commissioner George H. Hecke has issued a call to each of the 47 county horticultural commissioners of California to attend a conference at Modesto Wednesday, and Thursday, June 6 and 7.

Matters of deep concern to the fruit industry of the state will be discussed. California's $150,000,000 fruit crop deserves particular attention as it will be one of the biggest contributions the state can offer to meet the extraordinary demand for food.

The meeting on Wednesday will be addressed by A. F. Naftzger, vice president of the state council of defense; B. F. Crocheron, representing the University of California; George H. Hecke, state commissioner of horticulture, and others. Thursday's meeting will be executive and devoted to subjects of interest to the state and county commissioners, giving particular attention to new additions to the horticultural laws of the state under which the county horticultural commissioners are acting.

WHY THE GUERNSEY?

"Why the Guernseys are at Hollow Hill farm" is the title of an attractive illustrated booklet by G. W. Wilder, proprietor of Hollow Hill farm. The book contains many things of interest which were learned by the owner of the farm while in search of the dairy cow he thought to be the best. It is an excellent presentation of the merits of the Guernsey and the manager of the ranch writes that he will be glad to mail a copy to all dairymen who request it. Write Hollow Hill farm. Colton.

Alfalfa Land

For Dairying

Also First Class Orchard Land
10 Acres and Up

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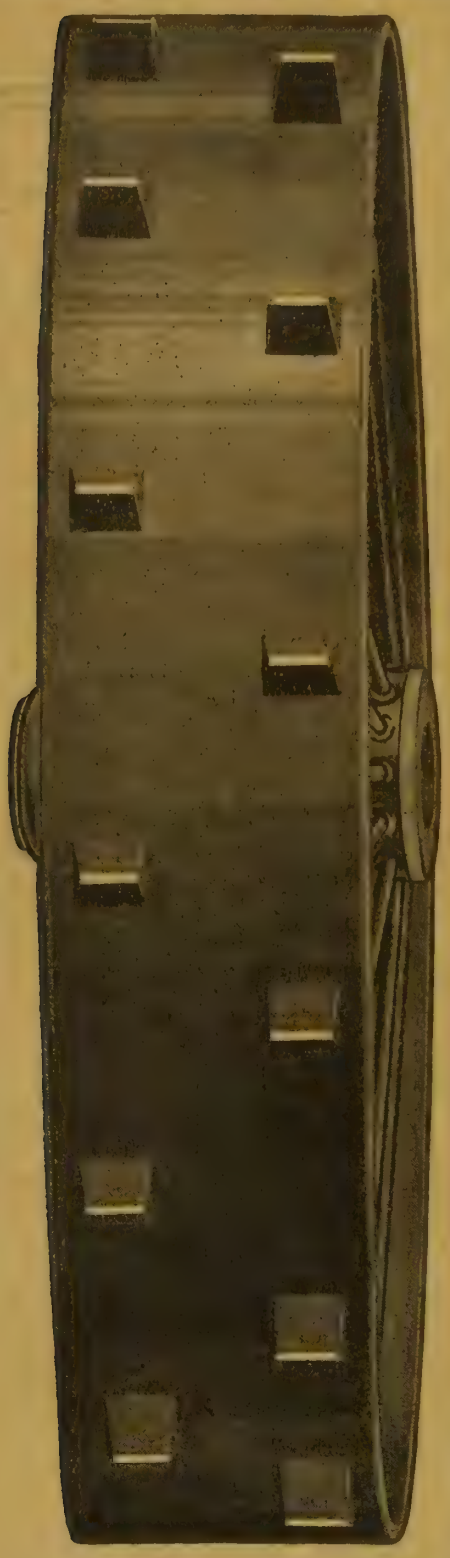
THE ORIGINAL 2-WHEEL TRACTOR



That Does All Farm Work WITHOUT HORSES

When you come to buying a tractor, whether for a farm of 80 acres, 280 acres or more, there are a number of questions you will need to ask yourself before you buy. Here are some of them:

—Will it CULTIVATE as well as plow?
—Will it do ALL my farm work without horses?
—Will it work on plowed ground without packing the soil?
—Will it do the work quicker; easier; and save on hired help?
—Is it REALLY a one-man tractor?
—Will it handle as easy as a team of horses, rather than be too heavy, clumsy, and inconvenient?
—Do I ride on the tool where I can see the work I am doing, or will I have to have someone run the tractor while I am operating the farm implement?

The tractor that answers these and all other farm power problems most practically, and profitably is the

ORIGINAL MOLINE 2 WHEEL UNIVERSAL TRACTOR

This is the original Two-Wheel Farm Tractor. It pulls two 14-in. plows; will disc, harrow, plant, CULTIVATE all hill and row crops, pull mower, binder, manure spreader, fill your silo—and do all belt work on the average farm. In fact, it will do anything you can do with horses; do it quicker; easier; and with less hired help. It weighs only 2,800 lbs., but all its weight being on its two wheels—*all its weight is traction weight.* The tool you hitch it to, forms the rear wheels and you do not have to pull around a ton of needless weight. It will back up with tools attached easier than a team will back. You can turn around in a small space; get close to the rows and the fences. It is the ideal tractor for the farmer because it costs less than four horses; is as powerful as five horses; does more work than seven horses; is inexpensive to operate; and eats only when it works.

Write for our new Tractor Catalog and read how farmers everywhere are solving the power and hired help problems on their farms; how they are changing the drudgery of farming to a profitable pursuit. Learn how you can make your work easier and get it done on time and grow bigger, better crops. Write today.

MOLINE PLOW CO., Dept. 49 Moline, Illinois

The Moline Line includes: Corn Planters, Cotton Planters, Cultivators, Corn Binders, Grain Binders, Grain Drills, Harrows, Hay Loaders, Hay Rakes, Lime Spreaders, Mowers, Manure Spreaders, Plows, (Chilled and Steel), Reapers, Scales, Seeders, Stalk Cutters, Farm Trucks, Vehicles, Wagons,

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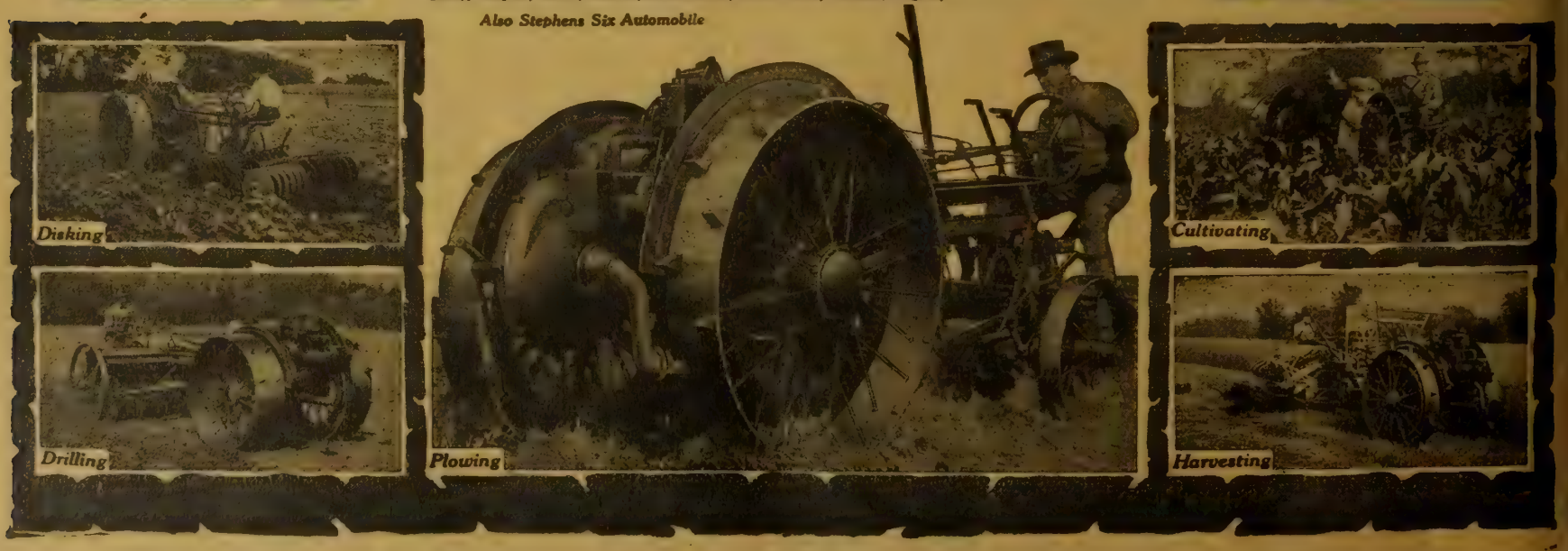
Also Stephens Six Automobile



CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

An Illustrated Weekly Magazine, Devoted to the Rural Home and Ranch

LOS ANGELES June 2, 1917 SAN FRANCISCO

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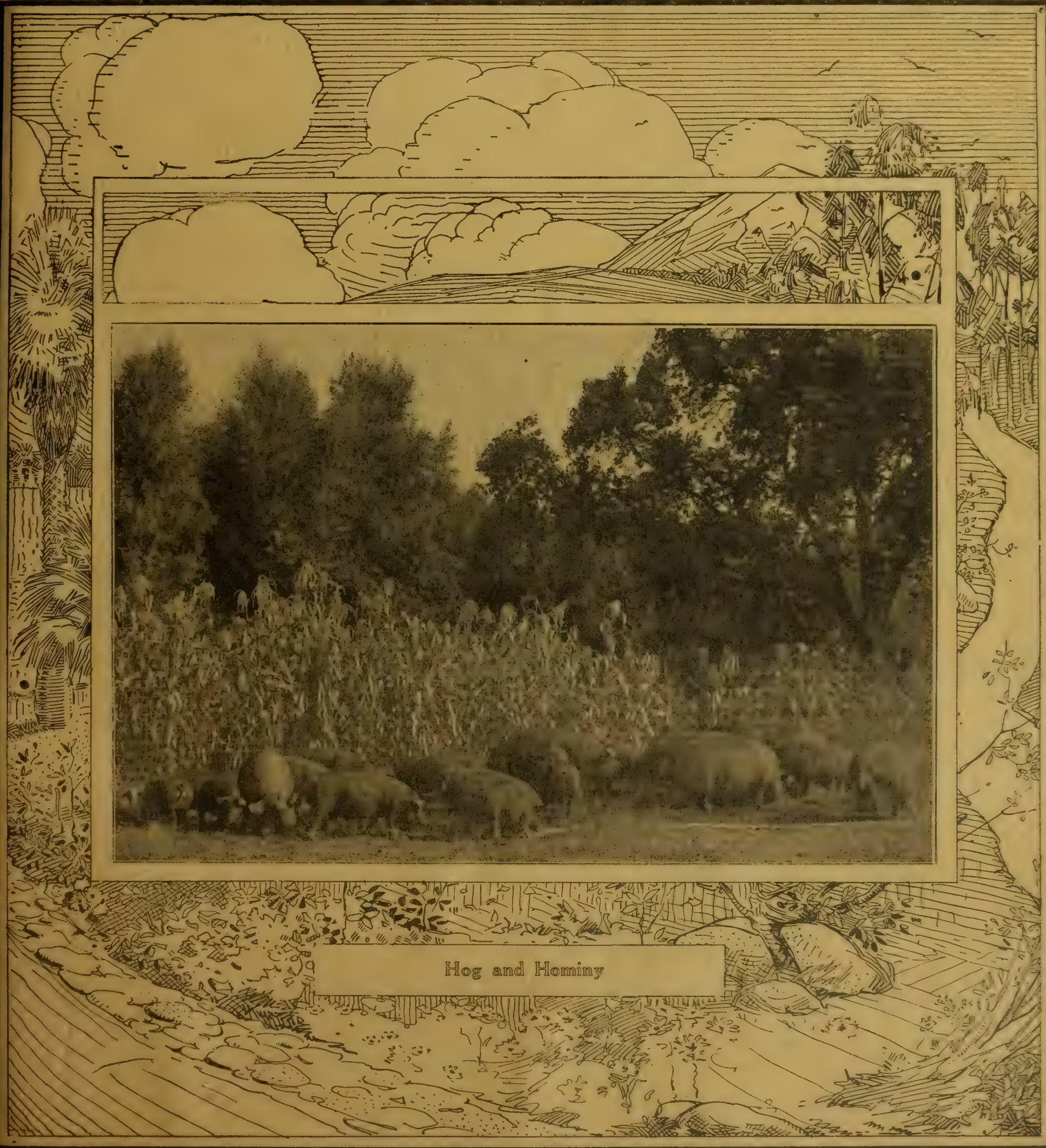


Hog and Hominy

A Perfect Rice Binder Engine

Guaranteed For Life

MADE FOR YOUR RICE BINDER, as well as for general, all-around power purposes. The "NEW-WAY" has met with unqualified success in the rice and grain fields of the South.

Light and compact—no bulky, heavy water cooling system. Easily attached by patented bracket. Mounted on sub-base, this new model is especially suited for all-around work. Readily moved from one job to another on hand truck or skids.

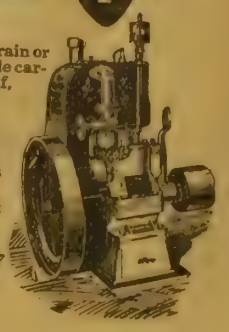
THE "New-Way" ENGINE
GOES AND GOES RIGHT

Has lightest operating weight of any engine built for RICE, grain or corn binder; faultless jump-spark-ignition—high grade automobile carburetor; multiple disc clutch pulley; enclosed, oil tight, dust-proof, hinged crank case; direct cooling accomplished without any moving parts except fly wheel of engine.

Investigate the "NEW-WAY" now. Full information on request.

Built in 1 to 12 H. P., both vertical and horizontal. Prices according to size and equipment. Send for catalogue No. 43

Ask your dealer about this engine. mt23



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Cut Citrus Crop Losses by Summer Spraying

PROTECT YOUR PROFITS WITH TRIUMPH AND BORDEAUX

Don't wait until fall to use an insecticide on your trees. By then the insects will have done irreparable damage.

Reduce insect injury to the minimum by spraying your grove this summer before the larvae mature with our TRIUMPH and Bordeaux combination spray—Scientifically Right, Grove Tested, Commercially Satisfactory. It is not a "shotgun" mixture.

The TRIUMPH and Bordeaux Combination is a Fungicide as well as an Insecticide. It controls insect pests and fungus diseases at the same time at the cost of one spraying. It is safer as regards spotting of fruit and tree injury than is a straight insecticide.

The supply and price of Triumph and Bordeaux are certain. Stocks are on hand in Los Angeles and San Francisco. Quotations upon request.

Clip and mail the coupon for our new free book, "Spraying of Citrus Trees." It is crammed with new, accurate information, formulas and quantity tables.

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UNIVERSAL BRAND ORCHARD SPRAY

Please send your free book on "Citrus Spraying" to

Name.....

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Address.....

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No. acres in grove.....

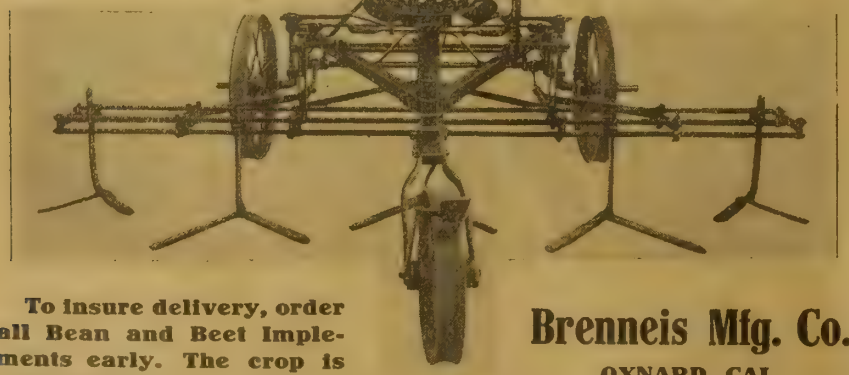
Kind of trees.....

Age.....

THE BRENNEIS LABOR SAVING TWO ROW RIDING BEAN CULTIVATOR

This is the best and most successful two row bean cultivator on the coast. Made to do the work quickly and thoroughly and to stand up under California conditions. Write for descriptive circular and price list of all our bean and beet tools.

Labor is scarce and wages high. Every labor saving implement is a money saver. With the BRENNEIS two row riding bean cultivator one man can do the work of two men cultivating.



To insure delivery, order all Bean and Beet Implements early. The crop is large and materials scarce.

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Chocolate is an appealing food—perhaps the most delicious of all foods. It is likewise *nutritious* food—perhaps the most nutritious.

When you buy Ghirardelli's Ground Chocolate you get the grand prize winner, a chocolate of finest quality packed in a hermetically sealed can that holds all the Ghirardelli goodness in and keeps all outside evils out.

You buy Health when you order

Ghirardelli's Ground Chocolate

Since 1852 D. GHIRARDELLI CO. San Francisco

Irrigate! Irrigate!!

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It will not rust, warp or crack. Can be used for surface or sub-surface irrigation and will deliver a full flow of water.

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They are made in all sizes from 500 to 500,000 gallons capacity.

Tell us your IRRIGATION NEEDS and we will tell you what equipment you require.

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THE BEST MADE

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California Cultivator

Vol. XLVIII No. 22 LOS ANGELES: June 2, 1917 One Dollar Yearly

California Cotton Possibilities

From an Address Before the National Association of Cotton Manufacturers in Boston Last April by Walter E. Packard of the Imperial Valley Experiment Station

THE total annual production of 75,000 bales of cotton does not place California and Arizona very far up the list of cotton producing states, but a knowledge of the natural resources in climate, soil and water of these valleys inspires a feeling of confidence in the possibilities of future development. The total area of arable land suited to cotton is small as compared to the great cotton areas of the South, but the factors of growth are so wholly under control where irrigation water is available that it is reasonable to expect great results from intelligent effort, in the production of superior quality and large acre yields.

Cotton is grown at the present time in Imperial and Salt River Valleys and in smaller areas along the Colorado in both California and Arizona. By far the largest acreage is in Imperial Valley. Between 400,000 and 500,000 acres are under irrigation, making this the greatest unit irrigation project in America.

The Salt River Valley of Arizona comprises some 180,000 acres of land adapted to cotton culture, of which some 4000 acres are now devoted to the production of Egyptian cotton. Experimental trials have conclusively proved, as did the commercial plantings in the 60's, that cotton can be successfully grown in both Sacramento and San Joaquin Valleys of California. These great interior valleys which stretch over 400 miles north and south with an average width of 40 miles, have a total area of 10,000,000 acres, nearly 2,000,000 of which are under irrigation. Although, as previously stated, cotton has been grown in these valleys, there is no commercial planting at the present time. Outside of the valleys above mentioned there are several smaller areas where climate and soil are favorable for cotton culture. The Yuma reclamation project, including some 127,000 acres, of which about 26,000 are at present under irrigation, the Palo Verde Valley of Riverside County, California, covering 80,000 acres with about 20,000 acres under irrigation, the Parker Valley of Arizona, which is at present an Indian reservation with little irrigation, and the Coachella Valley, comprising over 100,000 acres in the upper end of the great Salton Sink where 5000 acres are irrigated from wells, are all potential cotton growing sections of considerable importance, as demonstrated by the experience of recent years.

To those who have traveled through the Southwest, the statement that the climate is arid may appear axiomatic. The rainfall in Imperial Valley averages between two and four inches a year, which about equals the average monthly rainfall in the South. A dry fall in the cotton belt, which is considered so essential for good picking, is, of course, only relative as compared to a dry fall in Imperial Valley, or Arizona where no rain occurs at all during a large portion of the picking season. The rainfall in the Salt River Valley is slightly greater than in Imperial Valley, especially during the late summer months, but not enough to mature any but the most quickly maturing crops, such as the Tepary bean. In the San Joaquin and Sacramento Valleys of California the rainfall is still greater, varying from four inches at Bakersfield, ten inches at Merced, to 26 inches at Red Bluff, most of this coming during the winter, which is the rainy season. By proper conservation of moisture with the utilization of dry farming methods, quick maturing winter crops, such as wheat or barley, can be grown on the valley lands without irrigation. Summer crops of corn or cotton can also be successfully raised without surface irrigation in those bottom lands where the water plane is sufficiently close to maintain the moisture percentage of the soil above the wilting point during the growing season. Eighteen hundred pounds of seed cotton were produced per acre on a small panting of Mebane Triumph cotton on the Kearney Estate near Fresno in the San Joaquin Valley this year. This cotton was planted in March and received no irrigation during the entire season. Satisfactory yields have been secured on like plantings in other seasons. Cotton has been raised on the bottom lands in Kern and Merced Counties in the 60's without artificial irrigation and as much as one and one-half bales to the acre secured. From 24 to 36-acre inches are usually added to a cotton field during the growing season, while crops such as alfalfa require as much as four to six feet.

The isolation of an irrigated valley located in a vast desert is an advantage in the control of insect pests. At present boll weevil does not exist in cotton fields in either Arizona or California, and it is the opinion of competent entomologists who have investigated the local situation for the federal government that due to the careful inspections and rigid quarantine laws the boll weevil will probably never gain entrance.

Plants vary in their resistance to alkali salts, and one important method of utilizing these lands not too heavily impregnated is to grow crops having a strong resistance. Cotton is one of these, and can be grown on stronger alkali soil than many other field crops. In Egypt, alkali land is first reclaimed by flooding for rice and is then planted to cotton as the second crop in the rotation. Cotton has been grown on some of the white alkali lands of the San Joaquin Valley with success. There is, of course, a limit to the amount of alkali which cotton will stand, and one must figure carefully in order to make cotton a financial success on poor soil for the cost of production must not exceed the returns unless the benefit of irrigation on the soil is considered as an asset. The alkali apparently affects the strength of the staple and the price of the product is often discounted.

The varying soil conditions quite naturally demand different treatments, although the general operations are essentially similar. Before a crop is planted in a new section the land must be leveled. In some cases the cost is not great, not more than $15 to $20 per acre, while in other cases the cost exceeds $100 per acre. The item is the same charge against the land as is the cost of removing the heavy timber and underbrush in much of the southern country, or to the tile drainage now so common in the corn belt. The land is leveled with a Fresno scraper drawn by four horses abreast. Borders, or low ridges, are made from 30 to 40 or 60 feet apart to direct the water which is flooded over the surface. Barley is usually the first crop, and this is followed by alfalfa. After alfalfa has been on the ground for some four or five years the field is ready to plow up and to be planted to corn or cotton in a system of rotation where the land is put into cultivated crops every three to five years. Good cotton has been raised on raw land, but cotton planters prefer alfalfa land on account of the added life which alfalfa soil possesses.

While this pioneer work is going on, the family lives in a little tent house which serves to keep out the sun and wind and in many cases acts as a corral for the flies. Many of these tent houses, however, are built on such a plan as to serve most efficiently as a desert home. As the land begins to produce, conveniences are added and finally the permanent house is built and but for the occasional trips to the desert one would not know that he was so far away from the corn fields of Illinois or the old home in Tennessee.

The land is plowed in preparation for seeding. After plowing it is disked and harrowed to break up the lumps and sometimes irrigated by flooding. In February it is listed out, leaving ridges every three and a half feet apart. Small lath boxes are placed in the ditch so that there will be one opening for each furrow. A small stream is allowed to run down each furrow for from one to four or five days, depending upon the character of the soil. As soon as the field is sufficiently wetted the water is turned off and when the land is dry enough to bear a horse the field is harrowed both ways. This drags the ridge into the furrow, leaving a well pulverized and mellow seed bed. The cotton is then planted on this ridge by a one or two-row planter similar to the ones used in the South. From 20 to 30 pounds of seed is applied in order to insure a good stand. Immediately following planting it is customary to drag the field with a heavy board drag in order to compact the soil more firmly about the seed to insure germination. In the Salt River Valley the land is usually flooded and is not furrowed until the crop is up. The advantage, however, of furrowing is apparent, for it gives a more even distribution of moisture and enables the irrigator to bring up a stand of cotton by a second irrigation if the first one is not successful.

After the young plants attain a height of from three to six inches, the stand is thinned out with a hoe, leaving one good stalk of cotton from 12 to 18 or 24 inches apart in the row, depending upon the variety of cotton or upon the idea of the planter. Eight-

Continued on Pake 614

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Oats	45 " "	Oats	40 " "
Potatoes	199.34 " "	Potatoes	97.15 " "
Cotton in Egypt	400 pounds "	Cotton	185 pounds "

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Notes on Avocado Varieties for a Commercial Orchard

From an address by Charles D. Adams before Avocado Growers Association

TO the increasing number who want to make a start toward planting commercial orchards of avocados there is no more important and puzzling question to which to find an answer than what to plant to produce an orchard that will prove permanently profitable.

One may frequently hear the current opinion expressed that we must wait ten years longer before we shall know what are to be our standard varieties. Possibly we may have to wait that long to get that knowledge, but we do not intend to wait that long to do our planting and from what we already know about it and what we already have in trees and fruit we can be reasonably sure we can produce orchards that will be permanently profitable even though no trees in them should ever find a place in the final standard class.

The discovery during the past season, of the ripening period of two imported buds and the much later ripening period of one of our older varieties than we had hitherto known, has given us winter bearing varieties and avocados of merit to market during every month in the year and that without needing to use very many varieties, so few that even three or four can be made to cover it.

Since we can now cover the whole year with varieties that are as good as some that we have, there is no need to be unreasonably timid about planting an orchard to continue profitable if we use few enough kinds, selected with sufficient study and good judgment.

The main puzzle, pertaining to the effect of future planting on what we may plant now, that remains to solve, is whether the superiority shall prove very marked which we may find in the best new kinds from Guatemala as compared with our present best kinds. Among the hundreds of thousands of trees amid which the United States government expert is now seeking the best—and among the selected imported Guatemalan buds soon to fruit here, there are almost certain to be some for which we shall want to reserve a space in our orchards.

Not too many kinds is a well proven element of success in orchard planting. Buyers are most interested and pay best prices where they can find large and continuous supplies of a definite article and growers find such marketing simplest and most economical. The California orange has been brought down to one standard variety for one half the year and one for the other half. The greater variation in taste, shape, size, color and period of maturity in the avocado compared with all other fruits will not permit of quite so few, but the nearer we can approximate to it with the very best for each period the better.

We are not here considering a few trees each of many kinds for our own testing or pleasure, which is quite a different matter.

Probably the main ripening season for the greatest number of our thick skin varieties is the summer, some of them beginning earlier and some continuing later. Then we have those maturing most of their crop in the spring, some of which would begin in the winter and finally those maturing most of their crop in the winter, some of which would come earlier and some later.

Vegetable Planting Calendar for June

Southern California

Written for California Cultivator By D. F. Reichard

THOSE who started to plant early this spring will begin harvesting in earnest this month. Although the weather has been cool and the season backward in general many of the hardier vegetables are coming out in fine shape.

Where crops are taken out soak the ground thoroughly and work it over in preparation for putting in summer growing stuff, such as squashes, both summer and winter varieties, cucumbers, melons, casabas, corn, both sweet and field, beans, and pepper, egg plant and tomato plants. All these things require water and should be planted only in soil that has been well soaked before working up. The seed should be planted to a depth at least four times their diameter, in damp ground, and firmed. This method will bring the seedlings up without any further watering. Keep the ground well cultivated to kill the weeds and to retain a dry mulch.

When water is needed apply by running furrows beside the rows and allow the water to run slowly through; cultivate as soon as it breaks up nicely without sticking to your tools.

When setting out plants wet them well, either by filling the hole to receive the plant with water, setting the plants in the mud and filling up with dry soil, or set the plant, firming the damp soil around the roots and fill a basin made around the plant with water; this will carry the plant for two weeks.

All stuff in the garden that is not matured keep well supplied with water and cultivate, for the evaporation is enormous during warm days. More and better products are gotten where vining plants are staked or trellised.

Northern California

Written for California Cultivator By A. R. Gould

IT is still necessary to survey the idle land and get more and more into cultivation as there is urgent need for one and all to do their duty to increase the food supply of the nation, as not only for our own people but it will be necessary for us to export our surplus to allied countries, and as the demand will be enormous we must get in every possible square yard. The canneries will require more beans, tomatoes, corn and other staple vegetables. Hence the opportuni-

ty is great. Root crops can be grown in abundance and successfully stored for the winter, and varieties of squash and beans can be grown which can be kept for months. Energy and foresight are essential and we must work hard and keep at it. The water question will probably enter into it and may seem to be a real obstacle. However it may be possible to extend a few pipe lines, use waste water, construct wooden water troughs with means of water control, and many methods may be adopted which will enable us to plant later and secure heavy crops. We have the rich soil and suitable climate to feed the world.

In these monthly notes we have dealt with the most profitable and important tested varieties, and we would advise a glance at the back numbers if additional information is desired. In these present notes we shall follow up and deal especially with crops it will pay to grow and store.

Squash

This is considered a big item for stock feed but they form a very important vegetable, and seeds may still be sown in small mounds well manured as advised last month. If these are well watered after sowing and mulched with leaves partly decayed they will germinate freely and will, after being once established, grow with very little water. The variety most used by the canners is Boston Marrow which is of excellent quality. Eight ounces of seed will be required to plant 200 pounds, or two pounds to the acre. Morse's Marrow is the largest type in cultivation, is first for a stock feed and makes a good vegetable. Perfect Gem and Hubbard are the best keepers.

Melons, Casabas or Winter

The casabas are good keepers and if stored in a cool place will keep through to January or February. It will be advisable to sow a number of mounds of the variety Golden Beauty and Winter Pineapple, both fine varieties. Keep these fairly well watered until established.

Tomatoes

There is still time to plant up many more of this profitable crop, and the fact that it will grow with very little water, providing the ground has been well cultivated should induce many to increase the acreage of these. They will need shading from the sun for a day or so after planting and a fair supply of water until established. Secure hardy plants of San Jose Canner and other good varieties and plant out without delay.

Beans

Providing the ground has been well cultivated and retains a certain amount of moisture it will be advisable to plant the small white bean. Tepary, which should sell well in the fall, as it is fast becoming popular. We have also pointed out before that it is adapted to dry soils and once started it will soon be able to take care of itself. Where it is possible to use the sprinkler or irrigation the other varieties mentioned last month may be grown. The soya bean when ground, makes a fine poultry food and is also well worth growing. It thrives best in a very warm situation and the bean also yields a valuable oil. Wherever these crops are growing they will improve soil conditions, and we would strongly advise planting up the orchards with them if only to enrich the soil. This may be kept in mind for plans another year as it would not be feasible to plant now unless there was considerable moisture in the surface soil, and in many localities this may not be the case.

Parsnips

This is an excellent root crop to plant in the garden and may be stored and even left in the soil for a considerable time. A sandy loam is to be preferred as it is deep rooting and difficult to dig in stiff soils. Sow at once in drills 18 inches apart. One-fourth of an ounce of seed will sow a 100 foot row. Hollow Crown is the best variety. Water moderately to assist germination, and when the plants are up cultivate between the rows and irrigate every few weeks.

Corn

Make another sowing of corn, Country Gentleman and Late Mammoth to keep up the supply.

Leeks

It is now time to plant out the leek seedlings in the prepared trenches which we advised sowing in the January calender. These should be planted about 12 inches apart in the trenches and well watered. Never let them get really dry or they will quickly run to seed.

Celery

If not already planted these may be also planted 12 inches apart in rows or shallow trenches and kept well supplied with water through the season.

Potatoes

The main crop of these will require earthing up, simply draw the soil up towards the plant either side making ridges which afford support and protection to the plant and young tubers. We advised this last month but some may not have been forward enough and we should like to call attention to this important work again.

Swiss Chard or Sea Kale Beet

It will be advisable to make a sowing of this now, as used in the same way as spinach it makes an excellent dish. It can also be cut several times and will sprout again. Those who have poultry will do well to plant it up in quantity. Large Ribbed White is a good variety to sow.

NO MORE ALLIGATORS

The Cultivator has always insisted on relegating to the scrap heap the unearthly name of "alligator pear." The California Avocado Growers' Association has also taken a hand in trying to correct the use of this term. The following resolution was passed at the recent annual session in Los Angeles: "Resolved, that the California Avocado Growers' Association does hereby request the various papers publishing market reports to use the name 'avocado' instead of 'alligator pear' and to class the same under the appropriate head of fruits and not under vegetables."

We would also suggest that the growers unite in the matter of pronunciation. At the convention in question speakers sometimes pronounced avocado with the "a" sounded as in cat. The a in the third syllable should have the sound of a in father.

Ornamental Planting Calendar for June

Northern California

Written for California Cultivator By A. R. Gould

IN the ornamental section weeding, cultivating and watering will be of first importance and many plants will need staking and tying to protect them from breaking in the height of their growth. Inspect all climbers and tie in as required.

Dahlias

Dahlias will require attention this month as they will need tying to stakes, and weak shoots must be pinched out. Old roots will generally throw quite a few shoots from the base, and only three or four should be allowed to grow up and upon these the best blooms will develop. Blackfly or aphis will most likely appear on the young shoots, but these may be destroyed by the application of "Black Leaf 40", a fine spraying solution

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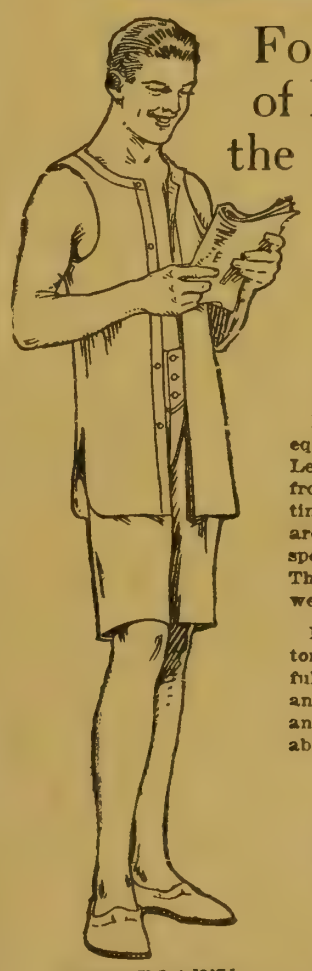

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Standard Oranges: Washington Navel, Valencia Late.

Standard Lemons: Eureka, Villa Franca and Lisbon.

Standard Pomelos: Marsh's Seedless, Triumph and Imperial.

Standard Limes: Tahiti Seedless and Mexican.

Standard Kid Glove Oranges: Dancy Tangerine, King Mandarin, Willow-Leaved Mandarin, Satsuma-Oenshiu.

Table and Ornamental Oranges: (Paper Rind, St. Michael, Ruby Blood, Navelencia and Jaffa.) Golden Nugget Navel, Golden Buckeye Navel, Sweet Seville, Bouquet des Fleurs, Golden Variegated.

Garden and New Citrus Fruits: Sampson Tangelo, Sweet Lemon, Sweet Lime, Golden Variegated, Ponderosa, Seedless Lemon, Citrus Limonum, (Dwarf Lemon), Thornless, Rangpur and Red Limes, Lue Gim Gong Orange, Nagami Kumquat, Algerian Satsuma Orange, Algerian Tangerine Orange and Citron of Commerce.

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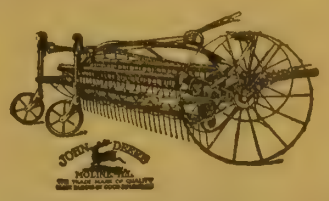

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which should be used when necessary.

Begonias, Tuberous and Fibrous, Rooted

There is still time to start a few of the former type in boxes of leaf mould placed in a fairly shady situation. The double, single, crested, fringed and pendulent, or hanging basket, types are all very pretty, and tubers if purchased at once and given attention will provide bloom for a shady situation well into the fall of the year. Those which were started earlier and by this time are planted in established quarters will need staking and careful watering. The fibrous rooted section will thrive in a fairly sunny situation. Begonia Vernon and Erfordi are both good for massing in beds. B. Weltoniensis will thrive in a semi-shaded position, as also will B. Maculata and B. Metallica, the latter being of tall habit and will make rapid growth in a season.

Climbing Plants, Sweet Peas, etc.

Permanent climbers will need some tying in as there will be many new shoots formed on the roses, jasmine and honeysuckle, etc. Regarding new plantings, if a quick cover is required against a fence, there is still time to sow seeds of the fall nasturtium in various colors or solid colors may be used and the ipomea or convolvulus, such as the sky blue type may also be sown. A very useful climber is cobea scandens which has trumpet shaped purple flowers. If young plants in three-inch pots can be secured and planted out they will make considerable growth this season, forming admirable cover for a trellis and if protected will live through the winter.

If a fall display of sweet peas is desired you should lose no time in sowing seed in prepared trenches. There is such a wide range of the Spencer types now on the market that it is quite a long job to make a selection. However, we think that Margaret Atlee, King White, Helen Lewis, Margaret Madison and Fiery Cross are some of the very best.

Chrysanthemums

The old clumps of these should ere this have been divided up and will be making considerable growth. In a few weeks the main shoots should be cut back to eight or ten inches above the ground if bush specimens are desired. Those grown on single stems are grown from cuttings which should now be ready for potting up. The soil mixture should be made up of garden loam, leaf mould and sand. Water carefully or the young plants are liable to damp off.

Petunias

Of all the free flowering plants and of those which delight in full sunshine petunias take first place. They are very suitable for situations where it is difficult to water and once established they will thrive with very little attention. The giant ruffled single types are very pretty and come in a vast range of colors, but for general bedding work and massed coloring Petunia "Rosy Morn," a neat compact form, pink flowered, is very satisfactory and should be widely grown. It is late now for raising them from seed but it may be possible to secure small rooted plants from one of the nurserymen advertising in the Cultivator.

The prospectus of the college of agriculture of the University of California for 1917-1919, giving outline of the agricultural work of the university is being mailed from Berkeley. Everyone interested in the agricultural college and its work should write for a copy of this bulletin.

THE NEW COTTON FIELDS OF THE SOUTHWEST

Continued from Page 611

een inches is a common distance, while the rows are from three and a half to four feet apart, the distance again determined by the variety of cotton grown.

On a sandy or sandy loam soil the water penetration is rapid and enough is often added in one application to keep up a steady growth. On a clay soil the irrigation is often inefficient on account of the slow penetration of the water and frequent irrigations are necessary to prevent wilting. Cultivation conserves the soil moisture and should be particularly thorough in an irrigated section for the essential feature in the irrigation practice is to maintain the moisture content of the soil as even as possible so that the roots will have an available supply at all times. This question of maintaining a constant moisture supply is the dominating consideration in the technique of irrigation.

Picking starts in August and is carried on through the fall and winter and often into March, very few days indeed being too damp for efficient work in the field. The cotton is piled in the field and is hauled to the gin as sufficient accumulates. The bales are stored in the open yards, which provides the best possible insurance against damage, for there is not enough rain to hurt the cotton and if a bale catches on fire it can be quickly and easily handled.

In a section so favored by nature, with a long growing season, abundant sunshine, and a supply of water that can be added or held off at will, it is important to select the variety best suited to conditions and which will yield the greatest net returns.

The necessity of selecting one variety for any particular section was early recognized by the planters. The cotton hybridizes so readily that if a promiscuous number of varieties are allowed to remain the task of maintaining pure seed in any variety would be almost impossible. Many varieties have been tried experimentally, some on a commercial scale, and many have given good results, but due to the necessity of limiting the number, but three varieties have persisted, Egyptian cotton in the Salt River Valley and Durango and Mebane Triumph in the Colorado River region.

All of the principal varieties of Egyptian cotton were introduced into California in 1902 by the United States department of agriculture. The results were not very encouraging at first as the quality and yield was not what was expected. In 1907 a selection was made from an apparent mutation in the field of Mit Afifi. This cotton was carefully grown and has resulted in what is now called the Yuma Egyptian. Mr. Thomas N. Kearney says, "This new type is distinguished from Mit Afifi by its relatively large bolls and long cream colored fiber, resembles the Nubari variety, which appeared in Egypt about the same time, in the shape of the leaves, bracts and bolls, but is superior in the staple and quality of fiber, which more nearly resembles that of the Egyptian Jannovitch."

Much interest in Egyptian cotton is manifest in Imperial, Yuma and Palo Verde Valleys on account of the high prices secured and it is probable that the Egyptian cotton acreage will be considerable in these valleys this coming year. The unfavorable labor condition in 1912 in Imperial Valley prevented the extension of the Egyptian cotton area in that section.

The Egyptian fiber averages from 1 7-16 inches to 1½ inches in length, is strong and silky and is especially adapted for use in low number yarns where great strength is required. The present supply of Egyptian cotton from Arizona is used almost wholly for the manufacture of tire fabric. The Goodyear Rubber Company, of Akron, Ohio, has leased 10,000 acres for the production of cotton for their own use. I understand that the Yuma Egyptian is preferred by spinners to either Sea Island or native Egyptian for use in these tire fabrics. The reason for this is not fully understood, although it is supposed that the fiber of the Yuma Egyptian possesses a superior twist. This quality has not been distinguished by microscopic examination, although the harshness is apparent to the touch.

Durango cotton is what might be termed a medium long staple variety. The fiber runs from 1 3-16 to 1 1-4 inches in length and compares favorably with the average long staple produced in the rich bottom lands. The Durango is easily grown and although somewhat sensitive to the heat of the dry summer months, is well adapted to the region. The first planting of 200 acres in 1912 has increased to 35,000 acres at the present time.

Mebane Triumph is not strikingly different from the cotton raised in Texas, although a premium of about 30 points is allowed by the buyers on account of the superior color and strength. The quality of both the Egyptian and Durango has been maintained by careful seed selection; in one case by the active work of the United States department of agriculture, and in the other by intelligent efforts on the part of a few growers. Continued attention must be paid to this very important work if the good results so far secured are to be expected in the future. The experience with the short cotton is an example of the result in the neglect of continued selection, for the ginning percentage, yield and evenness of fiber have so materially decreased in the past six years that many of the growers are looking for a supply of seed outside of the state.

(Continued Next Week)

DEPRECIATION OF FARM IMPLEMENTS

Have you ever kept track of your farm business by taking an inventory once a year, or by keeping account of all receipts and expenditures? Take account of all the farm animals, putting a fair cash value on them. In case of farm implements deduct ten per cent each year from cost price till three-fourths of the cost price has been deducted, then carry them on at one-fourth price as long as they are usable and stay out of the junk pile.

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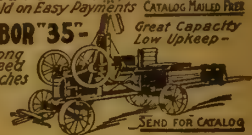

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Preparedness Train

DURING the past twc weeks there has been operated over the lines of the Salt Lake Railway a demonstration train of more than a dozen cars, the aim of which was to carry into farming sections along the lines of that railway inspiration and information which should result in greatly increased production.

Car Devoted to Sugar Beet and Its Products

In connection with the railway people the staff of the Utah agricultural college and several members of the staff of the University of California united in making a most effective educational force.

The train started in Utah and the first two weeks of the trip visited points in Utah and Nevada, reaching the first California point, Victorville, on May 18. It visited Pomona, San Bernardino, Riverside, Whittier, Long Beach, Glendora, Pasadena and Los Angeles.

Contrary to the plan of demonstration trains formerly run in this state this train spent an entire day, with evening lectures, in each community visited. One car was given up to demonstration of bean culture, another to the growing of forage and grain sorghums, others to dairying, sugar beets, electrical appliances, especially installations which are possible on farms, home economics, poultry, and in fact every phase of California or Pacific Coast agriculture. On flat cars there were various types of tractors which at each stop were unloaded and the plows and other implements used to demonstrate most economical methods of soil preparation and tillage.

The corps of 20 expert instructors accompanying the train were kept busy from ten o'clock until four answering questions and explaining operations of various appliances. The evening lectures were given in the largest and most available halls in the cities visited.

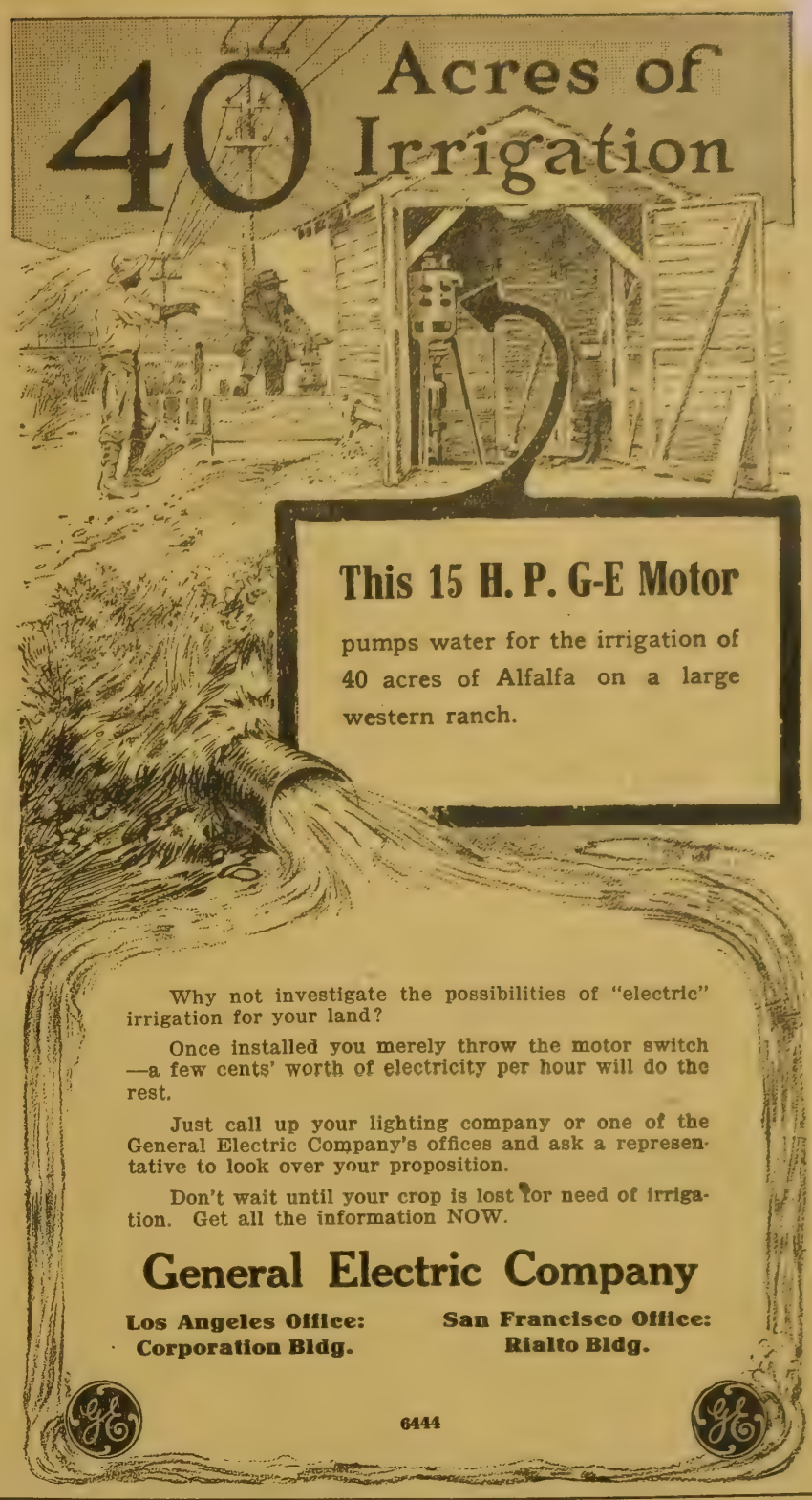
The train was under the direct charge of Douglas White, general industrial agent of the Salt Lake Railway, and Mr. White was busy at all times looking after the comfort of his guests, and after the spreading of information which means more and better production and incidentally more and better freight for transportation lines.

Prof. John T. Caine, director of extension work, Utah Agricultural College, and Prof. Knight of the University of Nevada, Dean Hunt, Dr. Webber and several professors of the college of agriculture, University of California, were with the train.

BENEFICIAL INSECTS

Superintendent Smith of the insectary division of the state commission of horticulture, received several shipments of beneficial insects from foreign countries this week. One shipment contained enemies of the beet leaf hopper; another destroys black scale on citrus trees. These insects were assembled in Australia by E. J. Vosler, former secretary to State Commissioner of Horticulture Hecke. The hopper parasite is being released in the sugar beet fields of Ventura County. Another shipment was received from the Philippine Islands containing enemies of the mealy bug. These were collected by C. P. Clausen, who is collecting beneficial insects in the islands and in China for the branch insectary recently established in Alhambra.

Electrical and Power Possibilities as Shown in One Car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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Value of Green Alfalfa

Please advise what alfalfa behind the mowers at four dollars will equal in cured alfalfa hay in the field?—Subscriber.

If we get the idea the proportion would be about as one is to three. The department of agriculture makes the statement that if freshly cut alfalfa is worth seven dollars per ton alfalfa hay is worth $20.16. This is quoted by several authorities so we take it is generally accepted. We may also add that Woll's "Productive Feeding" gives the total dry matter in 100 pounds of green alfalfa at 28.1 pounds, digestible true protein 2.5 pounds and of energy 12.45 pounds, while alfalfa hay has of dry matter 91.6 pounds, digestible true protein 6.98 pounds and energy value 34.41 pounds. This would show the same general proportionate value.

Potato Seed

Will new potatoes make seed potatoes soon after digging?—Subscriber, Modesto.

If ripe there is no reason why they should not. In fact, all of the fall planting is from spring grown crop. A much larger percentage will be secured if the seed after digging are spread in at least partial shade and "greened." This ripens and aids in starting the new growth.

Keeping Away the Rabbits

Having seen in your issue of May 12 the complaint from a subscriber in Wasco as to the damage from jackrabbits eating off young beans, I have the following to suggest from my own experiments with beans on a small acreage in the foothills, exposed to rabbits and squirrels. At the first sign of damage to the sprouting beans I spread over the rows a light layer of straw, not enough to shut out the light, but merely to disguise and screen the young plants. While the rabbits are very apparent, they give these plants the go-by, and my troubles are ended. As the beans mature they project of course from the straw, and part of the foliage is obscured, but I make no attempt to conceal them, for the leaves are now mature and numerous enough so that some nibbling can be endured. They blossom and set the crop without serious annoyance. The only difficulty is in irrigating and cultivating, which the straw interferes with. At the same time it appreciably reduces the need for both. I wish that this simple expedient might come to the notice of many who are similarly annoyed and that it might prove applicable to some other crops. I am trying it out with a few garden vegetables as spinach and chard; with what practical success remains to be seen. —H. C. Tracy.

Bordeaux With Hydrated Lime

Please advise if hydrated lime will prove as effective as fresh burned lime in making Bordeaux mixture.—Subscriber, Los Angeles.

All the instructions we have at hand regarding making the Bordeaux refer to using fresh burned lime and makers of Bordeaux mixture think that it would be far safer. If, however, the trial is made with hydrated lime it would be advisable to use a greater quantity.

Ants

Please advise what will kill ants in the ground. I planted blackberries and raspberries but the ants eat off the leaves, and also the tomato plants. —Subscriber, Campo.

A strong solution of cyanide of potassium poured down the holes of ant hills, covering over with wet dirt or some other covering to prevent evaporation, will kill every ant. There are also most excellent preparations for the control of ants advertised in the columns of the Cultivator. We have known where these worked most satisfactorily. Scattering fresh buhach will also secure quick control. It is not often that ants eat vegetable growth. It has been charged that the Argentine and one or two other varieties are culprits in this respect. Possibly a close examination may show that other insects are responsible for this injury.

Poults With Rheumatism

Little turkeys at about three weeks die. Their toes curl right back. Seventy-five have died already. Am feeding chick feed and cooked rice.—Subscriber, Tres Vias.

(This subscriber asked for answer in last week's paper as her need is urgent, but that was impossible as paper was already on the press when question was received. Had she given her name the Cultivator would have been glad to mail answer direct.)

I think your little turkeys must have been running on wet alfalfa or in some other place where their feet got damp and remained damp for a good while at a time. Poults should have a wooden floor in their coop and should be well protected from rain and kept in when the ground is wet after a rain. I can only suggest that you keep the affected ones in a warm, dry place. Rubbing their legs with olive oil or some good liniment might help to cure the rheumatic condition from which they are evidently suffering, but prevention is the main thing. —J. A. K.

Colds and Swellhead

Some of my month-old turkeys have heads swollen, closing one eye. Nostrils show yellowish discharge and fowls sneeze and gape. They eat well. As soon as I find one affected I take it away from the others. They have large wire covered runs on east side of large coop, with sand in runs, protected from wind, plenty of water. Am feeding onions, crackers, bran and chick feed mixed with water. Should I feed this dry? Also feed some alfalfa leaves. Some of my little chicks have had same trouble, but turkeys have never been out so they could mix with the chicks.—Subscriber, Lucerne Valley.

Something is giving your chicks and poults colds. In some the trouble seems to have developed into swellhead or roup, in others it is just a plain catarrhal cold, but the cause is the same with all. There is something wrong in your care of them. Perhaps they are too closely confined. You say the poults "have never been out." Evidently there is lack of green feed, which is so important to the health of both chicks and turkeys. I am not told anything about their sleeping quarters nor how the poults are mothered. It is more than likely they are not getting sufficient air at night. This is a most potent cause of colds. Then again they may not be warm enough at night. If they are with a hen they are probably warm enough. If they are artificially brooded, they may not be. A small open front coop is best for turkeys, for there they can have absolutely fresh air. I should look first to the ventilation of their sleeping quarters, remembering that turkeys are birds of the open and cannot possibly breathe foul air and thrive. Then give them green range, if possible. Third, revise your ration. They need much more green than they are getting, and there is absolutely no reason for moistening the feed given to poults. Seeds and bugs and bits of green are their natural food, and they must have artificial feed as nearly approximating these as possible. A little chick feed is all right, but it must be very little. A few cracker crumbs, chopped with rolled oats and lettuce or onion tops, are all right, but make rolled breakfast oats and greens the basis of your ration and then add stale bread, crackers, cracked wheat, steel cut oats, broken rice or other fine grains, just a little at a time. About half of every meal should be greens, and the poults should have green range besides. I don't think your ration, except for the lack of greens, has anything to do with the colds, but you will have trouble later if you go on feeding wet bran and chick feed. Treat the sick poults by dipping their heads morning and night in a lard pail filled with slightly warm water in which a few permanganate of potash crystals have been dissolved. This will cleanse the nasal passages. Put them in a warm dry place, where they have unlimited access to green feed, and you will probably save most of them.—J. A. K.

Fall Peas

What month is best to plant peas for fall crop?—Subscriber.

Plant any time from September to the first of February or, in fact, in fact, in different sections peas may be planted almost every month in the year. August and September planted peas should be ready for the table by Christmas.

Sorghum Grains for Poultry

A subscriber writes regarding Mrs. Koethen's advice as to feeding sorghum grains to poultry that he finds the production of the laying hens is materially increased when he feeds the grain as soon as it is filled.

Fire Blight

I have a five-year-old apple tree which stands on a water ditch. Last year when the fruit reached the size of a large marble the leaves began to dry up at the ends of the limbs and the limbs to die back. I cut off and burned the withered portion and the trouble was brought under control, but this year the same trouble is oc-

Salt Your Hay

A little commercial salt (only 20 pounds to the ton), sprinkled in a hay stack or in baled hay, prevents mildew or mold. If you feed the hay, stock likes it better; if you sell it the hay holds its weight and sells for more. Salt costs less than hay and makes hay better.

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curring again. Can you advise me what the trouble is and method of control? I sprayed the tree twice this year with arsenate of lead.—Subscriber.

As near as we can judge from this description this is nothing more nor less than pear blight, or fire blight, which affects many of our finest apples and pears. The cutting and burning of the blighted ends which appear as if they had been burned is the only remedy. One must be sure and cut back below the infected wood so as to be sure to leave only perfectly healthy wood. A precaution would be to dip the pruning shears in a solution of bichloride of mercury, one part to 1000, after every cut. The disease starts at the tips of the branches and works back toward the heart. Begin cutting as soon as blight appears.

Cantaloupes for Hogs

Please advise the feeding value for hogs from 40 to 100 pounds of cantaloupes at 12 cents. The hogs are on alfalfa pasture.

We do not think the cantaloupes would have any great value added to the hog ration. If the hogs were not on alfalfa pasture there would be a certain value obtained from the succulency of such feed. We find no estimate of their worth as a stock feed but would consider it lower than that of pumpkins. As to pumpkins "Feeds and Feeding" says: "273 pounds of grain together with 376 pounds of raw pumpkins gave 100 pounds of gain with fattening pigs." Cottrell of the Colorado station states that "some Colorado hog men fatten hogs exclusively on squashes. They report favorable returns per acre with meat of good flavor but having an undesirable yellow color." We will be glad to hear from any subscriber who has had experience in feeding cantaloupes to stock.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.
Unsigned communications receive no attention.

Cow Losing Flesh

I have a dairy cow that within the last month has become very poor. She eats and chews her cud but stands around and acts as if she had some foreign substance in her throat. She opens her mouth and lolls her tongue around frequently. Do not know whether her age has anything to do with it or not, but she is about 12 years old. I called a veterinarian and he examined the throat but could find nothing there. The medicine he gave seemed to relieve her at first but now it does not seem to have any effect. Please prescribe for her.—Subscriber, Visalia.

She may have eaten something that has lodged in the stomach and will not pass. That sometimes causes such symptoms as you describe. Cows have a fashion of eating pieces of paper or cloth and often get nails or buttons into the stomach in that way. Once they are there they are slow in passing. Very little can be done in such cases but it is always safe to try a physic. You might try this: One ounce of aloin, three ounces of turpentine and one quart of raw linseed oil. Mix and divide into two doses. Give the two doses two or three days apart.

Enlarged Hind Leg

Please give treatment for a mare that has enlarged hind leg from hoof up to the hock. It is not an enlargement of the joint or bone and she is never lame. The beans (glands) on the inside of thigh are somewhat enlarged. It all seems to be gradually growing larger. Have owned her but a short time and am told that she was kicked on the stifle about three years ago and the swelling extended to the udder. She will soon bring a colt.—Subscriber, Fertilla.

Feed her lightly as heavy feeding will only aggravate it. Have druggist prepare these powders: Two ounces powdered gentian, two ounces powdered digitalis leaves, ten ounces nitrate of potash. Mix. Give tablespoon in the feed twice a day. Bathe swollen parts once a day with solution chloride of zinc, two ounces to the gallon of water. It will do more good if you warm the amount of solution that you use just before applying it. Warm it in an earthen or granite dish but not in tin.

Lumps in Cow's Udder

I have a cow that has been milking about eight months, and about two months ago I noticed a lump in her udder about an inch from the top and about the size of a bantam's egg. Now it is about the size of a large hen's egg. It moves readily and does not seem to hurt the cow upon pressure. Since discovering this two or three smaller ones have formed at the junction of the four quarters varying in size from a small pea to that of a marble. She is fed mostly on alfalfa and runs in a pasture of wild grasses. She seems perfectly healthy in other ways and is in good flesh for a grade Jersey. Is there anything that can be done for it?—Subscriber, Merced.

It is impossible to tell what is causing the tumors. They may be tuberculous or fibrous. Would advise having her tested for tuberculosis by the state. Notify the state veterinarian at Sacramento and ask to have her tested. If she proves to be free from tuberculosis then the tumors are probably fibrous and can be removed by splitting the skin, which can best be done when she is dry. In the meantime keep her in a healthy condition by giving her once a day a handful of salts containing two parts of epsom salt to one of common salt.

Worms in Dog

I have a good watch dog that at times gets sick and will not eat, but will lie around for two or three days. He is fed milk and scraps from the table. He used to be fat but for some time has been very thin in flesh. I am inclined to think that he has worms and would like to know what will destroy them. — Subscriber, Poway.

Worms would cause such symptoms as you describe. Try the following which is bad for the worms but will not hurt the dog: Have your druggist prepare ten powders each containing ten grains areca nut and ten tablets each containing five grains santonin. Give one powder every morning in a very little milk and one of the tablets of santonin every night by putting it down his throat. After this medicine is all used give him one dose of five grains of calomel.

A GREAT SALE

A three-day sale of pure bred cattle is a great event scheduled for the next week. It is that at the great Stanford Ranch at Vina. The Southern Pacific is offering excursion rates.

The dates of the sale are Tuesday, Wednesday and Thursday, June 5, 6 and 7.

From the time of its foundation in the early 80's by the late Governor Stanford, the herd of Holstein-Friesian pure breds on the Stanford Ranch at Vina has been steadily improved by the introduction of the best blood strains. What Governor Stanford did for the state in establishing this world-famous herd should prove to be a subject both enlightening and interesting.

M. H. Tichenor, who has been commissioned by the trustees of Leland Stanford Jr. University to dispose of the 300 pure bred Holsteins on the Stanford Ranch, has received many requests for permission to make selections from the herd prior to the sale, but those have all been rejected so that everyone will have an equal chance to secure the grand individuals at Vina for the improvement of their herds.

Owing to the great interest being manifested in the sale, it has been found necessary to arrange for special trains between Chico and Vina each day of the sale, thus making it possible to provide sufficient hotel accommodations.

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Table Syrup from Sugar Beets

SUGAR beet syrup may be made by a very simple process, and a few rows in the garden will produce beets enough to give a family all the syrup needed. A bushel of beets will produce from three to five quarts of syrup. As the beets when mature should weigh from one to two pounds each 30 or 40 of them will make a bushel, and as the beets after thinning stand about ten inches apart in rows about 20 inches apart it is easy to determine how much ground to use for sugar beets if a particular quantity of syrup is desired. A few rows in the garden generally will be sufficient.

The beets should be topped by cutting off the crowns at the point of the lowest leaf scar, as the crown contains much of the salts taken up during growth. In making syrup the topped beets are cleaned by soaking a few minutes, then scrubbing with a coarse, stiff brush. The next step is to cut them into slices as thin as one-sixteenth of an inch if possible. A butcher knife may be used, but a kraut cutter or some other slicing device is easier.

The sliced beets are placed in a tight barrel and just enough hot water to cover them—boiling water if possible—is poured in at once. The barrel is then covered with several thicknesses of canvas to hold the heat. The sliced beets are allowed to soak for about 60 minutes. The barrel is agitated from time to time without being uncovered. This process brings out the sugar from the beets. The liquid is then drawn off, strained through several thickness of cheesecloth, and placed in a kettle or other vessel, in which it is boiled slowly until it has evaporated down to the thickness desired. It is important that the boiling be slow and the process will take several hours. The work may be done out doors if desired. Care should be taken not to scorch the syrup. The scum which rises to the surface of the liquid is skimmed off, to remove the strong, beetlike flavor.

The syrup is bottled or canned while hot and sealed to prevent molding. It is dark in color, but has a pleasant flavor.

Big Crop of Soy Beans Needed

Experiments have shown soy bean meal to have about the same feeding value as cottonseed meal; and cottonseed will probably be so high next fall that it cannot be afforded for feeding. There is sound reason then for anticipating a great demand on the crop for use as a feeding concentrate.

Because of the present shortage of fats and oils throughout the world, due to war consumption and low production in Europe, all available sources of these necessary materials will presently be utilized. Indeed soy bean seed is actually second only to cotton seed as a source of vegetable oils. It now seems certain that the demand for soy bean oil will soon become greater than can be supplied by the eastern crop.

During the war, when foodstuffs of all kinds will continually diminish, many unusual kinds of human food will be brought into use. The soy bean is one of the crops which will be utilized. Already several manufacturers in the East have successfully substituted soy beans for navy beans in the baked pork and beans. Indeed the demand in the East for soy beans for packing and planting has been so great since last fall that the cotton oil mills have practically ceased crushing the seed and are turning them to the planters and packers. One mill which last fall bought 10,000 bushels of seed and planned to crush at least 100,000 bushels did not crush any seed but disposed of the whole stock for food and planting. Only the yellow seeded varieties are used for food.

With the war-time demand on the soy bean crop for an animal concentrate, for human food, and for oil, in addition to the normal demand for forage and seed for planting, there is no doubt that high prices will be maintained. Soy beans are now selling at $3.50 to $4.00 a bushel—at double the usual price—and farmers should not fail to plant the largest possible acreage. It will be a profitable and patriotic enterprise.

Make Honey

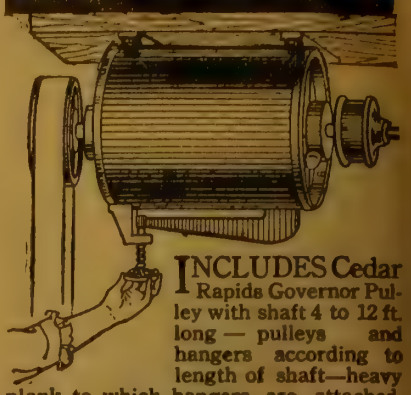
AS the United States is producing only a small portion of the sugar it requires the campaign is on to induce greater honey production to meet the need for more sweets. Gleanings in Bee Culture suggests that bees and boys make a good combination.

"Among the many efforts at conservation of resources induced by the war, the increase of honey production by amateur beekeepers should by no means be overlooked. It is said that honey is to some degree taking the place of sugar in England and that the Russian government is helping to introduce scientific beekeeping methods in Russia. Boys and girls in America are everywhere enlisting in an army of production to raise fruit, vegetables, and poultry and to help the farmers care for their crops. It is a most excellent movement, tending to health, wholesome interests, and practical efficiency, and no branch of husbandry is more likely to engage their enthusiasm than the care of bees.

"Many farms that have only two or three neglected old fashioned hives might produce honey in abundance if these were turned over to the son or daughter to be reorganized, and innumerable country and suburban places that have no bees should introduce them forthwith. It is not necessary that the owner should raise alsike or buckwheat. Bees range two or three miles from home, and in many places the roadsides alone furnish a vast amount of bee pasturage. With sugar at war prices, a few supers heavy with delicious home grown sweets will be welcome next fall.

"A boy of ten is old enough to be a valuable assistant in hiving the swarms and taking up the honey; and a year or two later he should be encouraged to invest in a hive, or be given a swarm of his own. His sister may do as well, or better, for many women succeed with this kind of 'live stock.' Beekeeping encourages self confidence, and stimulates habits of

Speed Governing Line Shaft



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observation. It requires some pluck, deftness, intelligence, and watchfulness at certain seasons, but not that patience for monotonous labor that children have not. And bees are so amusing, and the hive is such a marvelous place! It does one good just to see the little ladies devoting themselves to the commonwealth; and a good treatise on apiculture, which is the prerequisite to beekeeping, is a capital introduction to biology and other sciences.

"As for the established beekeepers, if every one would start an enterprising boy or girl in business with one of his early swarms he would be doing his bit to make his own town more nearly self supporting. To increase our honey supply we need many enthusiastic amateurs. Backyard gardens should be supplemented by backyard beehives."

How to Kill the Flies

THE United States government makes the following suggestion for the destruction of house flies: Formaldehyde and sodium salicylate are the two best fly poisons. Both are superior to arsenic. They have their advantages for household use. They are not a poison to children; they are convenient to handle, their dilutions are simple and they attract the flies.

Preparation of Solutions

A formaldehyde solution of approximately the correct strength may be made by adding three teaspoons of the concentrated formaldehyde solution, commercially known as formalin, to a pint of water. Similarly, the proper concentration of sodium salicylate may be obtained by dissolving three teaspoons of the pure chemical (a powder) to a pint of water.

Containers for Solutions

An ordinary, thin-walled drinking glass is filled or partially filled with the solution. A saucer, or small plate, in which is placed a piece of white blotting paper cut the size of the dish, is put bottom up over the glass. The whole is then quickly inverted, a match placed under the edge of the glass, and the container is ready for use. As the solution dries out of the saucer the liquid seal at the edge of the glass is broken and more liquid flows into the lower receptacle. Thus the paper is always kept moist.

Other Simple Preventives

Any odor pleasing to man is offensive to the fly and vice versa, and will drive them away.

Take five cents' worth of oil of lavender, mix it with the same quantity of water, put it in a common glass atomizer and spray it around the rooms where flies are. In the dining room spray it lavishly even on the table linen. The odor is very disagreeable to flies but refreshing to most people.

Geranium, mignonette, heliotrope and white clover are offensive to flies. They especially dislike the odor of honeysuckle and hop blossoms.

According to a French scientist flies have intense hatred for the color blue. Rooms decorated in blue will help to keep out the flies.

Mix together one tablespoon of cream, one of ground black pepper and one of brown sugar. This mixture is poisonous to flies. Put in a saucer, darken the room except one window and in that set the saucer.

To clear the house of flies, burn pyrethrum powder. This stupefies the flies, but they must be swept up and burned.

For Stables and Out-of-Doors

Borax is especially valuable around farms and out of doors. One pound of borax to 12 bushels of manure will be found desirable as a poison without injuring its manurial qualities or farm stock. Scatter the borax over the manure and sprinkle with water.

Lye, chloride of lime, or copperas (sulphate of iron) dissolved in water, crude carbolic acid, or any kind of disinfectant may be used in vaults.

THE MOTOR TRUCK

In these days when the operation of a farm is becoming more and more scientific, that is, accurate thinking and calculation is taking the place of habit or guessing, much interest is growing in the motor truck.

Many instances have come to our notice where motor trucks alone, or with trailers, are earning big money in farming operations, and we expect to see a rapid growth in their use as soon as the truck concerns have more time to place the advantages before those interested.

In the meantime we suggest that our people begin to do some calculating on the subject, and write some of the reliable truck concerns for information.

TAKE CARE OF YOUR TRACTOR

"A stitch in time saves nine." This is a trite old saying and you will find that this will apply to successful upkeep and operation of your tractor. Carelessness and inattention to the working parts of your motor or other parts of your tractor will result in breakage that will cost you nine dollars and then some if you do not give them proper attention at the right time. Especially is it true about giving your motor bearings prompt and careful attention in time and seeing that your engine is properly lubricated.

COST OF ALFALFA PRODUCTION

Various items which enter into the cost of alfalfa production in the Imperial Valley are given by a practical farmer growing this crop: District and county taxes, $4.00; water assessment, $2.00; irrigating, including labor at $2.50 and certificate, or fees, $2.50; upkeep of ranch ditches connecting with the company ditch, $1.50; total of $12.50 annual per acre cost.

Tonnage per acre varies greatly because of differences in soil and condition of the alfalfa. There is also variation because many farmers make only three or four cuttings per year, then pasture.

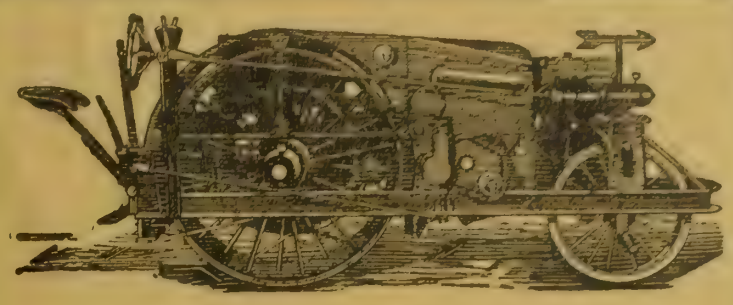
KILLING OUT MUSTARD

So successful were the sulphate of iron experiments for the eradication of wild mustard in Yolo County that a number of farmers have agreed to use this method for the same purpose to a great extent next year. Experiments under the jurisdiction of experts from State Horticultural Commissioner Hecke's office have been conducted near Davis this season.

Two experiments were made; one field containing four acres, was well advanced in growth, but 75 per cent of the mustard was destroyed with no injury to the grain. Another experiment of one acre, with an unusual infestation, was sprayed with 100 pounds of iron sulphate, resulting in more than 90 per cent of mustard being destroyed, and no injury to the tender grain plants.

Clean grain and hay will more than bear the expense of spraying and the mustard will be controlled. County Horticultural Commissioner Gould, who assisted in the experiments, says that their success has been greater than was expected.

CASE



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There is a combination suitable for every size farm.

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Write *today* for our new catalog.

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No farmer can afford to be without it.

It will be sent you on request, absolutely *free.*

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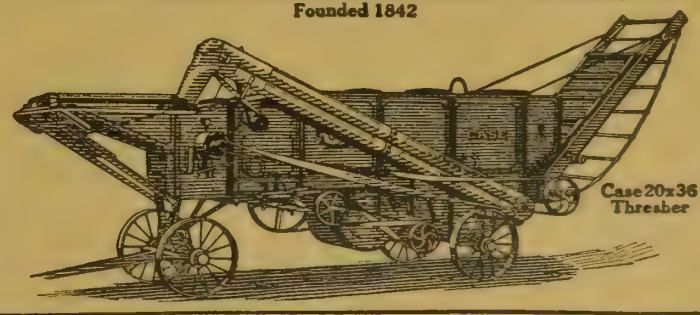

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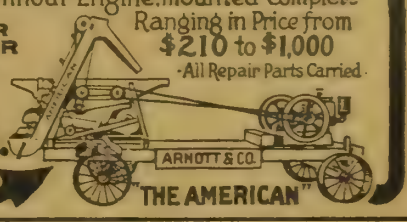

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The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

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Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, June 2, 1917

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

We wish there were no corner in California which looked any less prosperous than the first cover page of this week's issue. "Hog and Hominy" is its title, and it looks the prosperity which it means to this state. Let us grow more of both.

DOING ITS BIT

The agricultural college of the state of Washington had planned this year the spending of $114,000 in completing two new buildings on the campus at Pullman. But the institution heard the cry for more bread, postponed this work and will devote the entire $114,000 to doing its bit in the nation-wide agricultural preparedness campaign. The money will be used to increase the efficiency of the experiment stations at Pullman and Puyallup in mobilizing and perfecting agriculture.

PROUD OF OUR HOMEMAKERS

Speaking of efficiency, economy, producing more, saving more, and a thousand and one other things inspired by war conditions, have you noticed the household department of the California Cultivator during the past few weeks? As one of our readers has said:

"It makes me proud to be a woman—and a California woman—to read the articles in this week's household department of the California Cultivator."

And more articles as good are coming. They are already in type and waiting for space in these columns.

Our women have business heads as well as the desire to accomplish. And they can write too. Did you ever read anything more fascinating than these three pages of the California Cultivator?

Notice the offers for "Next Household Contest".

MORE CONFIDENCE

Some weeks ago in appealing for greater production and the need of patriotism in the matter of farming, the Cultivator suggested producing to the limit and urged that there was no danger of overdoing it. We often hear even yet—when the correctness of the Cultivator's prediction is clearly shown—the farmer remark that he would produce more if he were sure of selling at reasonable prices. It is possible that for such farmers the "maximum and minimum" would give assurance of fair returns. We trust such a measure may not be necessary and that producers will have sufficient confidence in satisfactory marketing conditions to produce to the limit. More confidence, more hard work, more implements, more efficiency, is all that will save many from going hungry. Profits will be according to this efficiency and to work and fertility put into the soil.

VOLUNTEER

Conscription will take many an American boy into European trenches, and he will honor his family and his country. Many of us at home will have some of our wages and our income conscripted in the form of taxes, but there is one form of volunteer service possible to nearly all of us.

Buy Liberty Bond.

It's within the reach of nearly all of us for they may be had in denominations as low as $50 and on partial payments.

It has been said of the mother who "didn't raise her boy to be a soldier" that while that is probably true, it is also true that she is living in a free land and enjoying a liberty which was purchased by some other mother who did raise her boy to be a patriot and if necessary to give of his best to his country and with Father Abraham or with Washington at Valley Forge he aided in preserving our liberties.

Our boys are doing their share. How about the rest of us?

It is better to volunteer in the Liberty Loan campaign than to be conscripted in a huge German Indemnity campaign a year or two later. The indifference or smug feeling of security in most Americans is astounding. Our work has been cut out for us. We are in this war to stay or to pay handsomely for our indifference.

Wake up and buy a Liberty Bond.

If you can't carry a gun, or buy a bond, grow a potato or a bean.

PROTECTION OF ORANGES

There are many ways of securing "Protection". In our war taxes, however, there does not seem to be much "free trade" left, and we realize that congress has some problem in distributing war burdens. But the California orange grower—and we may also add the grower of nuts, raisins, prunes, peaches, in fact, every other product—asks why should the accident of greater distance and heavier freight bills be used as a basis for putting a heavier tax on California grown oranges and other products than is to be put on those same products in other parts of the country? If the provision that a certain percentage of all freight bills shall be put into the war fund passes it means that California citrus fruits will pay more than two or three times as much as the same number of Florida citrus fruits.

If a tax is to be put upon the products of the soil, let it be evenly distributed. The tax mentioned is only a small indication of the burden which will be placed upon the Pacific coast if this matter of percentage of freight bills should prevail. No section of the United States sends its products to such distances and pays such freight bills as does the Pacific coast.

All the congressmen from the West should unite in securing justice. Pacific coast producers are no slackers; they will do their share, but they are quick to see the injustice of any such provision.

FOOD SUPPLY

The commission on resources and food supply of the California council of defense reports that its hearings in 57 counties of California have shown that never before has so much capital or labor been expended in the production of farm crops in California as this year. Notwithstanding this, because of deficient rainfall, cold weather and other factors the total crop yield will be below normal.

Unfortunately this is only an indication of what is occurring all over the world. Other sections of the United States report continued cold, wet weather, and now comes the cyclone in Illinois and other sections of the Middle West and destroys millions in crops.

The international institute of agriculture at Rome reports:

"The weather which has prevailed over the whole of Europe for several months has been almost everywhere unfavorable for the crops, and many farmers have been prevented by the adverse conditions from making progress with their plowing and spring sowing. Generally speaking vegetation is very backward, but in most places a spell of fine weather would set matters nearly right. The recent heavy rains have resulted in floods in certain localities and favored the development of cryptogamic diseases and have therefore been adverse to cultivation."

AT PALO ALTO

On the cover of the issue of May 19 we gave colored illustration of the magnificent dairy barns of the Stanford Ranch at Palo Alto. The group of pure bred Holsteins are owned by the same ranch and are under the management of H. H. Tichenor. We referred to this ranch as being near Mayfield. We should have said Palo Alto, for the place is a part of the great Stanford Estate. Description of this farm was given in an issue of the Cultivator some months ago and the beautiful colored illustration on cover page of the Cultivator of May 19 is proof of the statement then made: "Every requirement of the strict dairy law has been complied with. White-suited attendants add to the pleasing appearance and sanitation of the place."

We appreciate the courtesy of Mr. Tichenor and his helpers in permitting the use of that fine illustration.

Be Thrifty! Be Patriotic!
Buy a Liberty Bond!

Agricultural Notes

California has this year 5100 acres planted to strawberries which are expected to yield 510,000 crates.

The United States since the outbreak of the war has become the chief source of imports into Bolivia.

Bosnia, before the war, produced annually 4000 carloads of prunes. Serbia was a still heavier producer of this fruit.

Garbanzos, or chick peas, are a very popular food in Spain, the greater part of the supply being imported from Mexico.

The Missouri strawberry crop was badly damaged by the frost of May 8. This state has an acreage in strawberries of 6950.

The government of Ontario, Canada, is placing 35 tractors through the country for the use of farmers at a nominal charge.

Florida tomato growers have presented a formal petition of protest in the United States senate against the newly prescribed tomato basket.

Exports of the United States for March, 1917, amounted in value to $553,988,239. Imports during same month amounted to $270,218,139.

The director of the census estimates that on July 1 California will have 362,000 young men between the ages of 21 and 30, eligible for registry.

Hawaii's sugar no longer goes to the Eastern refineries by way of Panama Canal, but is sent across the continent by rail from Pacific Coast points.

Official grades have been established by the Canadian government for grain, apples and peaches. There is a growing demand for the application of official grades to other products.

Because of shortage of labor greatly increased use has been made of dynamite in road building the past year. The road builders follow the practice of drainage engineers and blast trenches ahead of the grading, not only to assist in the latter work but also to drain the land before the machines arrive to shape the road.

Hawaii, with its thousands of rice eating laborers, has been seriously affected by the jump in war prices and efforts to corner the available supply of this cereal on the islands. Shipments from California have given temporary relief. Anticipation of the government's demands on shipping have hastened the movement to make the island as nearly as possible self supporting in food production.

Material from the New York subway excavations may be utilized in the construction of artificial fishing banks a few miles off the coast of Long Island. It is proposed to dump material in a stratum one or two feet deep on the sandy bottom and thus establish an artificial bank, which will offer no obstruction to navigation but will provide a rock or gravel area suitable for the development of marine growths.

Notwithstanding increased planting of orchards the fruit crop in New Zealand this season falls short of demand save as to some varieties of apples. Stone fruits are very scarce and expensive, and apples are now quoted at wholesale at $3.05 per bushel. This shortage of fruit is the result of late frosts in certain sections and exceedingly damp and cool weather in others, which have made it difficult to spray trees to control the insects and diseases.

Agricultural News Notes of the Pacific Coast

Northern California

Santa Rosa held a very successful rose carnival May 11-13.

J. C. Smith of Vacaville shipped a crate of apricots on May 8.

Butte County reports a most successful spring exposition just closed.

The California Almond Growers' Exchange has contracted to build a warehouse in Sacramento.

Growers of green peas in Alameda County are urged to unite to secure better prices for their product.

A wool buyer now in the Corning district of Tehama County is paying 50 and 51 cents for best grade wool.

The fish and game commission has increased the bounty on mountain lions to $30 for females and $20 for males.

Eight thousand acres of corn, double the acreage of last year, are reported being planted in San Joaquin Valley.

The Sierra Valley in Sierra County has recently had installed a cheese factory for the making of "jack" cheese.

The first carload of cherries from Placer County went forward on May 17. The season this year is somewhat later than last.

Hop growers generally are looking around to find what crop they can put in to bring a little more profit than hops now promise.

The suit of the Sutter-Butte Canal Company against the American Rice & Alfalfa Company has been decided in favor of the plaintiff.

As a means of combating the beef shortage plans are under way for increasing the number of cattle in the Eldorado national forest.

Dairymen of the Eel River Valley in Humboldt County on May 15 received 44½ cents for butter fat, as against 39½ on the same date last year.

It is estimated that 500 tons of blackfish and carp were left stranded by the pumping out of the water from the Tule Lake bean fields in Lake County.

United States soldiers are stationed at the headgates of the Sutter-Butte canal to insure the safety of the crops in that section, aggregating in value $4,000,000.

An increase of 1000 head of cattle on the Eldorado national forest was the subject of discussion at the last meeting of the Eldorado-Amador Live Stock Association.

The movement on the part of the hop growers of the state to form a cooperative marketing association has failed because not enough growers could be found to sign up 50,000 bales.

Grazing privileges will this year be allowed in Yosemite National Park. It is stated the department of the interior will this year open every available acre to stockmen for grazing purposes.

Sutter County is to have a steam raisin evaporator which will handle the fruit without risk of spoiling because of early rains. The artificial dryer is said to cure the fruit in from 24 to 48 hours.

To save their crops farmers have taken possession of the entire system of the Gridley Land and Irrigation Company. The controversy between water users and the water company is to be adjudicated by the state railroad commission June 5.

Central California

Aromas, San Benito County, has a big apricot crop in prospect.

Over 298,000 acres of land are included in the proposed Kaweah Basin irrigation district.

Oakdale, Stanislaus County, reports between 2000 and 3000 acres of beans planted in that district.

Merced County has a new farm adviser. J. F. Grass was appointed to the position and took over the duties of his office May 17.

The Tulare County Canning Peach Growers' Association has decided not to fix prices this season but allow packers to make them, selling the entire crop to the highest bidder.

W. S. Shippey, for seven years manager of the Stewart Fruit Company at Porterville, will take charge of the packing houses of the California Fruit Growers' Exchange in the Porterville district.

The Pomona Grange of Santa Clara County has adopted a definite plan of roadside beautification. The weeds along highways will be cut, the ground plowed and put in readiness for planting in the fall.

County Live Stock Inspector Griffith of Kings County in his April report states that the county is almost entirely free of animal disease. He says this is due to the careful cooperative sanitary work of stockmen.

Southern California

Work has begun on the erection of the Heuneme Cannery.

Cherries lead in this year's orchard planting at Beaumont.

The "Preparedness" demonstration train is now at Los Angeles.

Santa Barbara County has more than doubled its acreage planted to potatoes this season.

The cannery of the Hemet-San Jacinto Growers' Association is almost ready for the packing season.

The George Jr. Republic has been holding a number of meetings at Chino in cooperation with ranchers of the valley.

The Beaumont Fruit Growers' Association last year handled 105 tons of pears, 60 tons of peaches and 8500 boxes of apples, among other fruits.

The lemon industry in all its phases is to be depicted on motion picture films, the films being taken in the Limoneira Orchards at Santa Paula, Ventura County.

In addition to the lady birds secured from the state horticultural commission Ventura County has secured a big colony from Sespe Canyon through the efforts of Inspector Wiklund.

The San Antonio Growers' Association recently held its annual meeting at Ontario, at which time President Benton Ballou and Secretary-Treasurer J. H. Williams were re-elected. The association controls 2300 acres.

The Coast

Chandler, Arizona, will have a new cheese factory ready for business in a few weeks.

Five thousand sacks of peppermint roots have been shipped from Clatskanie, Oregon.

It is hoped to have 10,000 acres of land near Eugene, Oregon, planted to beans this year.

Five garden and canning clubs have been organized among young people of Clallam County, Washington.

J. Martin of Maupin, Oregon, last week shipped a carload of hogs to the Portland market, receiving check for $3700.

Colorado had 38,000 acres in beans last year. Mexican or Idaho Pinto beans are the most important varieties raised.

It is estimated that 1000 acres in Skagit County, Washington, are devoted to the growing of cabbage and spinach seed.

Much of the apple crop of the Northwest will be marketed unwrapped this year because of the high price of paper.

From Boise, Idaho, comes estimate of the coming crop of Italian prunes at 3000 cars. Apples are expected to make 7000 cars.

The first month's work of the Linn County Cow Testing Association shows 14 cows producing over 45 pounds of butter fat.

Grays Harbor County is so well pleased with its county adviser that it has supplied him with a new automobile and increased salary.

Fruit inspectors of Hood River Valley have issued warning that all prunings from fruit trees must be burned within 30 days after removal from the trees.

Schools of Portland, Oregon, are planning to give instructions in home canning in the domestic science rooms of the school throughout the summer.

The live stock sanitary board of Idaho will cooperate with the federal government in testing cattle for tuberculosis and in treating for eradication of hog cholera.

The chamber of commerce of Montesano, Washington, is listing all able-bodied men and boys, including business men, who will be able to help the farmers in emergency.

Representatives of the Northwestern Fruit Exchange are in Washington to present protests to the interstate commerce commission against the proposed raise in freight rates.

A Washington apple grower who had several boxes of Winesaps caught by the freeze last fall put them away in a cold cellar, and opening them up May 3 found them first class cold storage goods.

A number of fruit and vegetable growers' cooperative associations of Washington have banded together under the name of Associated Fruit and Vegetable Growers, with headquarters at Walla Walla.

Five land bank appraisers for the Spokane farm loan bank have been appointed by the national board at Washington. They are: for Washington, C. B. Kegley, master of the state grange, and A. D. Davison, of Stevenson; Montana, W. D. Graves of Missoula and T. S. Hogan of Billings; Idaho, C. E. B. Roberts.

Register!

June 5 is Registration Day

The President Proclaims:

Now, therefore, I Woodrow Wilson, president of the United States, do call upon the governor of each of the several states and territories, the board of commissioners of the District of Columbia, and all officers and agents of the several states and territories, of the District of Columbia, and of the counties and municipalities therein to perform certain duties in the execution of the foregoing law, which duties will be communicated to them directly in regulations of even date herewith.

And I do further proclaim and give notice to all persons subject to registration in the several states and in the District of Columbia in accordance with the above law that the time and place of such registration shall be between 7 a. m. and 9 p. m. on the fifth day of June, 1917, at the registration place in the precinct wherein they have their permanent homes. Those who shall have attained their 21st birthday and who shall not have attained their 31st birthday on or before the day here named are required to register, excepting only officers and enlisted men of the regular army, the navy, the marine corps, and the national guard and naval militia while in the service of the United States, and officers in the officers' reserve corps and enlisted men in the enlisted reserve corps while in active service. In the territories of Alaska, Hawaii and Porto Rico a day for registration will be named in a later proclamation.

And I do charge those who through sickness shall be unable to present themselves for registration that they apply on or before the day of registration to the county clerk of the county where they may be for instructions as to how they may be registered by agent. Those who expect to be absent on the day named from the counties in which they have their permanent homes may register by mail, but their mailed registration cards must reach the places in which they have their permanent homes by the day named herein. They should apply as soon as practicable to the county clerk of the county wherein they may be for instructions as to how they may accomplish their registration by mail. In case such persons as, through sickness or absence, may be unable to present themselves personally for registration shall be sojourning in cities of over 30,000 population, they shall apply to the city clerk of the city wherein they may be sojourning rather than to the clerk of the county. The clerks of counties and of cities of over 30,000 population in which numerous applications from the sick and from nonresidents are expected are authorized to establish such subagencies and to employ and deputize such clerical force as may be necessary to accommodate these applications.

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Write for Catalog to **F. H. Everson, Mgr.**
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The Butte County Spring Exposition

Written for California Cultivator By W. S. Guilford

ANOTHER great fair record was made at the Butte County Spring Exposition, held last week at Chico.

This is the third annual event held under the auspices of the Chico Business Men's Association, and each one has been far greater than the preceding, not only in number and excellence of exhibits, but in attendance.

There was a big industrial and machinery display—and the best district show of live stock held in the West.

Great credit is due to the businessmen and citizens of Chico and vicinity, and particularly to Secretary E. J. Falk, Director General A. G. Eames and J. H. Guill Jr., superintendent of live stock. These men know how to make a big successful fair. When every one connected with the enterprise does everything in his or her power to make exhibitors and visitors contented and happy there can be but one result, a wonderful success, and this is just what happened at Chico.

In the live stock division there were exhibited 10 horses, 10 ponies, 115 cattle, 34 sheep and 157 hogs, a grand total of 326 head.

Easton & Ward of Diablo won all draft horse prizes on their wonderful collection of Shire horses.

The Shetland and Welsh ponies from Butte City Ranch, shown by three-year-old Tom Dwyer and six-year-old Billy Dwyer, made one of the big attractions of the show. These boys won six fine silver trophies with their ponies.

In the Shorthorn classes five splendid herds were represented: Jess Bennett of Chico; H. L. and E. H. Murphy and G. A. Murphy of Perkins; Alexander & Kellogg from Suisun; and Butte City Ranch of Butte City.

In beef Shorthorn classes Jess Bennett won both championships; Alexander & Kellogg winning championships on dairy Shorthorns.

There was keen competition in many of the classes and each herd won several first prizes. Twenty-four out of 40 animals shown were owned or had been sold by Murphy Brothers. The Shorthorn Association trophy was won by Jess Bennett.

In the Holstein show the following breeders were represented: A. W. Morris & Sons, who won the Holstein Association trophy; Bridgford Company of Knightsen; Henderson Company of Sacramento, and the Vina Ranch. Prizes were well distributed.

Jerseys were shown by McLaith & Dado, S. F. Williams and Gurnett and Myhre of Orland; Chas. L. Leonard of Jacinto; Brooks Brothers and Orville Canfield of Chico. McLaith & Dado had grand champion bull and cow.

In the sheep classes Butte City Ranch won all prizes on registered Shropshires.

Duroc-Jersey hogs were shown by H. P. Slocum & Sons, Willows; Hayden Smith of Woodland; Maurice Rucker of Fair Oaks; Lloyd Costar, W. V. Bennett, Rohlstadt Brothers and C. Van Orsdel of Chico. Uneeda Wonder, owned by Slocum & Smith, was champion boar; Model Lady, owned by Slocum, was champion sow. The Duroc show was very strong and the classes closely contested.

Poland-Chinas were shown by O. C. Pratt, Van Shorack & Sons of Chico; J. R. Cook of Paradise, and S. F. Williams of Orland. Cook won both championships.

All Hampshire swine prizes went to H. E. Richardson of Chico and all Chester-White awards to Harry Huffman, Chico.

There was very keen competition in the Berkshire classes. In the aged boar class Frank Brush showed Ames Rival 102nd, a first prize winner at the Panama-Pacific Exposition; Butte City Ranch showed Iowana Champion Peer 2d and James Mills Orchards showed Ames Rival 70th. Ames Rival 70th was in the highest flesh and won first in class and championship. Iowana Champion Peer was second. Butte City Ranch had first prize senior yearling sow and grand champion of the show on Escalon Fashion Princess.

F. A. Brush won both championships for hogs bred by exhibitor and the fine silver trophy for the best herd bred and shown by exhibitor.

A diploma for the best and largest exhibit of live stock in the show was awarded to Butte City Ranch.

Silage for Horses

By E. H. Hughes, Missouri Agricultural Experiment Station

IN planting corn and building silos probably more farmers than ever before are providing a silage supply for horses. The old feeling that silage was good for dairy cows only was long discarded, but the horse is perhaps the last more important animal on the farm to prove that it could make good use of silage. While especial care must be taken not to use moldy or other inferior silage or to depend too exclusively on silage, the recent tests and long experience of farmers and horsemen indicate that cost of upkeep can be reduced and a horse kept in better condition if from five to 25 pounds of silage are fed per day. Of course, the possibility of saving depends on the conditions and prices of other feeds and the amount to be fed depends upon the same things and upon the size of the horse and the amount of silage he will eat. Different horses of the same size vary on this point.

In the tests at the Missouri experiment station silage was fed as part of the ration during the last two winters with favorable results, except in case of one three-year-old Percheron mare which refused the silage at first, then ate it when her feed was reduced, but soon after had to be taken out of the experiment because of distemper and indigestion. The horses that received silage were more thrifty, and their coats were in better condition, and they cost less to feed than those which were fed exclusively non-silage rations.

One of the breeders has been feeding silage to about 100 draft horses for 25 years without any sickness which he thinks could be directly charged to silage. During the breeding season he feeds silage to mares as usual but gives none to the stallion because he had difficulty in getting the mares in foal when the stal-

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HOG CHOLERA

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lion was fed on silage. At other times he feeds eight pounds of silage at each of the three feeds per day to his aged stallions in addition to some hay and grain. His two-year-old stallions get 20 pounds of silage a day and the yearlings about 15 pounds in addition to some hay and grain, while the mares with foals at side receive 20 pounds. At weaning time this amount is divided and about 15 pounds is given to the mare and five pounds to the colt, which is given more as it grows and becomes accustomed to this feed, until at a year old he is getting 15 pounds of silage a day.

One importing firm has fed silage for five years following about the methods just outlined and reports excellent results and a reduction in the need for veterinary services.

Some of the horsemen who have fed inferior silage have not had such uniformly good results, but it is a poor plan to give a horse moldy or rotten food of any kind. Silage that has been frozen or that was made from immature corn is regarded with suspicion. Some owners have thought that their horses had died as a result of being fed such silage, and while the station has not been able to learn definitely that silage was the cause of death in these cases or find out exactly how the supposed poison acted, it is well to take every precaution.

As silage is low in dry matter and the horse has not sufficient digestive capacity to live entirely on such bulky feed, it is important to remember to use alfalfa, cowpeas, or other legume hay, or perhaps even a little grain for horses that are not at work, while growing horses or horses at light work should certainly have grain.

Dehorning Milch Goats

MANY inquiries that come to me about the care of goats request how to determine whether or not a kid is horned, and, if horned, how and when is best to dehorn. If a kid is born naturally hornless, the hair on its head grows smoothly, but if horned, little curls may be noticed where the horn-buds are located.

The proper time to dehorn is when a kid is about 24 hours old. After a week old it is almost always useless to attempt dehorning. First cut away the hair close to the head around the horn-buds. Next make a circle of grease around, but not touching the horns. This grease is to prevent the caustic from running down the head and burning other parts than the horn-buds. The greatest care must be used in applying caustic. I have known of cases where a goat's eyes were ruined for life by the caustic having been applied too freely so that it ran down the side of the head. In making the circles of grease see that none touches where caustic should be applied as it neutralizes the action of the caustic. Have ready a stick of caustic of good strength in a shallow bottle, into which drop a few drops of water. Make a small swab by winding white cotton string around the end of a short stick about half the diameter of a lead pencil. Have someone hold the kid while caustic is applied, as it will struggle vigorously. When all is ready, hold a cloth tightly over the kid's eyes, dip swab in bottle and moisten only slightly with the diluted caustic, then rub a circle directly around and over each horn-bud, using considerable pressure on swab. The swab should be dipped repeatedly in caustic and rubbed many times over each horn-bud until the skin is loosened and horn-bud destroyed. Remember to use only a little caustic each dipping of swab, because if too much is used there is great danger of it running and burning seriously where not intended.

Too great stress cannot be laid on the care needed to avoid serious injury to kid in this operation. Hold kid some 15 or 20 minutes after application to prevent scratching caustic into its eyes.

Repeat operation next day and, if considered necessary, on third day, but usually two thorough applications completely destroy the life of the horn cells and the operation is perfectly successful, the goat growing to maturity with no sign of horns. As a rule a naturally hornless goat has at maturity well developed knobs where the horns would be, whereas a dehorned goat does not show these knobs. Once again let me urge the greatest care in applying caustic, for if not properly handled it may be a most cruel operation. Be sure the caustic is of good strength and keep in tightly corked bottle when not in use, as contact with air soon weakens its potency.—Winthrop Howland in Milch Goat Bulletin.

Lice on Hogs

"How May Hogs Be Rid of Lice?—This question is answered by Field Secretary R. L. Hill of the National Duroc-Jersey Record Association. He says:

"During warm weather the animals may be dipped or sprayed with two per cent solution of some commercial preparation such as Liquor-Cresolis, Compound, Creolin, Kreso. Three ounces to one gallon makes about a two per cent solution.

"An emulsion dip may be prepared as follows: Kerosene oil two gallons, soap eight ounces, water one gallon.

"Make the water hot to dissolve the soap and while it is hot add to the kerosene, stirring the mixture rapidly for ten minutes. One gallon of this mixture is then mixed with nine gallons of water. The preparation may be used in a dipping tank or may be sprinkled over the hogs with a spray pump. The dip should be used toward evening or on cloudy day as the hot sun may blister the animal's skin if the oil has not evaporated.

"The emulsion dip is probably more efficient in destroying the nits than the commercial dip. In either case the treatment should be repeated in a week or ten days to destroy any lice which may have hatched since the previous treatment.

"During cool weather, sprinkling the hogs with crude oil is very effective. If this is used in summer, the hogs may blister if turned out in the hot sun.

"After treating hogs for either worms or lice the yards should be cleaned of litter and sprinkled liberally with freshly slacked lime to prevent reinfection of the herd. Lime kills many worm eggs and embryo worms in the infested grounds."

New York has 1,826,000 acres in state forests, more than any other state in the union.

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Their superiority is due to nearly 20 years of specializing in "Vaccines and Serums only."

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Single Pills may be used for ordinary and range stock.

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Use any Injector, but Cutter's simplest and strongest.

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A sow should be placed by herself not later than two weeks before farrowing. Always provide a nice, warm, sanitary, quiet, convenient, individual pen for her, where she will receive proper attention, and the pigs can be saved.

Keep the floor and bedding dry and free of dust. It is positively necessary to construct farrowing houses that can be sprayed, scrubbed and disinfected. Have plenty of sunlight—pigs enjoy it and it kills the germs. Her feed should be gradually decreased to the farrowing date and she should receive nothing to eat till about 24 hours after farrowing.

Hanford creameries paid $225,000 for butterfat during April.

Great Holstein Event

COMPLETE DISPERSAL OF THE STANFORD HERD

AUCTION at Vina, Cal.

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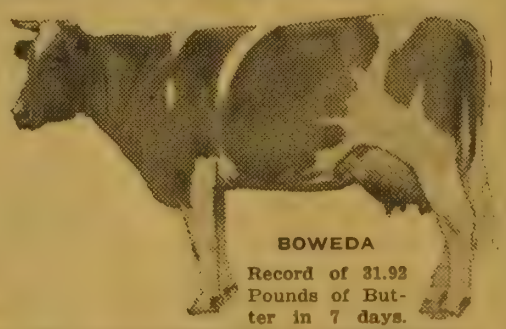
JUNE 5, 6 and 7

9 a. m. Each Day



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Record of 31.92 Pounds of Butter in 7 days.

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40 GRANDDAUGHTERS OF KING OF THE PONTIACS.

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20 GRANDDAUGHTERS OF SEGIS PONTIAC DE KOL BURKE.

40 A. R. O. COWS AND MANY OTHERS THAT WILL DO AS WELL OR BETTER ARE TO BE SOLD FROM THIS HERD THAT HAS NOT BEEN DEPLETED BY SALES. THIS STOCK HAS THE GREAT GROWTH POSSIBLE ONLY ON THE PACIFIC COAST AND IS ACCLIMATED. WHY GO EAST FOR UNCERTAINTIES?

Advanced Breeders, Dairymen, Beginners: The blood of these black and white aristocrats is almost invaluable. Can you afford to miss this sale?

300 IN ALL AND INCLUDING MANY SHOW ANIMALS. STANDING OF INDIVIDUALS IN THE HERD ENTERED IN STATE COW COMPETITION WILL NOT BE AFFECTED BY CHANGE OF OWNERSHIP.

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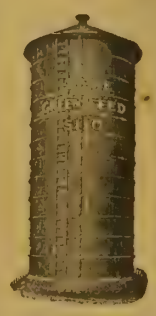

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Feeding your cows on silage is just like turning them out to pasture.

Put up an Ideal Silo and watch your profits grow. An Ideal will pay its entire cost the first year and last from twenty to thirty years.

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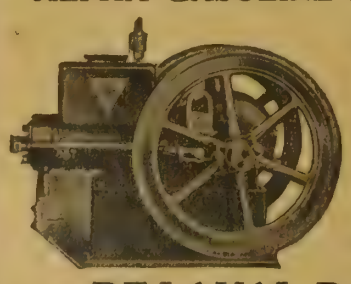

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61 BEALE ST., SAN FRANCISCO, CAL.

Big Cows in State Dairy Cow Competition

A COW that produces six times as much butter fat in a month as the average for all the dairy cows of California won last month's honors in the state dairy cow competition being conducted by the University of California college of agriculture. She was "Imported President Doris of Lewison," owned by the Palo Alto Stock Farm.

How extravagantly inefficient the ordinary dairy cow is, as compared with what she ought to be, is shown by the fact that the 812 cows entered up to May 1, when the list closed in this ten-months competition, averaged last month a production of 55.3 pounds of butter fat, or nearly four times the average for the dairy cows of California as a whole, which is 15 pounds of butter fat a month. It costs little more to feed a good cow than a poor cow. The university is aiding the farmers of the state to get rid of "boarder cows" which do not produce enough milk to pay for their feed by urging the dairymen to form cooperative cow testing associations and by providing official testing for dairy cows for owners who wish to obtain Advance Registry records.

With this year's shortage of feed it is doubly important that every dairyman should have in his herd only cows that are worth their keep.

The average for the month for the cows in the university's competition was 1347 pounds of milk, or, at 16 cents a gallon, $25; or, with butter fat at 40 cents a pound, $22.12 plus $2.50 for a thousand pounds of skim milk.

The reason these cows gave about four times as much as the average California dairy cow is that they were bred right, fed right, and handled right. Most of them are pure-bred, of one or the other dairy breeds. However, while it was a pure bred Guernsey that made the best record for the month—96 pounds of butter fat—a grade Holstein produced 93 pounds, a grade Jersey nearly 92 pounds, and four other grade cows produced over 82 pounds of butter fat.

A Humboldt County farmer, G. E. Trigg of Ferndale, won the Pacific Rural Press prize for the highest production by five grade cows during April, with an average production of over 82 pounds of butter fat.

F. Stenzel of San Lorenzo won the McAlister & Sons prize for April for the highest production by a grade cow—93 pounds.

In spite of the present high prices of feed, cows such as the 812 in this competition are large money makers. The first step for the farmer to take to build up a herd of such animals is to find out whether each of his cows earns her own board and to get rid of a cow if she does not. Heredity must be studied, and calves raised from parents of generous milk producing quality.

Great Producers

HOLSTEINS are making some wonderful records. Now comes a mere heifer (under three years old) with over 40 pounds of butter in a week. She is Glen Alex Queen De Kol 275362, the youngest cow in the world to make over 40 pounds of butter in a 7-day official test. Her record of 42.36 pounds surpasses the former champion in that class by 10.76 pounds! She is the first 40-pound daughter of a 40-pound cow, her dam being the former nine-year-old champion, Tietje Queen De Kol, whose record of 42.26 pounds was made in December last. Since then Tietje Queen De Kol has been sold for $5000.

Glen Alex Queen De Kol is the 21st 40-pound Holstein cow. At two years and 14 days she made 23.19 pounds of butter from 369 pounds of milk. Her next freshening occurred at two years 11 months and 20 days and was followed by the production of 42.36 pounds of butter from 603.8 pounds of milk in seven days. She is a daughter of Sir Pontiac Korndyke 6th 66229 and her dam has another daughter, a full sister to the new champion, with a 31-pound record made as a three-year-old.

During the test Glen Alex Queen De Kol ate about 22 pounds per day of the following grain ration: 50 pounds distillers' grain; 50 pounds bran; 30 pounds ground oats; 30 pounds gluten; 20 pounds oil meal; 4 pounds salt; and two pounds charcoal. A small quantity of cottonseed meal was fed in addition, daily, and for roughage this young world's champion had 70 pounds of beets, 25 pounds of dried pulp and a reasonable quantity of alfalfa and mixed hay.

Glen Alex Queen De Kol

PINEHURST HOLSTEINS AT SALE

In another column may be seen announcement of the Pinehurst Dairy Holstein Dispersal Sale. This is to be held at Lake Mills, Wisconsin, June 12. Mr. Everson, general manager of this great ranch, writes that this is to be a complete dispersal sale of this great herd. There will be 95 head of extra choice animals, 50 of which are cows, 44 of these having official records. One of these, Pinehurst Piebe, has a record of 34.43 pounds. There are 13 cows with yearly records of over 800 pounds.

Hog Raising Axioms

The purebred makes the largest gains on a given amount of feed.

The purebred has been bred to mature at an early age.

Purebreds are more likely to be uniform in quality and color and, of course, will bring more on the market.

A purebred boar of the right type is necessary.

The sow that will raise eight or nine strong pigs is worth four times as much as a sow that will only raise half as many.

Full records must be kept of the mating of sows.

Litters should be sized according to the suckling capacity of the sows—eight strong pigs make an ideal litter.

About a 200-pound hog is a desirable weight and most profitable.

Boar pigs should be altered before they are weaned, for it will check their growth less at that time.

Too many litters should not run together—as the stronger pigs will rob the weaker, causing many runts.

Internal parasites, lice, and lack of attention are the three things that work greatest havoc in profitable pork production.

The sow has built cities, paid mortgages, made livings and bought automobiles; and she has been the last to receive attention and the first to show profit—and this while sleeping in a dust bank or a manure pile without care. What would she do if given a chance under ideal conditions?

FIELD NOTES FROM THE LIVE STOCK MEN

The Delta Farm and Live Stock Company of San Bernardino County report the sale of sixteen young Duroc-Jersey sows, and one boar to Mr. A. Gregory of Redlands. Mr. Gregory is going to sell all other sows and will breed the Duroc-Jersey.

The Llano Colony in the Antelope Valley has recently made a purchase of Duroc-Jersey sows and boars that puts them in the foremost ranks as Duroc breeders of the West. Under the supervision of Director John Will, head of the swine department, they have recently purchased from Peters Lamson & Walker, of Devore, the highest-priced boar ever sold by that firm. This boar, Col. the King, has been one of the favorite boars in this herd for a year and a half and has proven himself a sire of the first class. Col. the King was shown at the world's fair together with five of his litter mates and all six were in the money. The Colony also bought 16 sows and 17 young pigs, the latter being sired by Grand Golden Model and Educator Col. This final purchase of high-class animals comes as a culmination of several other purchases made from Peters Lamson & Walker, aggregating 23 sows and one herd boar in the last 18 months. The good that such stock will do to the newly developing Antelope Valley can hardly be over estimated.

DUROC-JERSEY RECORD

The National Duroc-Jersey Association, of which J. R. Pfander of Peoria, Illinois, is secretary, announces that Volume 51 of its record is ready for the mailing. This volume is the record of males 193501 to 201499, and of females from 484700 to 508698. It also has illustrations of the Duroc-Jersey headquarters, with half tones of the officers and directors.

We note in the Live Stock Reporter of Clay, Robinson Company of Chicago that Eugene Grubb of Glenn County, this state, reports that "there are many other reasons for investing in California live stock propositions now. The sheep and cattle stock in Australia and the Argentine have been depleted by drouths and heavy demand. In California sheep do not suffer from stomach worm, as in the Middle West. Climatic conditions in California make it possible for ewes to drop lambs in November and December, and these ewes and lambs run on grass during the winter, and the milk lambs are ready for market in March, April and May—coming in ahead of the Tennessee and Kentucky crop. These lambs are produced at the lowest possible cost—no one in America can compete with them."

The well-bred cow the same as the grade must be properly fed and cared for if she is to be a good producer. The cow testing associations that have been organized in various counties in this and other states are doing much to show farmers the value of good breeding, good feeding and care.

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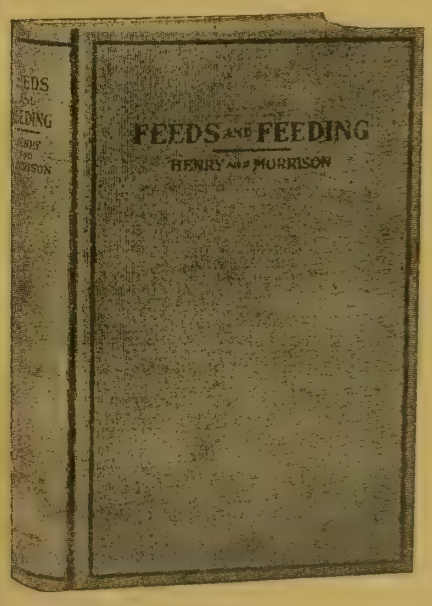

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Baby Chix — White Leghorns, White Rocks, "quackless" White Muscovy ducklings. White Star Hatchery, Kerman, Cal.

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Household Department

SPRING IN CALIFORNIA

Written for California Cultivator
By Mrs. J. P. Scribner, El Cajon

Just a bit more softness in the color of the skies;
Just a bit more gladness in the bird's song, as he flies.
Just a bit more greenness, that is brought by April showers;
Fields and hillsides covered o'er with many brilliant flowers.

Just a hurrying and buzzing of the bees within their hive;
Just a feeling that all nature is so glad to be alive.
Just a melting of the snows from off the mountains tall;
But it's not so very different from winter, after all.

NEXT HOUSEHOLD CONTEST

Saving strength. With all our saving the most important of all is the saving of health and strength to the mother who is the keystone of the arch of the home, whose physical strength is essential to not only the physical but the moral, mental and spiritual strength of all the other members. Note how Mrs. Pettengill puts it in this week's Cultivator.

The reckless spending of strength is so easy—so necessary we usually think—even to those most rigidly trained and practiced in economy of butter and breadcrumbs.

What does the saving of strength amount to? If it is important how can it be attained in these difficult times? How do you manage? By the simple art of doing without? By making the head work to save the back and the heels? By teaching responsibility to the little ones? By cooperating and asking cooperation of family and friends?

Cash Prizes

For best article $2.00 cash; for second best $1.00 cash; for all published one year's extension of subscription to the California Cultivator unless such extension has already been granted in 1917.

Write Early

All articles should be in this office by Thursday morning, June 21. They will appear in the Cultivator of June 30. Address Household Department California Cultivator, Los Angeles.

PRIZE WINNERS

To Mrs. Guy Halley, Lindsay, first prize, $2.00; to Mrs. J. V. Coble, Ripon, second prize, to all others published, one year's extension of subscription to the California Cultivator.

This latter is an increase over extension promised in the prize offer—three months—but the articles are so exceptionally valuable that the Cultivator has made the change. Other articles than those appearing this week are in type and will be given later.

Pet Economies

Written for California Cultivator By Mrs. Guy Halley, Lindsay

"NEW York City's garbage, for one month, if turned into by-products, would net enough to feed starving Belgium for three months."

The above appalling statement was recently made in a lecture which I heard, and set me to thinking and to see where I could "do my bit" toward reducing waste.

All unedible portions of fruit or vegetables which cannot be possibly used, are cooked until tender and bran mixed with them to form a crumbly mash for the chickens.

Instead of throwing away horseradish leaves, use as spinach. Remove the tough veins, plunge into boiling water for ten minutes to remove the bitterness, and then remove and cook as spinach.

Left over coffee may be mixed with powdered sugar to frost a coffee cake or gingerbread. Dotted with raisins it makes a tasty and pleasing icing. Coffee may be used in cooking tapioca and served with cream or rich milk and sugar is very good indeed.

By using one-third rye flour in bread making one saves on the wheat that is so precious now.

If a spoonful or two of fish, peas, beans, or corn are left, use them in scrambled eggs or omelet. They may be used in salad also.

In our locality we can buy salt salmon at ten cents per pound. By soaking till the salt is removed and fried or baked and served with cream sauce, it is almost as delicious as fresh salmon costing 18 or 20 cents.

When eggs are high I use junket tablets to make many appetizing and delicious desserts. They only cost ten cents per box of ten and can be bought at any grocery store with directions for their use.

Every scrap of meat is utilized in hash, soup or meat cakes. Even potato water is used in place of milk in mixing up pancakes. By using part milk and part potato water delicious pancakes may be made.

Burnt matches are handy when one uses an oil stove. A dish is kept on the lower shelf of the stove and one burner may be lighted from another by using a burned match instead of a fresh one.

All bits of soap are carefully saved and a soap jelly made from them by adding a quart of water and two tablespoons of kerosene and boiling till clear.

By cutting women's stockings into strips and putting into a 20-cent mop handle one can have a very good dustless mop with the addition of a good floor polisher, and I use the old worn out socks of my husband's as mop rags. They absorb readily and may be wrung very dry.

Wishing to have a bath mat and not having the wherewithal to get it, I used the best part of an old white bed spread and hemmed it. Behold! a bath mat easily washed and cared for.

Even one's rose petals may be dried and used in place of feathers for sofa pillows.

Having practiced these economies I hope some one else may benefit as I have found them worth while.

Saving Kerosene

Written for California Cultivator By Mrs. J. V. Coble, Ripon

I COOK, wash and iron for a family of five on a three-burner oil stove, and my pet economy is the saving of fuel, namely, kerosene.

As soon as breakfast is over on wash days, the boiler is put over two burners with water enough for breakfast, dishwashing and the first suds for the clothes. This leaves one

The Cultivator Patterns

8310—Ladies' Sport Blouse. Cut in sizes 34 to 42 inches bust measure. The blouse may be made in the 45-inch or 32-inch length and it slips on over the head.

8281—Children's Coat. Cut in sizes 2, 4, 6, 8 and 10 years. The coat is in Empire effect, has one-piece gathered skirt joined to yokes.

7834—Ladies' Dress. Cut in sizes 36 to 44 inches bust measure. The blouse is plain and the skirt is cut in four gores.

7890—Ladies' Waist. Cut in sizes 36 to 42 inches bust measure. This waist has the shoulder fronts gathered and the sleeves may be long or short.

8274—Girls' Dress. Cut in sizes 6 to 12 years. The dress slips on over the head, front panel and one-piece plaited skirt are in one.

8294—Ladies' Skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is suitable for flouncing.

8308—Ladies' Dress. Cut in sizes 34 to 42 inches bust measure. The dress closes at the back and the gathered skirt is cut in eight pieces.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH.

HOW TO ORDER PATTERNS

Write your name and address plainly in full, give correct number and size of each pattern you want, and send ten cents in coin or (1 or 2c) stamps for each number. In order to furnish our readers with the very latest New York City styles, all pattern orders are filled in New York City. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

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Canadian Gov't Agt.

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burner over which baby's bottles and nipples can be sterilized and sweetened for the day, starch water can be boiled or something can be started for the noon-day meal.

I bathe the baby, a youngster two months old, about 10 o'clock and use an oil heater for warming the room. As soon as the stove is lighted I place her bath water on it, assemble her clean clothes on the back of a chair nearby, and as soon as the atmosphere is warm enough, the bath water is also ready, the same kerosene achieving both purposes.

At night I fix baby's milk, give her her bottle part full and the remainder of the milk I put in a thermos bottle, and fill her nursing bottle from it during the night. This not only keeps the stove from having to be lighted during the night but prevents me from having to be up in the cold.

I arrange to do my ironing and baking on the same day, devoting the morning to ironing and the afternoon to baking. When ironing I keep my irons covered with an inverted bread pan and set a cold-handled stew pan, containing dry beans, soup or stew meat or dried fruit, on the bread pan covering the flatirons. When my ironing is done I have at least one dish ready for dinner and the irons heat quicker by being covered. When the light bread is ready to bake, I place the oven on the stove, light the fires and place bread on the top shelf of the oven. By the time the oven is real hot I have a cake, pies or some pastry which requires quick cooking and put on the bottom shelf of the oven. Or I bake what remains of the beans cooked in the morning, make dressing and roast the meat or make a fruit pudding. By opening and closing the oven doors quickly and carefully this does not interfere in the bread baking a particle.

By cleaning lamp, wicks and burners each week with water softened with a little soda and putting in a pinch of salt in the oil, I manage to use the cheap kerosene not only for the stoves but lamps as well.

The average cost of our kerosene for one week is 50 cents.

ECONOMY IN COOKING

Written for California Cultivator
By Mrs. Otis A. Carpenter, Earlimart

I THINK my "pet economy" is cooking without waste. I never cook rice and then drain it, as so many recipes say to do, but cook it in double boiler after washing thoroughly, and add just enough water to cook well. Never stir rice as it ruins it, but properly cooked it is very palatable and nourishing and we prefer it to any other cereal.

Never drain peas, spinach, asparagus, carrots, lima beans, parsnips or squash. Just keep enough water on to cook, about half covered, and when about done remove kettle cover and let water boil down, except in case of spinach. Wash leaves and cook with only the water that clings after washing, cooking slowly at first. Never salt vegetables until ready to serve as cooking with salt ruins the flavor. Wash and cook potatoes with skins on.

Save the chicken bones, pieces of skin and fat, boil with enough water to cover. Strain, add a quart of milk and a handful of powdered and dried celery leaves and you have mock oyster soup which all will relish.

When cooking meat or chicken, either boiling or baking, cook potatoes and carrots on and around the meat. It not only saves fuel but gives the vegetables a nice flavor, and the meat as well. Cut the carrots lengthwise and cook longer than the potatoes. When done remove and place in neat row on small platter, season and garnish with bits of the fine tops, for you know it is said we "eat with our eyes" also.

PET ECONOMIES

Written for California Cultivator
By Mrs. Geo. H. Pettengill

"PET Economies"? Why, bless your heart, I have a whole family of them, and I'll just introduce them, one by one, and leave you to make their acquaintance. Like people, some you will wish to cultivate, others you will not, but brief I must be, or you will (even as do I), skip to a shorter tale!

I do not heat two quarts of water if I need but one pint!

I do not chip ice; I cool water in a container in the lower compartment of the refrigerator.

I do not pare potatoes—I wash them.

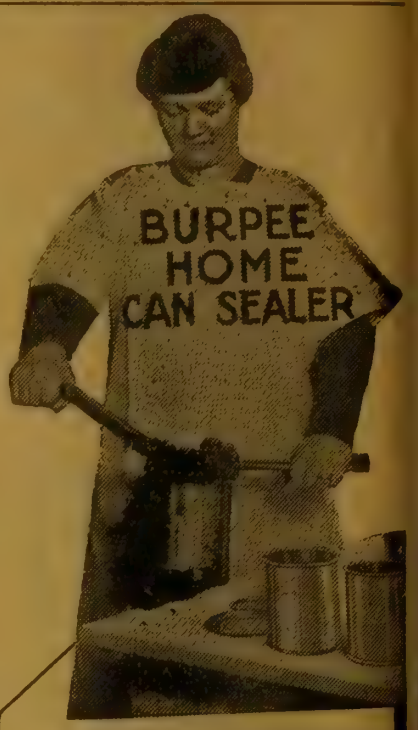
I do not leave the soap in the dishwater after obtaining my suds.

I use pulverized coffee.

I use a gas lighter instead of matches.

I use a fireless cooker when the gas required to heat the stones is less than that required to cook on the stove.

But my last and largest "Pet Economy",—the one which pays the finest dividends, is my endless and persistent effort to conserve my own strength and health, and if you are an expert in higher mathematics, you can figure out how much, in dollars and cents, I have saved by avoiding an undertaker's bill every year of my life!



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SAVING THE LITTLE THINGS

Written for California Cultivator
By Mrs. C. E. Clark, Fontana

MY pet economy is saving the little things, for they all count up. One can save so much thread in sewing if they have several pieces to join and sew right on without cutting the thread as it saves cutting lots of unsightly ends of threads when the garment is done.

One can save fuel by cooking beans and baking bread while there is a fire for washing or other baking.

A good way to use up dry bread crumbs or dry biscuits is to make Yankee pone. Take one quart of fine crumbs, add one teaspoon of salt, one level teaspoon of soda, pour over enough boiling water to moisten then add one cup sugar, then thicken with cornmeal until it's hard to stir. Bake in a skillet or flat basin two hours in a slow oven. When taken out wrap in a cloth so the crust will steam and be soft. Eaten warm with butter you have a dish most all men folks like.

I believe in having a variety for it's better for the system and keeps up a good appetite and I don't believe a family eats any more in the long run than to have to eat enough of one of two things to be satisfied. I use Califene or cottolene for all kinds of seasoning, only using butter for the table and lunches. Our grocery bill is hardly ever over $30 a month and we have a family of six. We have our own milk and use very little meat when we have eggs; have garden stuff coming on. I find macaroni and cheese a nourishing dish and well liked by all the family.

With all this talk of economy for housewives why don't some one suggest that the men could save the money they spend for tobacco and cigarettes which have no real nourishment in them and spend for something for all the family; but then maybe the poor men have to have something to quiet their nerves.

SMALL ECONOMIES

Written for California Cultivator
By Mrs. Floy Crosby Smith, Fairoaks

WE have all heard so much concerning economy in food that there seems little left to be said on that subject, but I do not recall reading anything about economy in the sewing room. Perhaps some of us expect to economize in clothing by going without the usual new garments, but even in the making of the common ones we can, by a little thought, avoid waste, when we all know the prices of dry goods are still climbing.

Many of the paper patterns we buy are accompanied by a chart showing how to apply the patterns to the goods, but most of them call for much more goods than is really needed, because they instruct us to fold the goods through the center and by laying on the pattern cut the two corresponding pieces together. If instead we begin at the edge of the goods and fit our patterns to the whole width of the goods, cutting but one piece at a time, we can make the various pieces dove-tail into the given space and so save the big pieces along the edges that would be wasted by following the guide chart.

If you expect to use the same pattern again, notice carefully just how much goods it really requires by your method of cutting, then write the number of yards on the paper pattern. Then next time you have only to glance at your pattern to know exactly how many yards to purchase, and you will save buying an extra half yard or so, and also escape the embarrassment of finding yourself short of goods.

In making every day garments for children, as aprons or rompers, get them all from one piece of goods, as they will cut to better advantage than in various short lengths.

When the "good man" goes to buy his work shirts tell him to get two alike, then when one is past wearing its better portions faded to match will do to replace the wornout sleeves of the other.

The small boy's overalls protect his stockings, so when the feet are past darning the legs are still good. If you buy the separate stocking feet, which are usually sold for about six cents a pair, it requires but a few moments to sew them on to the old legs and the result will be hose that will wear nearly as long as a new pair.

To the busy housewife, economy of time often means as much as economy of material.

The following suggestions for time saving are not original but have been used many times and may be new to some one. When you wish to gather goods, as the top of a sleeve, or to fit to a yoke or belt, loosen the upper tension of the sewing machine and stich where the gathers are required, then by pulling the under thread you can draw up the goods as closely as you wish in a moment's time and with the added advantage that the fullness will stay just where you put it without basting.

When tucking, or sewing trimming on two pieces—as the fronts of a waist, it takes time and patience to get them exactly alike. To do this easily, lay the two pieces together and stitch the lines or designs on the sewing machine with the needle unthreaded, then you can follow on each piece the rows of needle holes.

As one has to alter patterns frequently to fit growing children, it is a good plan to cut at one time all the garments to be made for one child. This saves the time of repeatedly hunting up the patterns, measuring and making alterations. Roll up each garment by itself until ready to sew.

THE LESSON OF ECONOMY

Written for California Cultivator
By "A Subscriber," Riverside

THE lesson of economy is one I am sure that as a nation we very much need to learn. It has been said that a French woman would make a good meal from what an American woman would throw away. An old saying is that "A woman can throw away more with a teaspoon than a man can shovel in." From observation I think it may be true in some cases. Having been raised in a New England home the principles of economy were early instilled into my mind.

Personally, I believe I have no pet economy. Little things are looked after and saved.

Vegetable parings are cooked for the chickens, bread crumbs from bread cuttings, pieces of toast, crusts of bread are saved to grind for many purposes. Cereals left over cooled and cold water poured over are fried for next time or reheated with the next cooking. Fine coal is used in berry baskets and many things cooked over one end of range when large fire is not needed. Strings from bundles are rolled in a ball, and many more ways. Children were never allowed to waste food on their plates. These are a few ways that I have learned to economize.

MY PET ECONOMIES

Written for California Cultivator
By Mrs. J. B., Escondido

MY paper was late in arriving so I will stop my washing long enough to read the Household Department and write my "Pet Economies" and rush it to the post office.

My pet economies are; first, making vinegar, as I dislike to open a can of pickles and find the store vinegar has eaten my pickles up. Rinse every jelly glass, honey dish or fruit jar, also save every spoonful of left over fruit, for the vinegar jar, cook apple parings and save the water. Muscat grapes cooked and the water put in jars in a warm place will make fine vinegar, also raisins. You may need to add some sugar or honey to the jar except when the grapes and raisins are used they are sweet enough. Save all cake and cooky crumbs, dry and pulverize and use them in puddings instead of bread crumbs.

Now for another kitchen economy: Buy the coarse thread meat scrap sacks of the feed man at 60 cents a dozen, bleach them out with washing powder, soap and kerosene. Cut in two lengthwise and have 24 nice, soft easy washing towels for the kitchen at 30 cents a dozen.

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Care and Feeding of Young Turkeys

Written for California Cultivator By Jean A. Koethen

SOARING feed prices in these times of stress ought to turn the attention of many farmers and poultrymen to turkey ranching, for under proper conditions and with proper feeding no other meat, except perhaps that of the domestic goose, can be as cheaply raised as that of our most toothsome bird, the turkey. The chief bar to successful turkey culture in California, where we have so many thousands of acres of unused land and a climate exactly suited to turkeys, is, it seems to me, a misconception of the nature of the turkey itself and of the care it requires. When feed is dear, why should we waste perfectly good grain on turkeys that are better off without it? Why coddle and fuss over little birds that only want a chance to hunt for their own meals? Why build them elaborate pens and houses, when they are better off in the open?

Not for a moment would I minimize the protection a newly hatched poult requires. The young turkey, perhaps because of generations of mistreatment, is a rather delicate bird and must be kept warm. A good motherly Orpington hen is ideal for this purpose. At the Rhode Island station they prefer chicken hens to turkeys as mothers because they are more attentive. When I first began to raise turkeys, having read that chicken hens were not proper mothers for turkeys I made the silly and disastrous mistake of trying to raise one brood in an outdoor brooder. The thing can be done, of course. Many turkey people are quite successful with brooders, but I learned too late that the little turks needed more heat than the brooder gave them. They simply piled up and killed each other in the effort to get into the warmest corner. Since then I have used chicken hens with entire satisfaction. A good hen in an open front coop will keep eight or ten poults warm in the coldest weather, and if she is kept confined while they run at large she is always ready to hover them when they come to her for warmth. These last few chilly days I have watched a hen caring for her poults in her coop under the big oak tree, sitting for hours at a time with outspread wings to warm their little chilled bodies when they run to her from the kale patch which is their favorite playground, and have wondered at her patience and devotion. This is what a poult requires. They are rather cold-blooded birds when young and need more warmth than chicks, but they must be in the open and breathe fresh air at all times. I have never tried to raise turkeys in confinement. Doubtless it can be done. Some breeders have done it with considerable success, but the ordinary farmer or backlotter makes a great mistake in attempting it. Older turkeys at large are a nuisance, but the little ones are very little trouble, and feeding is a far simpler problem when they are allowed to roam and nibble at will.

For 48 hours after they are hatched the turkeys get nothing to eat. They should remain quietly in the nest half this time, but as soon as they get restless should be removed with the hen to a clean coop, the floor of which has been covered with sand sprinkled over with fine chick grit. They pick at this and learn to drink from the fountain of fresh water which is before them. The hen is given whole corn but the chances are she will refuse it because the poults cannot eat it.

When the weather is cold and damp it is well to keep the poults the first few days in a warmer place than an open coop. An enclosed shed or a warm corner of the feed house where the little birds can be kept off the cold ground and out of the wind gives them more opportunity for exercise than they would have in an open coop, and a little extra protection at this critical time is worth while. My poults were in the feed house a week this spring, getting out in the middle of the day, but going back before the chill of late afternoon came on.

Chopped boiled egg and onion top or lettuce is the standard first feed for turkeys as it has been so many years for chicks. I started out this year with the firm intention of following the feeding program of the Rhode Island station, but dropped it at the end of the first week because of its elaborateness. The first days meals consist of finely chopped boiled egg and dandelion or lettuce at 8 o'clock; the same at 11 o'clock; stale bread soaked in sweet milk at 2 o'clock; egg and greens again at 5 o'clock. Two teaspoons of the egg and greens, which are mixed about half and half, are fed to 12 or 14 chicks. The bread and milk is not measured but is left before them about five minutes.

The second day rolled oats is added to the egg and greens but chick feed is given for the 11 o'clock meal, so this day's feeding is as follows: Eight o'clock, chopped egg, lettuce and rolled oats; 11 o'clock two teaspoons chick feed; 2 o'clock, bread and milk; 5 o'clock, same as 8 o'clock.

The third day's feeding is like the second. The fourth day the 11 o'clock meal is omitted and the 2 o'clock meal given earlier, so that the number of feedings is now reduced to three, and from now on the birds have only three meals. This fourth day they have one meal of egg and greens, one of chick feed and one of bread and milk. Afterward, says the bulletin, "Sometimes he feeds them bread and milk, sometimes egg, oats and green food finely chopped, sometimes grain and sometimes nothing but a handful of rolled oats. At about the end of the second week clabbered milk is set before them morning and night, a quart to 35 to 40 poults. By this time the boiled egg is dropped, the rolled oats and green feed chopped together being given in its place."

This method of feeding is ideal, and my only reason for not following it after the first week was that a simpler ration had served me well. This consists of the chopped rolled oats and greens according to the Rhode Island formula, with about half as much cottage cheese mixed in. The green is sometimes lettuce, sometimes onion, sometimes onion tops. As time went on, I began to add a little broken rice. Other years I have used wheat, cracked at first, and whole as soon as the poults could eat it. This year I had the rice on hand and no wheat, and I do not see why rice should not be a perfectly satisfactory feed for both chicks and poults. A good many poultrymen are using the broken rice with other grains this season for their chicks. Possibly it can be made ultimately to take the place of wheat.

But the essence of all turkey feeding is not what you feed; it is how much. At the Rhode Island station, after the poults have learned to eat, which is about the end of the first week, the poultryman begins what is called "time-feeding." He stands with watch in hand and lets them feed so long and no longer. At first the time is three minutes. Then, after another week, when the poults have begun to forage for bugs and flies, the time is reduced to two and a half minutes. During the second month, which is the time blackhead is most likely to appear, especial care is taken, and the tray is never allowed before the poults more than two or three minutes, and only twice a day, for the midday meal was dropped at the end of the third week. This forces the birds to forage for most of their food, which is just what they need.

POULTRY INSTITUTE

The Pomona Valley Poultry Breeders' Association is working in conjunction with the University of California in preparing for a poultry institute to be held in Pomona June 19-21, in the auditorium of the Pomona high school. The auditorium is an exceptionally fine gathering place and the site provides for abundance of parking for automobiles. It is anticipated that there will be hundreds of machines and the Pomona committee promises room for everyone.

On the first and second days of the institute luncheon will be served in the cafeteria of the high school. Thursday, the third day, the institute will be held in Ganesha Park, one of the prettiest little parks in all California. All attendants are requested to bring luncheon with plates and cups and the Pomona Valley Association will furnish free coffee.

Prof. Dougherty of the poultry division of the college of agriculture, University of California, and possibly other helpers from the university farm at Davis, will be present through the three days.

On Tuesday forenoon there will be addresses on housing and yarding of poultry; in the afternoon session, feeding for profitable production. It is aimed to end this session at 3:30 to give auto drivers opportunity to make distant homes.

On Wednesday, the 20th, morning session; vital factors in incubating chicks; afternoon session, fundamentals of successful brooding.

Thursday morning's sesion will be given to discussion of principles of poultry breeding; afternoon, selecting and culling the layers.

Pomona is one of the best convention towns in California and has a live wire bunch of committeemen preparing for this convention.

Limited Number of Chicks from Hens That Laid 194 Eggs Each Last Year

Wishing to help poultrymen to get high grade stock for building up their flocks, we have made arrangements so as to offer a small number of chicks from F. M. Molby's famous 194-egg hens.

So long as they last we make this offer: With every order for 500 White Leghorn chicks we offer FREE 25 Molby chicks and with every order for 1000 chicks we offer 50 Molby chicks free.

SCHOFIELD and OLSEN AT VAN NUYS will sell choice pullets 10 weeks old, all broken to roost at 55c each. This is for a short time only. Address all communications to

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DRY MASH GLOBE A-1

The food with the punch. Gets the eggs. Highest analysis, cheapest price $2.95 per 90-lb. bag. Special price on quantities. Write for free feeding sample and descriptive circular. At your dealers or

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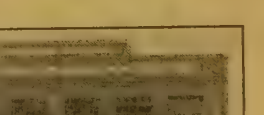

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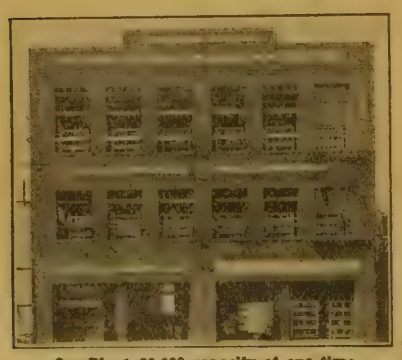

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You can ship to the largest exclusive wholesale poultry house on the Pacific Coast, and receive the highest prices, honest weights and an immediate return. Write for prices.

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Ten, 12 and 15 cents. We ship everywhere. Free 66-page illustrated catalog. Ducks, Turkeys, Rabbits, Guineas, Pigeons, etc.

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Los Angeles Market

LOS ANGELES, May 29, 1917.

BUTTER

Wholesale prices:

California extra creamery	.33
Prime first	.36

CHEESE

Brokers' prices:

California fresh, lb.	.24@25
Oregon Longhorn	.28
Tillamook Trip.	.27

EGGS

Exchange quotations:

Fresh extras	.33½
Case count	.33
Pullet	.31

POULTRY

We quote from growers:

Broilers	.20@25
Fryers	.25
Hens—Leghorns 13-15; Heavy Col'd.	.20
Roasters	.25
Ducklings, lb.	.18
Squabs, doz.	.3.00@4.00
Roosters, old	.10
Turkeys	.21@24

LIVE STOCK

We quote cwt. f.o.b. L. A.

Cattle—

Beef steers, av. 1000 to 1100 lbs.	.10.00
Heifers, good	.8.00
Cows, good	.7.00@7.50
Fair	.6.50@7.00

HOGS—

Av. 125 lbs.	.12.00@12.25
Av. 150 lbs.	.12.50@13.00
Av. 175-225 lbs.	.13.25@13.50

Rough, docked 20 lbs.; piggy sows, 40 lbs., stags, 40 per cent.

Prime wethers	.9.50@10.00
Ewes	.9.00@9.50
Lambs	.13.00
Yearlings	.10.00@10.50

POTATOES

Wholesale selling price:

Northern	.4.50
Oregon	.4.75
Russets	.4.75
Sweet, lb.	.8
New, lug	.1.10@1.25

ONIONS

Wholesale selling price:

Onions, Brown, lb.	.8@10
Crystal Wax, cr.	.1.35@2.00
Bermuda, cr.	.1.85@2.00
Garlic, lb.	.10

VEGETABLES

Wholesale prices:

Arichokes, doz.	.50@75
Asparagus, lb.	.10@11
Beans—Wax, String	.5@5½
Ky. Wonder	.5½@6
Beets, doz. bunches	.40
Cabbage, lb.	.2@5
Carrots, doz.	.40
Chicory, doz.	.40@50
Cauliflower, doz.	.1.00
Celery, doz.	.1.00
Corn, lug	.1.65
Cucumbers, Hothouse, doz.	.75@1.25
Outdoor, lug	.1.00
Eggplant, lb.	.20
Horseradish, rt. lb.	.15
Lettuce, doz.	.25
Leeks, doz.	.30
Mint	.40
Onions, green, doz.	.25
Oyster Plant, doz.	.45
Peas, lb., Telephone	.6@6½
Peppers, Chili, lb., 25; Bell	.30@40
Parsnips, doz.	.45
Parsley	.20
Radishes, doz.	.20
Rhubarb—Crimson Winter	.75
Strawberry	.1.00
Giant	.1.35
Romaine, doz.	.45
Spinach, doz.	.20
Squash, Summer, cr.	.85
Turnips, doz.	.40
Tomatoes, cr.	.1.90@2.00

FRUITS

Wholesale prices:

Apples—W. W. Pearmain	.2.50@2.65
Newtown Pippin, Yellow	.2.25@2.50
Avocados, doz.	.6.00@10.00
Apricots, cr.	.1.70@1.75
Bananas, lb.	.5
Cherries, lb.	.8@11
Figs, bx.	.2.00
Loganberries, bskt.	.6@7
Blackberries, basket	.7@8
Raspberries, basket	.5@6
Gooseberries, lb.	.9@9½
Strawberries, basket	.4@5
Pineapples, lb.	.8

CITRUS

Lemons	.2.25@2.85
Juice	.1.25
Grapefruit	.2.50@3.50
Limes, basket	.1.00
Navels	.2.50@2.75
Tangerines, lug	.1.50

HONEY

Wholesale prices:

Extr. lb. White	8½@9½c; A. 8½@9c;
W.W.	.10@11
Comb., lb. W.	12½c; Lt.A. .12½@14c
W.W.	.14½
Beeswax, lb.	.32

NUTS

Peanuts, raw	.11
Pine Nuts	.20

BEANS

Wholesale Prices:

Lady Washington	.18.00
Limas	.17.00
Pinks	.13.00@13.50
Manchurian Reds	.12.00
Baby Mex.	.8.50
Garbanzos	.9.00@10.00
Small White	.18.00
Blackeyes	.12.00
Tepary	.12.00
Lentils	.18.00

HAY

Hay market is decidedly quiet and purchasers holding off for more settled conditions.

We quote ton f.o.b. L. A. to producers:

Barley	.17.00@19.00
Alfalfa	.14.00@17.00
Straw	.10.00@12.00

Wholesale cwt. f.o.b. L. A.

GRAIN AND FEEDSTUFFS

Alfalfa Meal, 100 lbs.	.1.75
Alfalfa Molasses, 100 lbs.	.1.80
Barley, Rolled	.2.60
Barley, Recleaned Whole	.2.65
Barley, Hulled	.3.10
Beet Pulp	.1.80
Bran, heavy	.2.45
Cocoanut Meal	.2.05
Cottonseed Meal	.2.60
Corn, Yellow	.3.85
Corn, White	.3.95
Corn, Cracked	.3.90
Corn, Egyptian	.4.00
Milo Maize	.4.00
Corn, Feed Meal, 100 lbs.	.3.95
Middlings	.3.05
Oat Chop	.2.10
Oats, White	.2.90
Oats, White	.2.90
Oats, Rolled, White	.2.95
Oats, Hulled	.5.00
Oilcake Meal	.3.30
Wheat, No. 1, ctl.	.5.00@5.05
Wheat, Cracked, No. 1, 100 lbs.	.5.40
Rye	.5.15
Blood Meal	.4.30@4.40
Bone, Green	.2.35@2.45
Bone, Dry	.2.55@2.65
Charcoal, 50-lb. sk.	.2.55@2.65
Clam Shell	.70@80
Grit Granite	.65@75
Hemp	.5.50@5.60
Oyster Shell	.1.25@1.35
Sunflower Seed	.4.10@4.20
Soya Bean Meal	.3.30@3.40
Scratch Feed	.4.25@4.35
Scratch Gritless	.4.45@4.55

San Francisco Markets

SAN FRANCISCO, May 28, 1917.

BUTTER

Dairy Exchange quotations, lb.:

Fresh extras	.37½
Prime firsts	.37

CHEESE

Dairy Exchange quotations:

Cal. Flats	.21 Y. Am. .25

EGGS

Dairy Exchange quotations:

Fresh extras	.34
Firsts	.31½
Select Pullets	.29½
Firsts	.29

POULTRY

We quote from producers, lb.

Hens, large 23@24; Leghorns	.17@19
Small Colored	.20@21
Fryers, lb.	.33@35
Broilers, large, 27@30; small	.25@26
Roosters, old 13@14; young	.33@35
Squabs, doz.	.2.25@2.75
Ducks	.18@20
Geese	.19@20
Turkeys, live, lb.	.20@22
Belgian Hares, live 14@15; dr.	.17@18

LIVE STOCK

Prices gross weight:

Cattle:

The following prices are for gr ss fed stock. Hay fed bring ½ to ¾c more.

Steers, lb., 7@9, cows and heifers, 4@7¼; calves, 6¾@8¾.

Sheep:

Wethers, 11; shorn, 1½@2c less; ewes, 10; lamb, lb., 12@12½.

Hogs:

Hard grain fed, wt. 100 to 150 lbs., 12⅜@12½c; 150 to 300 lbs., 15¼@15½; 300 to 400 lbs., 14¾@15; undesirable, 6@9.

POTATOES

Wholesale selling prices at wharf:

Oregon Burbanks	.4.25@4.75
New Potatoes, lb.	.3@4½

ONIONS

Wholesale selling price on wharf:

Crystal Wax, cr.	.1.90@2.00
New Red, sk.	.1.75@2.00
New Green, bx.	.75@1.00
Bermuda, cr.	.1.90@2.00
Garlic, lb.	.1@3

VEGETABLES

Wholesale selling price:

Asparagus, bx., Fancy White	.2.50@2.75
Green	.2.00@2.25
Artichokes, doz. large 50; small	.10@15
Beans, String, lb., 5@7; Wax	.5@6
Ky. Wonder, lb.	.8@9
Cucumbers, bx., hothouse	.1.20@1.35
Outdoors	.1.00@1.15
Peas, sack	.1.50@2.00
Peppers, Bell, 15@20; Chili	.10@15
Rhubarb, bx.	.90@1.25
Squash, Summer, cr.	.75@90

FRESH FRUIT

Wholesale selling price:

Apples—Newtown Pippins	.1.35@2.00
Apricots, cr.	.1.25@1.75
Bananas, bunch	.1.25@1.75
Cherries, Purple, Guigne, dr.	.75@1.00
Black Tartarian, dr.	.75@1.00
White, lb.	.4@6
Peaches, cr.	.2.25@2.50
Strawberries—	
Longworths, chest	.5.00@5.50
Large varieties	.5.00@6.00
Blackberries, cr.	.1.25@1.50
Gooseberries, lb.	.4@6
Raspberries	.1.50@1.75
Loganberries, cr.	.85@1.00

CITRUS FRUIT

Wholesale selling price:

Lemons	.1.75@3.50
Lemonettes	.1.25@2.25
Limes, Mex., cs.	.4.50@5.50
Grapefruit	.1.75@3.00
Navels, bx.	.1.50@2.90
Tangerines, half orange box	.1.75@2.00

PEACH PRICES

A circular of Peach Association says:

According to inventory, we have unsold a limited quantity of both yellow and Muir peaches. We, therefore, offer our remaining stocks, each car to contain the following approximate percentages of grades, and at prices set opposite:

40 pct. Standard Muirs at	7½c
5 pct. Fancy Muirs at	9 c
10 pct. Extra Fancy Muirs at	9½c
10 pct. Standard Yellows at	7½c
5 pct. Choice Yellows at	8¼c
10 pct. Fancy Yellows at	8½c
20 pct. Extra Fancy Yellows at	9 c

All quotations bulk basis.

For 50-lb. bxs. unfaced, add	¾ per. lb.
For 50-lb. bxs. faced, add	⅞c per lb.
For 25-lb. bxs. unfaced, add	⅞c per lb.
For 25-lb. bxs. faced, add	1 c per lb.
For 10-lb. bxs. unfaced, add	1⅛c per lb.
For 10-lb. bxs. faced, add	1⅛c per lb.

We also have approximately three cars of slab peaches, which we offer at 7¼c, bulk basis.

We will continue to receive orders until further notice for fancy peeled peaches, either for assorted or straight car lots, at 12c, bulk basis.

All of the above we quote f.o.b. factories, California, where stocks are available, subject to our confirmation and subject to goods being unsold, for May-June shipment; prices guaranteed against our decline to June 30th, 1917.

DRIED FRUITS

Wholesale quotations:

PRUNES—Bulk basis, per lb: 30s, 8¼c; 40s, 8½c; 50s, 8¾c; 60s, 70s and 80s, 9c.

Other fruits, 50-lb. bxs:

	Standard	Choice	Extra Fncy.	Extra Fncy.
Apples	10¾c	11 c	11½c	
Peaches	9¾c	9¾c	10¾c	10¾c
Pears	7½c	9½c	10½c	12¾c

NUTS

Jobbers' Prices:

Almonds.—Exchange opening prices. Nonpareil, 19c; Ne Plus Ultra, 17c; IXL, 17½c; Drake, 16c.

Peanuts, Jap, 7@7½c; Eastern	.7½
Pecans	.19@20
Pine Nuts	.15@17

BEANS

Jobbers' prices, cwt. recleaned:

Limas	.16.25@16.50
Bayous	.11.50@11.75
Garbanzos	.6.75@7.00
Cranberry	.12.00
Small White	.16.00@16.25
Mexican Red	.11.50@12.00
Large White	.16.00@16.25
Pinks	.11.90@12.15
Black Eyes	.9.75@10.00
Red Kidneys	.13.00@13.50

NUTS

Peanuts, Jap, 7@7½; Eastern	.7½
Pecans	.19@20
Pine Nuts	.15@17

HONEY

Jobbers' prices:

Comb, lb., W.W., 13@15; A., 8@10c;	
Lt. A.	.11@12
Ex. Fy. W. lb.	.10c; Lt. A. .8
Beeswax, lb.	.30@32

HOPS

Prices to growers at shipping points:

Sacramento	.5½@8
Sonoma	.7@9
Mendocino	.7@9
Oregon and Wash., lb.	.5@9

RICE

Price to growers:

Cal. Rough cwt.	.3.50@3.75
Lower Grades	.3.00@3.50

HAY

Under date of May 26, Scott, Magner & Miller say:

Receipts for the past week 1039 tons. No new hay arriving except some new first cutting alfalfa. Prices on old hay are a little weaker.

Most of the hay coming is of best type, the cheaper grades having been practically all cleaned up. The demand for export shipment has continued about normal and can be depended upon to steadily take care of a certain amount of current arrivals.

Our weather has continued favorable for the growing crops and has resulted in increased growth in a most satisfactory way. The demand for alfalfa among dairymen has shown some activity and a few of them have been contracting for their season's supply, thus early in the season. The first cutting has been moving off very well. We quote today wholesale prices in carload lots as appear from dealers' transfers upon the market. For prices to consumers charges of cartage, commission and handling expenses must be added according to conditions.

Wheat, Fy., lt. bales	.30.00@31.00
Wheat or Wh. and Oats, No. 1	.28.00@29.00
Wheat or Wh. and Oat, No. 2	.27.00@28.00
Oats, Choice Tame	.30.00@31.00
Other Tame	.25.00@27.00
Barley	.25.00@27.00
Alfalfa, first cutting	.12.50@15.00
Stock Hay, new	.10.00@12.00
No. 1 Barley Straw, Baled	.1.00@1.10

GRAIN

Grain Exchange prices, ctl.

Wheat—No. Bluestem	.5.00@5.15
Corn, California	.3.25@3.50
Corn, Eastern Yellow	.3.30@3.35
Corn, Egyptian White	.4.15@4.25
Oats, White Feed	.2.75@2.80
Barley, Feed	.2.25@2.40

FEEDSTUFFS

Wholesale prices per ton:

Bran	.47.00@48.00
Cornmeal	.71.00@73.00
Cracked Corn	.71.00@73.00
Cocoanut Meal	.35.00@36.00
Middlings	.58.00@60.00
Alfalfa Meal, carlots	.33.00@34.00
Shorts	.50.00@51.00
Rolled Barley	.54.00@65.00

SEEDS

Prices in round lots, lb.:

Millet, recleaned	.3¼@4
Alfalfa	.20@21
Flax	.5@6

W. B. Parker, the new farm adviser of Riverside County, has just returned from a tour of the Palo Verde district.

The Union Live Stock Association at Baker, Oregon, has adopted the slogan: "The best we'll breed for the nation's need."

Citrus Fruit Market

LOS ANGELES, May 29, 1917.

The orange market is stronger than for some weeks, lemons are also selling well. The cold weather keeps down any material advance.

Shipments

Shipments of oranges from Southern California since November 1, 1916, 25,885 cars, lemons 4557, total 30,442; to same date last season, oranges 21,296, lemons 3709, total 25,005. From Central California to date this season, oranges 4075, lemons 164, total 4239; to same date last season, oranges 5178, lemons 146, total 5324. From Northern California to date this season, oranges 845; to same date last season, oranges 610, lemons 1.

FROM THE AUCTION

May 23

New York: 32 oranges, 3 lemons. Prices higher. Navels, $1.90@3.15; sweets, $2.35@2.45; lem., $1.90@3.60.

May 24

New York: 30 oranges, 2 lem. Nav., $2.10@3.30; sweets, $2.30@2.45; Seed., $2.15@2.45; bloods, $1.45@2.55; St. Mikes, $1.35@1.50; Val., $2.70@3.40; lem, $2.50@3.50.

May 25

New York: 19 oranges, 2 lem. Nav., $2.10@3.30; lem., $2.60@3.40.

May 28

New York: 47 oranges, 4 lem. Nav., $2.25@3.50; Seed., $2.40@2.70; lem., $2.35@3.35.

Pittsburg: 19 cars. Nav., $2.15@3.05; lem., $2.90@3.35.

Philadelphia: 19 cars. Nav., $2.15@3.20.

Boston: 26 cars. Nav., $2.10@3.50; lem., $2.65@3.75; bloods, $2.75@2.85.

St. Louis: 13 cars. Nav., $2.30@3.20; em., $2.70@3.55.

Cleveland: 12 cars. Nav., $2.35@3.15.

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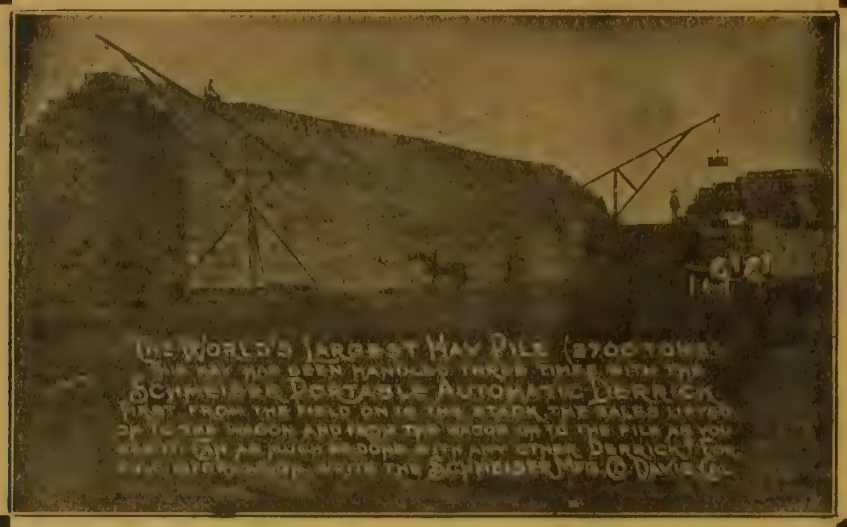

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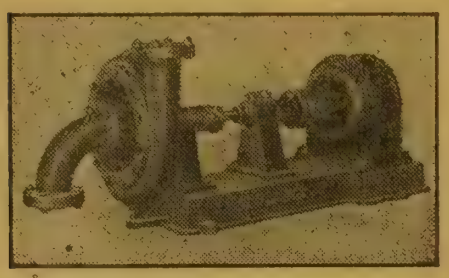

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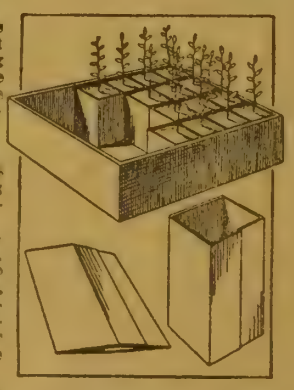

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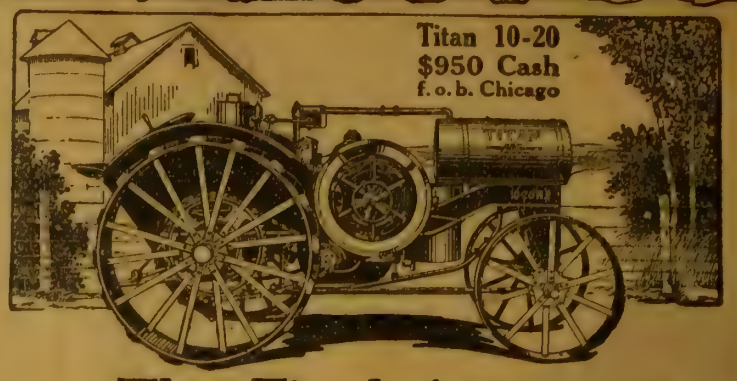

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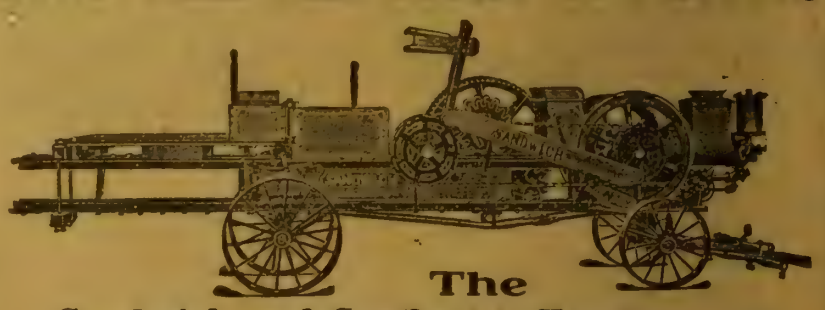

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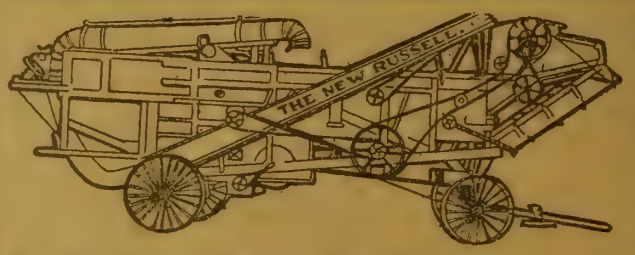

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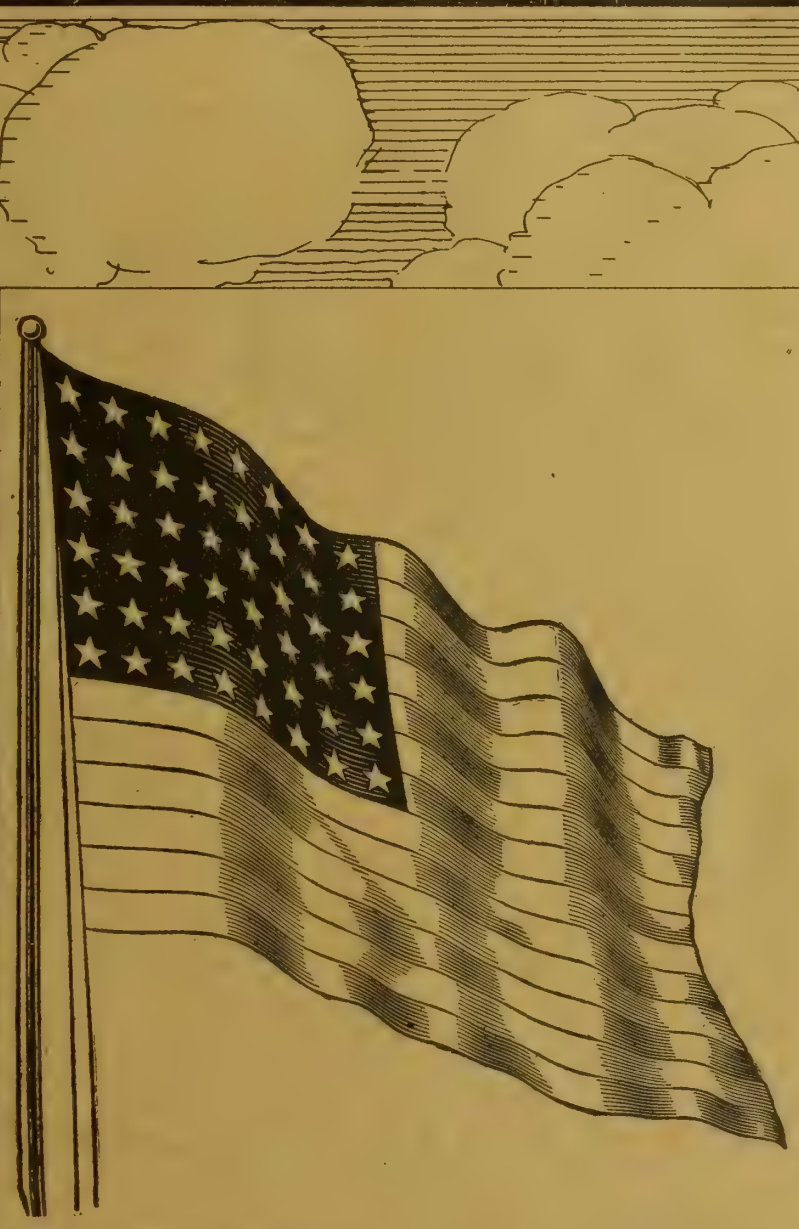

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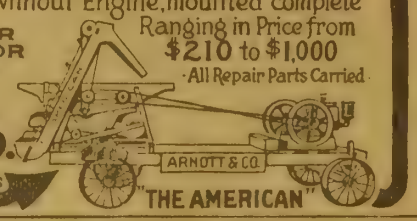

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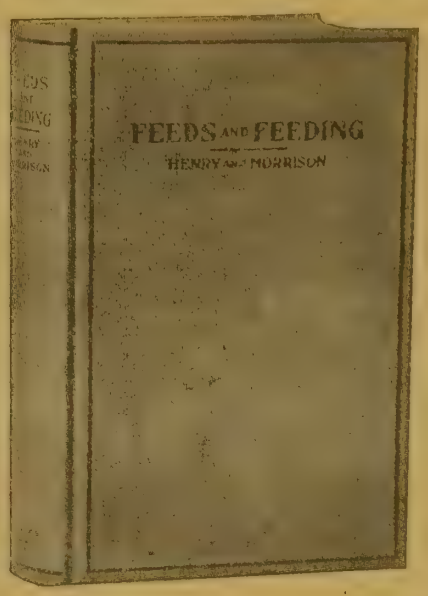

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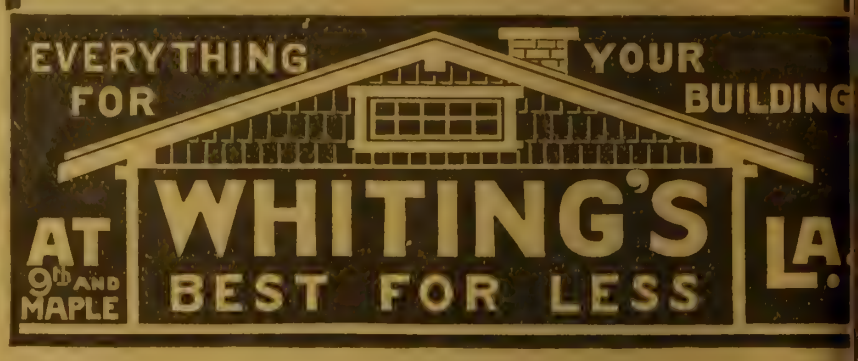

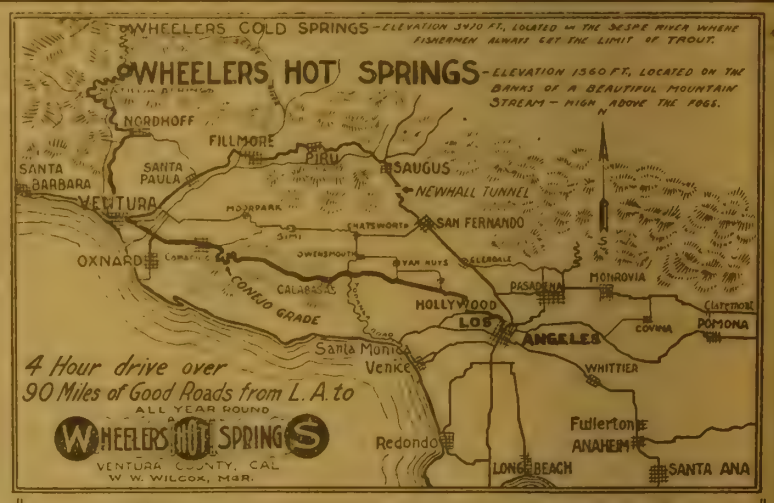

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LOS ANGELES - - U. S. A.

California Cultivator

Vol. XLVIII No. 23 LOS ANGELES: June 9, 1917 One Dollar Yearly

California Cotton Possibilities

From an Address Before the National Association of Cotton Manufacturers in Boston Last April by Walter E. Packard of the Imperial Valley Experiment Station

Concluded from Last Week

CONTINUING the address of Mr. Packard we give this week some most valuable information as to labor and costs of cotton production in California.

* * *

The question of the future trend of varieties in this new field depends upon several variable factors. Profits, of course, come first. Cotton will not be maintained as an important crop unless the returns from sales greatly exceeds the cost of production. In an irrigated section the cost of water, the cost of water attendance, the price of land and the price of labor are all higher than in the South, and the yield from an irrigated field must exceed the yield of the Southern fields in order to overcome this initial disadvantage. The following table gives the costs of raising cotton in Imperial Valley:

	Mini. Cost	Maxi. Cost
Rent	$ 8.00	$12.00
Seed	1.00	1.00
Plowing	....	4.00
Disking, 8 ft. disc with 4 horses	.65	.65
Listing	.75	.75
Lath boxes	.65	.65
Harrowing	.25	.35
Planting	.25	.25
Replanting skips	.25	1.00
Chopping	1.00	1.00
Hoeing	1.00	1.50
Cultivation	1.75	3.75
Irrigation water	1.50	1.50
Irrigation attendance	1.50	3.00
Shipping seed cotton to gin.	....	2.00
Hauling to siding	1.50	3.50
Ginning	4.50	4.50
Feed for horse when not in use	....	1.00
Depreciation in equipment	.40	2.00
Interest on money borrowed to finance operations outside of rent	1.00	1.50
Exchange fees, insurance, storage, drayage, compressing and freight east.	8.00	12.00
Total cost growing 500 lbs.	$33.95	$57.90
Picking cost at 1.24c per lb. at a bale to the acre, absolute total	20.40	20.40
	$54.35	$78.30
Minimum per pound cost 10c. Maximum 15.6c.		
MEBANE TRIUMPH		
500 lbs. Mebane Triumph cotton at 12c	$60.00	....
1100 lbs. seed at $40	22.00	....
Total income at a bale to the acre	$82.00	$82.00
Less total cost	54.35	78.30
Net profit	$27.65	$ 3.70
DURANGO		
500 lbs. Durango at 16c	$80.00	....
1200 lbs. seed at $40	24.00	....
Total income on a bale at the acre	104.00	$104.00
Less total cost	54.35	78.30
Net profit	$49.65	$25.70
EGYPTIAN		
500 lbs. Egyptian at 22c	110.00	
1300 lbs. seed at $40.00	26.00	
Total income on a bale to the acre	$136.00	$136.00
Less cost of raising	33.95	57.90
	$102.05	$ 78.10
Less cost of picking at 3c.	54.00	54.00
Net profit	$48.05	$24.10

The above figures are based on what might be termed a normal market.

It will be noted that the total cost of raising the crop varies from 10 cents to 15 cents per pound on a bale to the acre basis, depending upon the care that was given the field in cultivation. If a large yield is to be expected there must be a proportionate amount of work done in the preparation of the seed bed and in the cultivation of the crop. It is apparent, then, that in order to balance the cost of irrigation, high rents, and expensive labor in an irrigated region, a bale to the acre is the minimum which can be profitably raised on a normal cotton market. With present war prices cotton can be raised with a profit quite easily, but under normal conditions short cotton will not survive unless a bale to the acre can be secured on the irrigated land. This statement can be modified in the case of the poorer land where the advantage of improving the soil by cultivation and leaching out alkali is considered as a portion of the remuneration, or where the rent of the land is so low that a profit is left above the cost of production. In certain areas where irrigation is not necessary as in the sub-irrigated portions of the San Joaquin and Sacramento Valleys, the cost of production will more nearly equal the cost of production in the South, but even here the yields would have to be proportionately larger in order to meet interest on greater values and to meet the higher cost of labor.

Not only will the returns of cotton culture have to materially exceed the costs of production, but the net profits will have to equal or approach the net profits that can be secured on other crops common to the region. Cotton in Imperial Valley has to compete with early truck stuff of all kinds. The Imperial Valley, for example, excels in cantaloupe production, the annual shipments exceeding the shipments from the second cantaloupe producing state. The early grape, winter truck, lettuce, peas and asparagus along with citrus and the golden date, are money making crops and are competitors with cotton for the irrigated land. It is true that soil conditions are not everywhere suitable to the raising of these high paying crops and cotton may be considered as a crop for the harder soils, but even in this case cotton must compete with corn, alfalfa and their copartners, hogs and cattle.

In meeting this competition it is apparent, therefore, that cotton must not only yield a profit, but must yield a profit equal to the profit from other crops. With the introduction of the silo and the improvement of stock and the extension of truck and fruit, there must also ultimately come the planting of high quality cotton if cotton is to survive. The cost of raising Egyptian or Durango cotton is little more than the cost of raising Triumph, except for the fact that the long staple cotton must in general receive superior cultivation, making the growing cost more nearly equal than the maximum figure. The following table gives the prices secured for Egyptian, Durango and Triumph for the past five years:

	Triumph	Durango	Egyptian
1912	12-13	15-16	21
1913	12-13	16-17	21-22
1914	6- 7	12½	14-15
1915	11-12	16-17	21-22
1916	16-20	19-29	28-55

During normal years the Durango has averaged from three to four cents above Triumph, and Egyptian has averaged from four to six cents above Durango.

Eliminating the cost of picking and ginning, then, the cost of production of all types is practically the same. Durango cotton, which sells at a premium of from three to five cents per pound, manifestly has an advantage over short cotton. The yield of this cotton ordinarily equals the yield of the Triumph and the picking cost is very little greater. Although the ginning percentage of Durango may average two per cent below Triumph, the Durango cotton still has more chance of survival in the Southwest than has the short cotton which now predominates. The cost of picking the Egyptian cotton is over twice the cost of picking Durango and the ginning percentage is low, but the difference in the price of the product is so great as to counterbalance the difference in the cost. Egyptian cotton on a normal market for the past six years, then, will be as profitable as Durango, providing the yields are equal. The records show that the yield of Egyptian has so far compared favorably with the yield of either the Durango or short cotton when properly handled. Natural prejudice against a new variety, the successful profits made with the Durango cotton and the fact that Egyptian is hard to pick and requires a roller gin, militates against any sudden change to this variety. If the present difference in price remains, however, the advantage would be so great in favor of Egyptian as to almost insure its wide planting. It is probable that the price of Egyptian will remain high on account of the damage done by boll weevil which are gaining entrance into the Sea Island areas.

Irrespective of varieties, however, the cotton acreage cannot be greatly extended until the present labor problem is solved. The growers had considerable difficulty in harvesting the 55,000 bales produced during the past year and must look for an available supply of labor if the acreage is materially increased.

In the Salt River Valley the Indians have been a source of supply not available in California in any large numbers. These Indians have made good pickers, although not nearly so efficient as either the white or the negro. Mexican labor has migrated from Sonora into Arizona during the picking season, and it is the hope of

1917 Crop Acreage, Imperial County

	Field Crops—Acres— Alfalfa	Milo Maize	Cotton
1917 (Compilation by Farm Adviser from Water Company reports)	114,491	106,354	78,400
1916 (Census by County Assessor)	95,562	52,207	44,116
Increase, Acres	18,929	54,147	34,284
Gain, Per Cent	20	104	75

In addition to above figures Lower California has this year 10,000 acres in alfalfa; 15,000 in milo; 50,000 in cotton.

VALUE OF AGRICULTURAL PRODUCTS IN COUNTY SINCE 1900

1900 (No cultivation	
1910	$ 5,000,000
1914	12,000,000
1915	15,000,000
1916	20,000,000
1917 (Estimated)	30,000,000

Cantaloupes at Planting Time

Imperial Valley is now sending out train loads of cantaloupes every day. The above scene shows fields with covers placed after planting.

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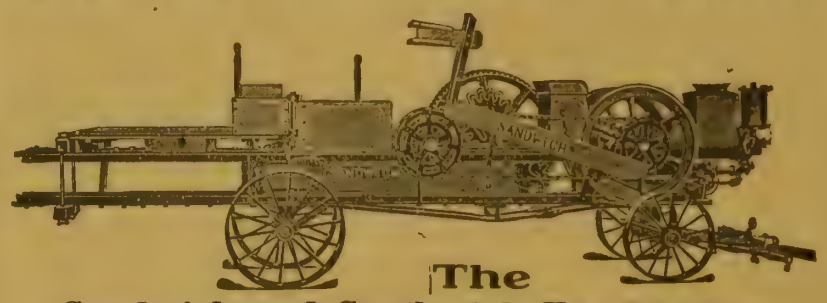

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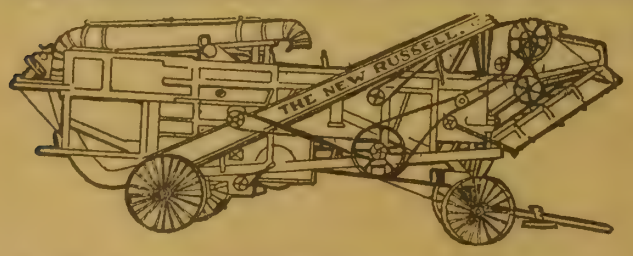

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the growers that a large supply will come from this source in the future. Chinese labor has proved efficient in Mexico, but the supply has not met the demand. The first Chinese to enter Lower California were paid 50 cents a day and board, which gave the Mexican growers a decided advantage over the growers on this side of the line. Prices have been forced up, however, so that the Chinese are now getting approximately $2.00 a day and board themselves. The contract system of employing labor in Mexico is becoming more prevalent. A Chinese foreman agrees to furnish all the labor, including pickers, and half the running expenses, not including rent or depreciation, and gets half of the crop.

Although there are a number of Japanese in both Imperial Valley and Lower California, they are inclined to do little picking, preferring to rent land and hire pickers.

The labor used in Imperial Valley is largely white and negro, although some Mexican and Hindu labor is employed. It is almost impossible to get more labor from the South, for the demand for labor in the northern industries has already depleted the supply. A large number of families have been moving into the Southwest from Texas and Oklahoma and have materially lessened the labor problem. Many of these families are settling on small rented farms where the family is able to do all the work, including picking. The hobo class of labor, which migrates to California to enjoy the mild winter climate, is very inefficient. These laborers often do not pick enough to earn their board, and usually quit a job in a day or two and go on to the next place. It is probable that the labor which follows the fruit picking season from the South to the North can be utilized in the cotton field during the winter months. The 5000 hop pickers who finish their work in Northern California in September could undoubtedly find remunerative employment in the cotton fields and would tend to relieve the pressure during the height of the season. Practically 50 per cent of the hop picking is done by family labor, which is usually the most efficient. Proper housing arrangements would tend to bring this class of labor to the cotton fields, especially if the cotton was grown in the San Joaquin or Sacramento valleys. The cost of transporting labor from the northern part of the state to Imperial valley has prevented any large migration so far.

This demand for a large supply of cheap labor is a strong argument against cotton in California, for the social conditions which generally result from the introduction of any large number of transiently employed are far from ideal. Cotton tends toward large rented farms where the necessary rotation of crops is neglected, land impoverished by continued cropping, and by neglectful cultivation, where the tenant has no permanent home and adds little to the social improvement of the community, and where transient labor turns toward crime or wasteful idleness during the portion of the year when its services are not in demand.

It is possible that in the Southwest the effort of the state and the federal government to establish homes on small tracts of land by better opportunities for colonization and by more favorable rural finance, may lessen this trend toward tenantry. The rural credits law will enable many worthy people to secure ownership of small tracts where they can establish a home, become a valuable part of the community and at the same time furnish the labor needed to carry on their own farming operations. A man on 40 acres of land in the San Joaquin Valley, for example, could well afford to put in ten to fifteen acres of Egyptian cotton each year in a system of crop rotation. His family should be able to pick a large portion of the crop, and the cost of picking would therefore remain in the family and the greater returns resulting from the sale of the superior quality of cotton would make cotton as profitable in such a rotation as any field crop which could be raised.

In conclusion, it may be said that California offers a bright field for the production of a high quality cotton. The extension of the industry depends upon the maintenance of pure varieties of high grade cotton; upon the application of the best cultural methods to give yields commensurate with the cost of production; and upon the solution of the labor problem, perhaps through an improvement of the present laws governing land colonization and rural finance, in order to give the man without money a chance to acquire land and establish a home.

The Southwest has already won an enviable reputation in the cotton world. The rich soil, long growing season, abundant sunshine, and plentiful water supply, make of the Southwest a factory for cotton production, quite perfect in equipment, and as Sir William Wilcox, the eminent British irrigation engineer, said, this section will some day be the center of the cotton thought of the world.

Mealy Bug Parasite

We have received "On the Life-History and Successful Introduction Into the United States of the Sicilian Mealy-Bug Parasite," a reprint from the Journal of Economic Entomology. It is written by Harry Scott Smith, in charge of the state insectary at Sacramento and Alhambra.

The citrus mealy bug has been a most perplexing pest in many sections of California. It has caused untold loss and many heartaches. Double fumigation and even quadruple sprayings have been found, if not wanting, at least not as successful as the orchardist desired. If the parasite described by Mr. Smith is successful orchardists will surely call it blessed. The hopeful view as to the success of the parasite is given in the last paragraph of the article in the journal.

The question now arises as to what we may rightfully expect from the introduction of this parasite. It is now thriving and increasing rapidly in all the field colonies. The remarkable way in which it has increased during the short time since it has been introduced, the fact that it has proven itself adapted to environmental conditions, and the fact that it fills a gap in the natural control of the host justifies, I believe, the hope that it will become of great economic value. It is too much, of course, to expect that this parasite alone will be able entirely to control the citrus mealy-bug, but its introduction will certainly prove an important step toward the desired end. Time alone will show its true worth to the citrus industry."

American Plants

Written for California Cultivator By E. Braunton

IT is somewhat amusing to note how tenaciously we cling to plants with foreign names or known to come from foreign lands, and seemingly avoid the use of better plants that are native to our own country and in many instances to our own state.

The most noted authority on gardens in Engand, William Robinson, has stated that Romneya Coulteri, the Matilija poppy, is: "California's finest contribution to horticulture," and indeed it is one of the finest flowers in the world. It is native only to Southern California, thrives splendidly in the garden, yet there are more Matilija poppies to be found in the gardens of England than in those of Southern California.

We are constantly buying iris, and they are either called German, English, Spanish, Japanese, Siberian or Alpine, though we have some fine American species, and many of the best types of foreign species were hybridized in this country. On the Pacific Coast we have more than a half dozen finest of species, the best of which are native to California. In fact our native species are extremely ornamental and should be freely planted. Why not American plants, American or Californian iris, etc? There are no better ones; why, in view of the European war's embargo may we not supply our own gardens with our own native material and do away with this false standard, based on the mythical values of things brought from foreign lands. When we get down to a proper appreciation of native plants we may perhaps have true California gardens.

Acclimated Plants

In the Eastern states where the climate is severe plants freshly imported from Europe and elsewhere in many instances perish the first winter because they have not become acclimated before being exposed to the exactions of severe cold weather. Plants from Japan and damp climates arriving here in spring do not always pass through our dry summer months unscathed. If they could pass through one summer in the lath house or with some protection and so have made one year's growth under Californian conditions, they will prove successful when planted in the garden.

Country Roadsides

Nearly every roadside is aligned, where planted at all, by a miscellaneous lot of trees, shrubs, and lowlier plants and, it must be said, often with good results. The same planting in the city would not do at all, being out of harmony with the formalism everywhere in evidence. Yet in rural districts all planting should be simple and then it would have dignity. One other point is of even greater importance, and that is cleanliness. If the roadsides are neat and well kept the general effect and impression can scarcely be bad. Natural roadside planting where roads have been run through groups of native shrubs have been the envy of planters for all time. Nature is hard to beat.

Country Gardening

Rural residents should be encouraged to garden by the fact that all plants do better in the free air of the country as against the contaminated air to which all city gardens are subject. Soot and smoke acids, together with other gases, make it impossible to garden in some localities. Near a smelter it has been found that plants were injured at least 20 miles to windward. Therefore the rural resident should take heart and garden extensively and intensively, for the forces of nature are with him, and he is usually beyond the power of mankind to contaminate the air that he and his plants breathe.

Variety of Lilies

Lilies thrive in California when grown in partial shade, on a northern slope, or on the north side of shrubs, fences, or other objects that will keep the soil cool. It makes little difference how much sun shines on the plant; the bulbs do best in a light well-drained soil. Some sand and considerable leaf-mold, decayed sod or other rotted vegetable matter fairly free from animal manures is a splendid medium in which to grow lilies. Of species and varieties of lilies there is no end; a catalog received last week from Japan lists a total of 39.

Garden Fertilizers

Had I fields and garden I would put well-rotted stable manure on the garden, even though it took the full supply, and buy other supply or commercial brands for the field, for animal manures are by all regarded as the best for either flower or vegetable garden. I would not use fresh manures, but at least wait until the process of decay has well started, for the process has to take place somewhere, and strawy manure especially should be reduced in bulk and tempered to a more uniform and less dangerous stage before applying without discrimination to the garden.

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Garden and New Citrus Fruits: Sampson Tangelo, Sweet Lemon, Sweet Lime, Golden Variegated, Ponderosa, Seedless Lemon, Citrus Limonum, (Dwarf Lemon), Thornless, Rangpur and Red Limes, Lue Gim Gong Orange, Nagami Kumquat, Algerian Satsuma Orange, Algerian Tangerine Orange and Citron of Commerce.

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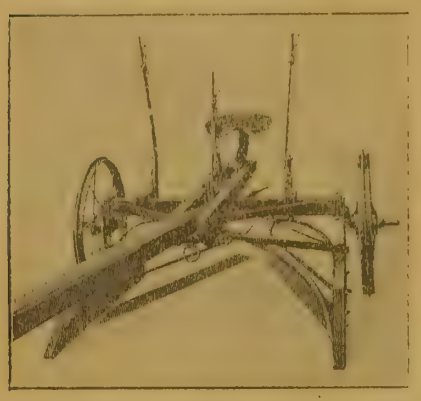
IT SAVES ONE MAN'S TIME, DOES BEST WORK, SOON PAYS FOR ITSELF.



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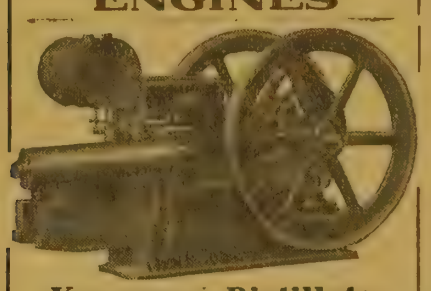

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Foliage Plants

It is not necessary, in order that our gardens may be beautiful, to plant nothing but flowering plants. Flowers do not appear at best except where much foliage is seen. Therefore, in summer at least, use cannas, bananas, gingers, aralias, caladiums, cyperus, papyrus, ornamental corn or maize, bamboos, and grasses large and small, green, striped, and red, also with colored plumes or tassels.

Garden Finish

In gardens filled with good trees and shrubs I have often felt the lack of something—the landscape did not attract, though many of the plants were of themselves of interest, and beautiful. The lack was finish. There were no lowly borders or patches of flowering plants such as one finds at the feet of shrubberies in the canyons and hills. Nature preserves nice balances and therefore harmony is ever present. Man should copy nature and thereby make his home grounds attractive.

Drying Winter Vegetables

MANY kinds of vegetables can be dried and thus made available for use throughout the year. The methods are simple and similar to those used with fruits, and can be applied anywhere in California.

The method described here is suitable for turnips, carrots, beets, potatoes, and other similar root vegetables. This method is given by the division of viticulture of the University of California.

Peel or scrape the roots and cut into slices one-fourth to three-eighths of an inch thick.

Spread on wooden trays. Those used for fruit drying are the best. Any light wooden trays of suitable size can be used. A two-foot by three-foot raisin tray is convenient. They can be made from half inch boards, shakes, or even from old boxes.

Expose the sliced vegetables on the trays to the fumes of burning sulphur. An ordinary "sulphur box" used in drying fruits can be used.

A simple sulphur box can be made of tongue and groove boards or more cheaply of a wooden crate, covered with ordinary tar paper to make it fairly air-tight. The box should have cleats on the inside on which to place the trays, or strips of wood should be placed between the trays. They should be so spaced that there will be about two inches between the trays for the circulation of the sulphur fumes. The box should be open at the bottom and is placed on the ground with the open side down over a hole in which the sulphur is burned. This hole should be about eight or ten inches wide and deep enough to avoid burning the trays—about eight inches.

As soon as the box is filled with trays of the sliced vegetables, the sulphur, in a shallow iron or earthenware pan, is placed in the hole and ignited. The door of the box is then closed. In from 15 to 30 minutes the sulphuring is complete. These vegetables can be dried without sulphuring, but the color, flavor, and keeping qualities are inferior and the drying is slower.

Place the trays in the sun until the vegetables are dry. This will require but two or three days in good weather.

The dried vegetables may be kept in stoneware jars, closed bins or heavy sacks. They should be protected from moths, weevils and other insects. If they become infested, the insects may be killed by heating the dry vegetables in an oven for about five minutes, or by placing them in a tight covered box and allowing a little bisulphid of carbon to evaporate from a saucer placed on top just below the box cover.

Dried vegetables must be soaked in water for 24 hours before being cooked. They can be used for nearly all the purposes of fresh vegetables, but are particularly suitable for soups and stews.

Reports California Potatoes

The assistant truck crop specialist for the state of California reports as follows as to California potato conditions:

"Extra early potatoes in the San Pedro hill region near Los Angeles are 75 per cent harvested. The bulk of the early potatoes around Los Angeles are just beginning to move in a big way, however, the first car being shipped May 8. By the 15th it is expected that the crop will be moving rapidly and shipments will continue to be heavy for several weeks. The crop is turning out much better than was expected in view of the unfavorable weather conditions. In spite of frosts and shortage of rainfall, the production is said to be heavy.

"In the Colma district of San Mateo County, which is one of the early sections in this part of the state, the potatoes are showing up well both in quality and in yield. The potatoes grown are the Garnets, and as they were not frosted this year the condition of the crop is excellent.

"The Alameda County potatoes on the market this year are running larger in size than last year and are producing a correspondingly larger yield. Due to a shortage of late rains the small tubers ripened before they had attained much size. But this year no such difficulty has been experienced.

"These potatoes are usually on the market during March, April and May. This year they have been about one month late and were particularly late in the Santa Clara Valley.

"The potatoes in Imperial Valley produced an enormous vine growth but no information has been secured on the final yield of the crop."

California harvests about 4.5 per cent of its crop in January, .6 per cent in February, .4 per cent in March, 1.2 per cent in April, 12.3 per cent in May, 27.3 per cent in June 12.7 per cent in July. Less than half of our output comes from the fall crop.

CULTURE NOTES

Conserve the moisture in the soil for the use of the growing plants by keeping a fine surface tilth on your land. This can best be secured by frequent harrowing with a light tooth harrow. Do not be afraid to harrow your grain crops after they are up. A light harrow will do no harm, but will help to keep your soil in good tilth and kill weeds starting amongst your crops.

Riverside County is lining up for a county fair.

ASPARAGUS IN CALIFORNIA

The assistant truck crop specialist of the bureau of crop estimates, United States department of agriculture, for the Pacific Coast states, reports on the asparagus situation in California as follows:

Condition

The condition of asparagus on the Sacramento and San Joaquin deltas May 1 was 95 per cent of normal. While the yield to date has been below normal for the season it is expected that there will be an average crop. The size of grass has been very good.

Growing Season

The first part of the growing season was very unfavorable on account of low temperatures. The season opened late and grass came on very slowly, depriving the shippers of their usual portion and bringing on a larger part of the crop than usual after the canneries opened. The daily cuttings have varied extremely. A few days of warm weather brought on the crop so rapidly that canneries were obliged to put it into cold storage until it could be handled. At time of writing it is coming very slowly again.

Labor and Production

Shortage of labor has been felt severely and some of the growers have not been able to keep their entire acreage cut during days of heavy cutting.

Percentage of Crop Delivered to Canneries

It is estimated that 66 2-3 per cent of the asparagus grown is handled by the canneries. This year the percentage handled by the canneries will exceed the average quantity. There has been a yearly increase in the number of cans packed.

Acreage of Asparagus

The estimate of asparagus in the central part of California is as follows: Sacramento County in 1916 12,530, in 1917 18,480; Contra Costa County in 1916, 3040 and in 1917 3630; San Joaquin County in 1916 525, and in 1917 600; scattering counties in 1916 500, and in 1917 500, or a total for the two years of 17,595 and 23,210 acres.

HOW TO PREPARE SEED FROM THE EARLY CROP OF POTATOES

By William Wood, Los Angeles County Horticultural Commissioner

If seed from the present crop is to be used the potatoes should be allowed to remain in the ground until matured enough so that the skin will not break or slip when rubbed together. Then sort out the best shaped and smoothest potatoes (including the small ones if they are a good shape and an inch in diameter) and spread the ones that are to be used for seed so that they will be exposed to the weather, under trees, or where they will be partly shaded from the hot sun. The effect of the weather exposure will be to hasten the maturity, and the buds or sprouts will develop within a month. If the potatoes are treated in this way they will start to grow evenly and a good stand should be the result. None but early varieties should be planted after July 15. I would advise not to plant potatoes that were immature or dug when the skin would slip. If the new crop of potatoes is to be used for seed they should be exposed for a month to the weather.

The Japanese Farmers' Association of Imperial Valley reports 13,232 acres in cantaloupes.

Canning Fruits Without Sugar

SUGAR used in canning or bottling fruit is for the purpose of improving the flavor and is not necessary for preservation. The division of viticulture of the University of California gives the following directions for canning without sugar:

Fruit of any kind suitable for canning may be preserved without any sugar. When the fruit is consumed, the sugar can be added exactly as is done with fresh fruit. If the fruit when canned is thoroughly ripe it may be consumed without this addition of sugar and is sweet enough for many tastes.

The ordinary methods of home canning are used. These are the "cold pack" and "hot pack" methods.

For the former the fruit is washed, peeled, pitted or cored as needed and packed tight in clean, scalded cans or jars. Water is then added, boiling in the case of cans, and as hot as possible without cracking the glass in the case of jars. Scalded caps or covers and rubbers are then put in place loosely and the filled cans heated in a vessel of boiling water for 20 to 40 minutes. An ordinary wash boiler furnished with a wire screen or a wooden grating on which to place the jars is suitable for this purpose. The boiler should contain enough water to rise about half way up the sides of the jars.

While still at the boiling temperature the jars or cans are removed, sealed and placed to cool, lying horizontally or upside down.

For the "hot pack" method the prepared fruit is placed in a large pot on the stove with a little water to prevent burning. After heating to the boiling point and cooking until the fruit is tender and some of the juice has exuded, it is poured into the cans or heated jars by means of a wire or perforated ladle and a wide funnel. Sufficient juice from the pot is then added just to cover the fruit and the cans or jars sealed. These are then heated in the boiler for about 20 minutes. For a second batch of the same fruit the juice remaining in the pot should be used instead of water for the preliminary cooking.

With some fruits there will be an excess of juice. This can be used in the canning of other kinds of fruit or for making blended jams, marmalades or jellies. In cases where there is not sufficient juice to cover the fruit when placed in the jars sufficient hot water may be added for this purpose.

Pacific Coast Nurserymen

The 15th annual meeting of the Pacific Coast Association of Nurserymen will be held at Tacoma, Washington, July 11-13.

The executive committee has proposed a program which includes the subjects of; "A Landscape Department in the Nurseries"; "Laws Governing Street and Wayside Plantings"; "Grades, Terms and Prices"; and "A Packing Standard" to be given careful consideration and subject to any action deemed best. The educational topics will include "Rose Propagation"; "Nut Tree Production"; "Coast Grown Seedlings"; "Selling Methods"; "Pear Blight" and "Inspection Problems." The reports of vice presidents, officers and committees will contain valuable information.

At the close of the meeting it is proposed for those who desire to make up an excursion for a visit to Paradise Valley, in the Rainier National Park.

Citrus By-products Service Inaugurated

That the United States Department of Agriculture is aiming to aid California citrus growers is shown by the following announcement which it is now sending out:

"A new service, designed to bring manufacturers of citrus by-products in touch with consumers, has been inaugurated by the citrus by-products laboratory, bureau of chemistry, United States department of agriculture, located at 142 South Anderson Street, Los Angeles. On the producing end this laboratory is in touch with firms in California which can supply citric acid, citrate of lime, essential oils, candied and dried citrus peel, flavoring products and vinegar.

Firms who purchase by-products are requested to list their names and needs with this laboratory. Names and addresses of prospective purchasers will be communicated to the producers and offers from the producers will be supplied to those listed as purchasers.

California Ahead

Mr. H. L. Musser of Aggeler & Musser, writes: "It may be a matter of general interest to the public to learn through your columns the comparative yields of the various grain sorghums. This table is copied from United States Bulletin No. 278 on Grain Sorghums, but we have broken the record in California:

	1913	1914	1915	1916	Ave.
Dwarf Milo	2605	4450	5031	2214	3575
Standard Milo	1492	3480	4830	2362	3041
Feterita	3164	2380	3139	1953	2909
White Kafir	1400	1533	1092		1342
Red Kafir	128	1250	1434	315	782
Shallu		4200	4609	1816	3542

"Mr. W. W. Flicker, Tulare County, advises us that his field of dwarf milo yielded on an average more than 6000 pounds per acre. Dwarf milo is growing more popular each year; its dwarf habit is of great advantage and in other respects it is very satisfactory. It is more easily harvested; it is desirable to plant in young orchards. The tall sorghums shade the tree very much to their detriment, but the dwarf milo does not shade or injure the trees when they are young."

NEW MEALY BUG PARASITE COMING.—PROVED VERY EFFECTIVE IN THE ISLANDS

The insectary division of the state commission of horticulture reports the receipt of a colony of a new species of mealy bug parasite from the Hawaiian Sugar Planters' Station of Honolulu. This parasite is said to be very effective in the islands against the mealy bug pest, and it will be bred at the Southern California branch insectary at Alhambra for placing in the infested citrus groves. The name of this parasite is Pauridia peregrinia Timberlake.

Orchard Heater Test

Citrus growers will be interested in the test of fire fighting appliances to be made in Pomona Tuesday, Wednesday and Thursday nights of next week, June 12, 13 and 14.

IRRIGATION OF RICE

"Irrigation of Rice in California," written by Ralph D. Robertson, Irrigation Engineer, Irrigation Investigations, Office of Public Roads and Rural Engineering, U. S. D. A., is published by the University of California as bulletin No. 279. It is a report of a series of investigations covering several years and touches such practical questions as the preparation of the land, laying of the contours, methods of throwing up levels or checks, construction of gates, discussion of the duty of water, the problem of drainage, the depth of water which gives greatest returns, and many other questions most practical and of interest to every rice grower. Write the University of California, Berkeley, for the bulletin.

"Lost, strayed, stolen, sidetracked, ditched, derailed, detained, abandoned or otherwise missing or restrained —one San Joaquin Valley summer." —Modesto Herald.

Lindsay will have another olive plant. It will be constructed by the California Olive Growers' Association.

Manager Niswander of the Peach Growers' Association says that packers will not suffer from the alleged shortage of tin.

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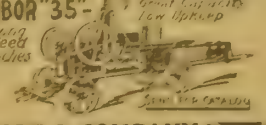

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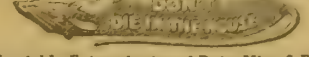

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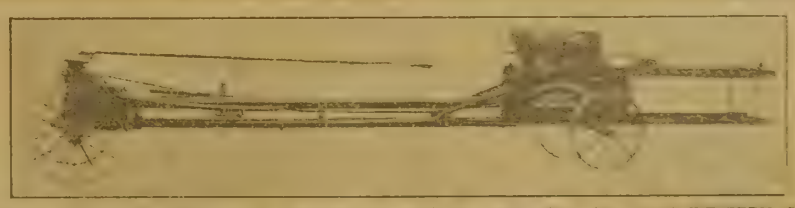

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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Chicks Dying

Two and a half months old chicks stop eating and fall over as if they were partially paralyzed and die. No diarrhea. Feed chick feed and mash. They have fresh water all the time, also charcoal and grit. Run on alfalfa. No mites or lice. Had another hatch at the same time, fed them hard boiled eggs and rolled oats, kept them away from the others and some of them died. They are all on different ground from the old chickens. Have given them few doses of tobacco juice, thinking it might be worms, but find no improvement.—Subscriber, Clovis.

It looks as if something had poisoned these chicks. I wonder what disinfectant you have been using in your brooder and what time of the day you used it. If the chicks were shut up at night in a brooder that had been disinfected late in the afternoon with a strong carbolic disinfectant the fumes might poison them, but in this case they would show the effects of the poisoning early in the morning. Spoiled meat or beef scrap or moldy mash or chick feed might have the same effect. If the chicks are on range, they may have found a dead animal or chicken. It is up to you to find the cause and femove it. Examine their feed very carefully. In such damp weather as we have had this spring any feed that gets wet is almost sure to mold and that quickly. From the fact that so many chicks in different flocks have died the same way I feel quite sure the trouble is in the regular feed rather than the disinfectant or something they have picked up. It might be well to try buying your own ground grain and beef scrap and mixing your mash yourself. Prepared mashes are usually reliable, but one is not quite as sure of the quality of the beef scrap. Better let the tobacco alone. If there are worms you will see them in the droppings. The only treatment for the sick chicks is a good dose of castor oil or Epsom salts. This is most easily given in a little moist mash. If the chicks will not eat you can pour the oil down their throats, a scant teaspoon for each.—J. A. K.

Turkeys With Colds

Would like to know what is trouble with my little turkeys. Their eyes seem watery and I don't want them to be sick. Otherwise they seem all right.—Subscriber, Poway.

The article on "The Care and Feeding of Young Turkeys" in the Cultivator of June 2 will tell you what you wish to know, I think. Your turkeys are taking cold, but as I am not told where they sleep or what kind of ground they run on I cannot tell you just what the cause is. It may be they have not fresh air at night or that their coop is drafty or that they are sleeping on the ground instead of having a board floor under their feet, or that they were out in the rain some time, or that there are so many with one mother that she cannot hover them well. Young poults must be warm, and they must be dry, but they must have fresh air and good clean green range.—J. A. K.

Elderberries

What medicinal properties are contained in wild elderberries and what good use can they be put to?—Subscriber, Somis.

We know of none, that is, as to the berries. We note in Jepson's "Silva of California", regarding the common blue elderberry, which ranges from Washington to Southern California, the brewed bark is a folk remedy for dropsy, while the flowers are steeped as a favorite remedy by the native tribes of Southern California." So far as we know there is no commercial preparation from the elderberry. We may be permitted to remark, however, that the old time elderberry of the Middle West, which is a different member of this same family, has most agreeable medicinal qualities when made up into a good old time, home made pie and eaten for breakfast.

Bugs in Beans

Please advise method of treatment for pink and navy beans to prevent infestation by bugs. — Subscriber, Orange.

"Bugs" is a very indefinite term and we are not certain just what our subscriber refers to. If it is weevil, which lives within the bean, there is practically no method of control while the beans are growing. However, the infestation at this time is generally so slight as to be of little consequence. After the beans are gathered if they are subjected to the fumes of carbon bisulphide—one pint to 1000 cubic feet—in a tight room, bin or box, this will effectively destroy all weevil, but the beans must be afterward stored in insect proof warehouse or container to prevent further infestations. Use care in bringing a light near the fumes of the bisulphide, which is very explosive.

Fruit Trees from Seed

What kind of fruit trees can be grown from seed to bear fruit without budding or grafting?—Subscriber, Somis.

As to producing a fruit-bearing tree, almost every kind of fruit may be grown from seed, but as to growing a desirable variety of fruit, one for which there is a sure market, the only way is to graft the seedling over to fruits of known quality. There are practically none of our tree fruits which will produce a seedling equal to the parent tree. On the other hand, there are instances—possibly one in a thousand, where superior fruit may be produced.

Lightening 'Dobe

What is the best thing to lighten heavy adobe soil? Will coal ashes benefit?—Subscriber, Somis.

Yes, coal ashes would be excellent. Common sand is good. Straw, stalks or any coarse strawy manure or vegetable matter of any kind spread or plowed in are beneficial. With these might be used 1000 to 2000 pounds of air-slaked lime per acre, or ground unburnt lime rock.

Drinking Water

What is a good thing to take alkali out of drinking water?—Subscriber, Somis.

We believe there is no chemical which may be added to correct this alkalinity and still leave the water palatable and healthful. The only process we know of is that of distillation. The United States Department of Agriculture, Washington, D. C., has issued Bulletin No. 57,

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"Water Supply, Plumbing and Sewage Disposal for Country Homes," and in that is given a diagram for economical form of still. In referring to it the bulletin says: "Sometimes a simple still can be conveniently used on a kitchen range to provide distilled water for drinking purposes." The saline (alkali) waters are satisfactorily treated in this way.

Planting Chard

A subscriber in Los Angeles County writes that having had trouble in former years with chard going to seed she is now having better success in following the recommendation of an old German farmer who told her to "plant and re-plant when the moon was in the sign of the heart, represented by the lion." Those who "plant in the moon" may find this information of value, but the department of agriculture has generally advised to plant as early in the season as ground and weather permit without regard to signs.

Whitewashing Tree Trunks

I am contemplating whitewashing trunks of young prune trees with whitewash composed of two pounds salt, four pounds tallow and six pounds lime. Would this prove injurious to two-year-old trees in excluding the air from the bark or would the salt in any way affect the trees?—Subscriber, Calistoga.

We believe the whitewash referred to would only prove beneficial. However, one may secure protection from the sun by shading the southwest side of the tree with shake, board or even wrapping with newspapers or, even better, the tree protectors supplied by different manufacturers have proved very successful.

Windmill Lift

Please advise if a windmill of any kind will lift water from a bored well 220 feet deep? The water rises to about 60 feet of the top. The hole is six inches in diameter.—Subscriber, Sacramento County.

Any of the windmills in common use will lift water from the well described and in addition will lift it to a tank placed as tanks are ordinarily placed on farms. If a small wind wheel is used a smaller pump cylinder must be used, but an eight-foot wheel will handle a 2½-inch diameter cylinder having an eight-inch stroke if the prevailing winds have a velocity averaging ten miles per hour.—J. B. N.

Loss of Weight in Stack

Please inform me regarding the loss of weight of barley hay in going through the sweat in the stack? Most of the farmers in this section bale the barley from the field without stacking.—Subscriber, Highlands.

We will pass this question on to our subscribers. How much is the loss from stacking? We would suppose so far as the weight is concerned the loss would be very slight. Of course a greater amount of labor would be required than where the hay was bucked directly to the baler from the field.

Planting Beans

Will pink beans planted now on barley land mature by the middle of November, or before the frosts usually come in this section?—Subscriber, Highlands.

There is plenty of time to secure a good crop of beans. The main factor is heavy irrigation of land to put the ground in best condition before the seed is planted.

Hilling Potatoes

In cultivating potatoes where irrigation is necessary is it better to hill or leave level?—Subscriber, Banner.

We would by all means hill them, and partly for the reason that hilling gives better protection from the tuber moth.

Morning Glory

I enclose vine with blossom which is proving a serious pest in this section. What is it?—Subscriber, El Monte.

This is wild morning glory and, as the subscriber suggests, it is a serious pest, the best remedy for which is a good sharp cultivator or weed cutter. Make it a duty every week to go over the infested spots and use care not to drag particles of the roots to other sections of the orchard.

Sowing Alfalfa

We have four acres under irrigation. Can alfalfa be profitably sown next month or would it be better to wait until spring?—Subscriber, Chittenden.

If the season remains as cool as it has been to date it is possible that in a section like Santa Cruz County alfalfa could be sown in July. We believe we would prefer, however, to irrigate the ground as soon as possession could be had of it, plant to milo or some summer growing crop which would produce grain or feed for live stock, then sow alfalfa in the fall, or if the summer grown crop is not off in time then secure early planting of alfalfa in the spring.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.
Unsigned communications receive no attention.

Calves Dying

A few days ago I lost a calf about six weeks old that was sucking a heifer and was in fine condition. It was all right in the morning but was taken sick during the day. The ears got cold and it stood around for a time, then laid down and soon commenced breathing hard and groaning. It died about eight o'clock that evening. The next day we burned it. A couple of days ago I lost another one about three months old with nearly the same symptoms, except that it lived longer, was not quite so sick and seemed to choke when it died. Opening it we found the first stomach hard and filled with dry stuff. The next stomach was empty. This calf was fed milk and ran in the pasture with other stock. What do you think was wrong with them?—Subscriber, LeGrand.

The symptoms would indicate some kind of poison. Possibly a weed in the hay or pasture. With this suggestion you may be able to locate the trouble yourself.

Castrating Hogs

In cutting hogs I frequently have tumors form in those parts when they heal. It seems sometimes that when I am the most careful to disinfect and keep the parts clean during the healing period that I have the most trouble. Is there anything in the signs of the moon to cause this? I have never given it any consideration but can not understand why I have the trouble. I usually keep them on a cement floor while they are healing and keep the floor clean.—Subscriber, Owensmouth.

Nobody has ever been able to prove that the moon has any influence over the healing of wounds. The first pig I ever castrated was my own. My neighbor heard him squeal and, consulting his almanac, he hastened over to tell me that the sign was dead wrong and the pig was sure to die, but he never missed a meal and made a fine porker. Your trouble may be due to one of two things. You may cut the gash in the skin too high and leave a pocket for serum to gather in, or you may leave the cord too long. Cut the pocket clear out at the bottom and pull the cord out until it nearly snaps before cutting it off and you will have no more trouble.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.
Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.
Unsigned communications receive no attention.

Property of Husband and Wife

If a married couple have no children who are the husband's and wife's legal heirs?—Subscriber.

If the decedent leaves no issue, the estate goes one-half to the surviving husband or wife and the other half to the father or mother in equal shares, and if either is dead the whole of said half goes to the other. If there is no father or mother, then one-half goes in equal shares to the brothers and sisters of decedent and to the children or grandchildren of any deceased brother or sister by right of representation. The above applies to the separate property of the spouse. Upon the death of the wife all community property goes to the husband without administration; upon the death of the husband one-half of the community property goes to the wife and the remaining one-half is distributed as above described for the separate property.

CAMP FIRES MUST BE EXTINGUISHED

The first arrest reported this season for leaving a camp fire burning on a national forest was made by a forest ranger at Hemet on the Cleveland national forest. A camper from Los Angeles entered a plea of guilty before a justice of the peace at Hemet to the charge of leaving a camp fire burning and was fined $50 or 50 days in jail. Since this was his first offense the sentence was suspended and he was allowed to go on probation. The Hemet Valley derives its supply of water from large watersheds within the Cleveland national forest, and an unextinguished camp fire might result in a noticeable decrease of the now plenteous water supply, by destroying many acres of brush and woods.

Those found guilty of causing fires in the national forests this summer will be prosecuted to the fullest extent of the law. The damage done by fires to the much needed forage of the forests is often more than the damage done to the timber or stream flow, and this season every acre of forage is needed for the stock which have been crowded on to the national forests in the campaign to increase the nation's meat supply.

The much dreaded forest fire season may be later in starting this year than usual since reports from the supervisors of the 18 national forests in California all emphasize the unusually damp and cool weather.

NEXT ORANGE SHOW

The California citrus growers are getting ready for the 1918 National Orange Show which will be the eighth annual to be held in San Bernardino. The dates chosen are February 20-28.

It is nothing unusual for Norwalks to give as high as 20,000 miles of perfect service, and few fall less than the 10,000 mark. Immediate deliveries made in all sizes.
Write for price list.

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Against the ravages of fungous disease and insect pests with the

SPARK SULPHUR MACHINE

Sublimed Flowers of Sulphur and powdered arsenate of lead —used in the SPARK SULPHUR MACHINE eradicates red spider on bean vines.

Thoroughly coats plants, bushes, trees and vines with the dry chemical—acknowledged by commercial growers and authorities on insecticides and fungicides to be the most effective method.

Send for free booklet just published. It contains the latest information on dry spraying and the SPARK SULPHUR MACHINE.

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Raise More Corn and Less Water

IT sometimes becomes necessary to do heavy work, such as hauling water to put out fire, but what's the use of hauling water from the cornfields to the feed lot, and hauling it back again to the fields in the shape of uneaten cornstalks? Very tall-growing corn when sappy and immature is almost all water and so is wet cornstalk manure.

It used to be that many growers prided themselves on the great height of their cornstalks. The more successful farmers, however, have ceased to haul water from the cornfields to the feed lot in the form of coarse stalks which remain uneaten and haul it back to the fields in the shape of wet cornstalk manure. They do not grow such tall stalks and often profitably allow animals to gather the grain, leaving the stalks in the fields to enrich the soil.

A few years ago silage was thought to have a fixed food value. One cannot take out of the soil any more food value than is put in. Hauling and siloing large sappy stalks is heavy work and not as profitable as putting a good, almost mature corn crop into the silo. A somewhat larger and later maturing variety of corn that will thoroughly mature for grain can be used in the northern states for ensilage. Even silage corn should be planted early and given sufficient time to make its best growth and reach the stage of maturity at which husks turn brown and the ears become glazed.

A cooperator in the Department's corn work grows a high-yielding variety of corn, the stalks of which reach a height of about six feet, while his neighbor grows a big, 12-foot variety. In helping each other shred their crops, the neighbor's tall-growing corn was shredded first. The stalks were bulky and high loads were hauled from the fields to the shredder. When beginning the shredding of the competitor's corn, which that year produced over 100 bushels of dry shelled corn per acre, the neighbor put on the accustomed high load, and his team could not pull it out of the field. He got down off the load to make an examination, thinking the rack must be pressing against the wheels. The competitor told him he would have to take off a part of the load, to which he replied that he did not have on a big load and was accustomed to hauling larger loads. After being convinced that it was the weight of the load that stalled his team, they removed a portion and hauled the balance to the shredder, from which they obtained 40 bushels of corn, or almost a ton and a half of ears.

What variety of corn should you plant? Since there are thousands of so-called varieties, it is not possible to designate by name the variety you should plant. Furthermore, with corn, there is very little in a name. Two lots of seed of the Leaming variety sometimes differ from each other more than two varieties differ from one another. An accurate test of two different lots of the Boone County White variety resulted in one lot producing 18 bushels more per acre than the other lot. Quality is what counts and the varietal name does not designate quality. Plant a variety that has made good in your neighborhood. Plant seed which was grown in your part of the state and was properly field selected and properly cared for during the winter.

Overhaul Your Own Car

"Before beginning the overhauling of the car," says Wayne Higgins in the National Stockman and Farmer, "it is a very good idea to provide a liberal quantity of the following: Gasoline, motor oil, kerosene, cup grease, transmission greases, cotter pins, assorted nuts and washers and a complete tool kit, all of which can be found at any good supply house at reasonable terms.

"Beginning at the front of the car at the wheels they should be removed and both sets of bearings and spindles thoroughly washed with gasoline and wiped dry with waste. If worn they should be adjusted, repacked with a good grade of medium grease and replaced, being sure to get the locknut in position, also the cotter pin, using a new one if necessary. Next the springs should be separated and a thin layer of graphite placed between leaves, to give resiliency and prevent squeaking.

"Next we will go to the motor. If the car has not been run over five to ten thousand miles it will not be necessary to take it down. However, if the flywheel shows play when grasping it and trying to rock it sideways the cylinder block should be removed and the bearings tightened by removing one or more of the thin shims and retightening the nuts. The crank case and oil reservoir should be drained and thoroughly washed out with kerosene or gasoline. The cylinder head, combustion chamber, etc., should be thoroughly scraped to remove all carbon deposits, the valves ground in till a thorough seat is secured. Put new oil in crank case.

"The radiator and water cooling systems should be inspected. If radiator leaks it may be soldered, or if slight leaks occur in the tubes it may be repaired by using some of the many preparations on the market.

"The universal joints, transmissions, differential, etc., should be washed out with gasoline and repacked with new grease. The wiring of the car should be thoroughly gone over and repaired if any breaks occur. The brushes on the commutator of the generator and starter motor should be replaced if badly worn. The commutator should be brightened by pressing a piece of emery cloth on it while running. The connecting terminals on the storage battery should be brightened before connecting to the system or it will not operate the starter properly. Do not forget to add distilled water regularly to the battery.

"If any new parts are needed do not fail to order them now, as when the season is in full blast and you are very busy with other things you do not want to lose a week, or so long as it takes to get and install a new piece on your car. The things most likely to need replacing are tires, gum hose for radiator, fan belt, demountable rim lugs, carbon brushes for generator, links for speedometer chain, fiber pinions for same, dry cells, spark plugs, steering gear bearings, bushings, electric light bulbs, etc.

"The gasoline tank and line should be inspected to see that there are no leaks. Have the car thoroughly washed and if the paint is good have it given a coat of good varnish. Brighten up the seats and top with a coat of seat and top dressing, let these thoroughly dry and set, and your car will run and look as well as ever."

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At the bottom of your letter to advertisers just say "California Cultivator" and prompt reply is assured.

Are Prices High?

An Eastern writer has written the following regarding the purchasing power of some products. Possibly slightly overdrawn but in it is a suggestion that this is a time for producing to the limit of the things the world wants. Buy more labor saving implements, more fertilizer and feed the world.

At prices of a year ago it would have taken 50 bushels of wheat to buy a liberty bond; today one can be bought for 25 bushels.

Last year a farmer could build a silo for the price of 800 bushels of corn; today he can build the same one for the price of 400 bushels.

Last year it cost a community the price of 16,000 bushels of wheat to build a mile of permanent highway; today a mile can be built for 8000 bushels.

Last year a farmer had to raise a thousand bushels of wheat to buy the tractor with which to till his field; this year he can buy two tractors for the same amount.

Everybody should buy a liberty bond.

Was there ever a more favorable time to build a silo, to buy a tractor, to build permanent highways?

Now is the time to exchange your farm produce for these necessities.

By doing this capital will be created and placed in circulation. Prosperity will be stimulated, labor kept employed at good wages. The dollar will be kept rolling and more of our citizens enabled to perform their patriotic duty to buy liberty bonds.

Let us keep on making, selling, transporting and building.

Lessen the Fire Loss

By Coert Du Bois, District Forester

Never in the history of our country has there been a more urgent need for fire prevention than at present. Twenty-five million dollars is the average annual loss in the United States in mature timber from forest fires. Add to this the loss of private property, grain in the field, foothill range, mountain forage, and productive labor used in fire fighting, and the total might well become a serious factor in the present emergency.

California's share of this loss must be reduced to the minimum this summer. Every sack of wheat, every acre of stubble or mountain range, and every hour of labor must be put to war use. The man who is careless with burning matches or tobacco or who leaves a campfire burning may not realize it but the results of his carelessness may give aid and comfort to the enemy.

* * *

To the above Benj. Ide Wheeler, chairman of the committee on resources and food supply of the state council of defense adds:

"At this serious time every patriotic citizen has two distinct responsibilities, the prevention of waste and a contribution to the increase in the food supply. Here is a way in which everyone can help meet both:

"Fires in the forests, the grass and brush lands, and the grain fields, such as occur annually in our California dry season, cause a loss of grain, of forage for cattle and sheep, and of wood and timber. We have become used to such fires and take them too much for granted. This year any fire burning uncontrolled means a loss in resources, money, and labor that are needed for building ships, feeding people and live stock, and planting and harvesting our crops.

"The cooperation of very loyal citizen is urgently requested, both in the matter of scrupulous care with fire in the open and in urging care on others."

A new grain warehouse is being erected at Dallas, Oregon, by the Farmers' Union.

A LIVE FARM BUREAU

By Jas. Little

We have a real live bureau of 140 members here at Wasco. We started the first farm center auction sale in the state. Haye had four sales in four months which have brought the ranchers between $7000 and $11,000 each sale. Top hogs today brought $14.05 per hundred, all bought by a San Francisco firm today. Horses, cattle and machinery brought good prices. Our own local auctioneer, O. S. Grant, made a great hit (as it was his first sale here at home). We have our own stock scales just installed. Have a purchasing committee which buys such stuff as feed, seeds, cement, posts, wire, etc., in carlots at a great saving to the ranchers. We have our own farm center brand, the only one of its kind in the state, and a dandy, too.

ALL BELLIGERENTS REPRESENTED

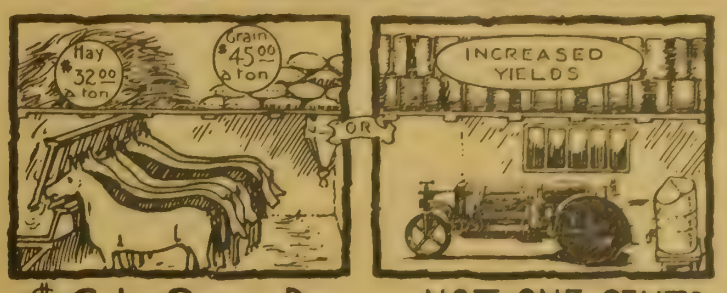
Customer: "I would like an order of German frankforts, a cup of English breakfast tea and two French rolls."

Waiter (to the cook): "One war on a tray."

Customer: "Please add two doughnuts to my order."

Waiter: "Throw in a couple of U-boats."

Which?



$ 6. to 8. PER Day NOT ONE CENT!

During the Summer

the Samson Sieve-Grip Model S-25 can save you from $6 to $8 every day it does not work!

The number of horses replaced by this tractor would cost that much to feed every day, whether working or not.

Start making this saving RIGHT NOW by using a

SAMSON SIEVE-GRIP

Reg & Pat U S. & Foreign Countries

For stationary work the motor delivers its power straight to the belt-pulley—not a gear in motion.

Ask us how a Samson Sieve-Grip can benefit you—we'll send the catalog and "Samson Siftings" with our answer

Two Sizes---Models S-25 and R-12

SAMSON SIEVE-GRIP TRACTOR CO., Stockton, California.

END the Morning Glory PEST with *Nonpareil*

"We have given Nonpareil a very good trial and find that it destroys not only morning glory but also horse radish. We consider it a thoroughly satisfactory weed exterminator."
—Luther Burbank.

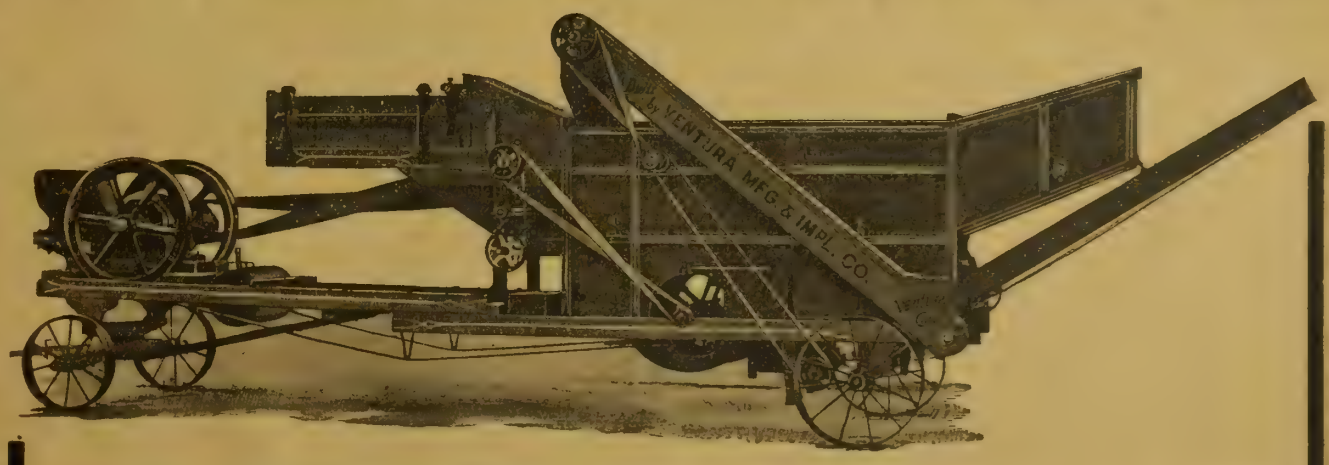
If you want full profits from your crops you should use Nonpareil. It is easy to apply and economical to use—one gallon is sufficient to kill 250 plants. It does not injure the ground but acts as a tonic. It is the most successful weed killer known. Write today for interesting folder.

WHEELER REYNOLDS & STAUFFER

626 California Street San Francisco, Cal.

The advertisers in the California Cultivator are known to be reliable and we recommend them to our many subscribers.

Every Bean Farmer is Interested in this



There was a time when the bean growers of California tramped out their valuable bean crop on a threshing floor. Through years of patient toiling and the application of scientific principles William Hamilton, mechanic and inventor, patented and manufactured the Ventura Bean Thresher. The production of this machine has been to the bean industry what the reaper was to wheat. For twenty-one years our threshers have given universally satisfactory service. Beginning with one machine we now offer six sizes.

The Ventura Bean Thresher Junior No. 2

is now offered for the farmer who desires to do his own work in his own time. The Junior No. 2 also is large enough for a neighborhood thresher to supply the needs of several farmers with relatively small bean acreage who may be unable to wait for service from the big machines. The Junior No. 2 is the best machine in the various types now on the market. It has its own power (also without power), is substantially built, and has all the successful construction that has made our larger machines supreme in the bean threshing line. The price is within the reach of all bean farmers. It can be operated with a minimum of ten men and possessing a thresher like this you can thresh when the best opportunity is offered. Capacity 150 to 300 sacks per day. You cannot afford to take chances on bean crop losses when prices are so good when you can save your crop with a machine like this. There is a greatly increased bean acreage this year and a shortage of materials. Orders will be filled in the order received. **Place your order early or you will be disappointed.**

Ask your nearest dealer or write to us about it now. Free catalogue on request. We manufacture a full line of bean and beet tools.

THE VENTURA IMPLEMENT AND MANUFACTURING COMPANY - Ventura, California

Established 1888. Twenty-eighth Year

The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, June 9, 1917

OUR ADVERTISERS RELIABLE

We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Next Thursday, June 14, is the anniversary of the official adoption of the United States flag, the date being June 14, 1777, the first flag having 13 stripes and 13 stars in the union. The stripes remain as in the original flag, but the stars have been increased year by year until there are now 48.

Preceding this flag were many designs, each of the original 13 states having its own emblem. Who designed the one which was finally accepted it is impossible to say, in fact, it is more of a growth than a creation by any one. It is worthy of an anniversary day, and for several years June 14 has been observed. The observation of the day will doubtless be more general this year than any preceding year.

PEACHES

The Eastern peach crop promises a light output this year. It was a hard winter and California will be called upon for what now appears to be an exceptionally large crop. It is perhaps late for thinning, but every effort should be made to make this crop one of exceptional quality. The Associated has the business end of the situation well in hand, and every peach grower should anticipate and plan for a most prosperous year.

PAY FEDERAL TAXES

The commissioner of internal revenue calls attention to the great drain upon the federal treasury at this moment and urges prompt payment of taxes. These may not be due for some weeks and the commissioner has no power under the law to make any rebates or discounts on such anticipated payments, but hopes that in view of the conditions a large response may be given to the request for these early payments.

LEARNING THE ORANGE

Several sales agents of the California Fruit Growers' Exchange are in California studying how oranges are made, how they are harvested and packed, and how they are shipped in dozens of train loads every day. They have been selling to Eastern consumers a fruit which to them is more or less strange in its way of growing and its time of harvesting. They can talk to customers more intelligently after they have met the people who are doing the growing, the packing and the handling of this, California's greatest industry.

COOPERATE

Many who become members of cooperative organizations look at the organization much as some people look at our government, that is, as something apart from themselves. This class of people feel that the state or federal governments are external organizations which should give of their great wealth to the less fortunate of the people. As one has said: "He fools himself (but no one else) who expects to work in a cooperative society and not give as well as receive." Ignoring the law of cooperation is wherein many organizations and their members have failed.

GROW CHICKENS

With wheat at six cents a pound the poultryman is looking at life as "simply one thing after another", and asking where the next meal is coming from. Fortunately prices for poultry products have been slightly higher than preceding years, but even then the shrewdest buying has been necessary to keep his business going. Males have been marketed as soon as they could be dispensed with; as summer time approaches the layers are being sent to market in immense quantities; but the wise poultryman will bear in mind future needs and future opportunities and keep the stock for a time when feed may be had at more reasonable prices. There will be no low prices of any cereals for the next 12 months, but we trust the prices will be such that the poultryman may at least have some opportunity for profit.

Meantime grow sorghum grains and plan for a big "crop" of poultry to meet the country's demand for more food.

FROST FIGHTING

Pomona is awake in the frost fighting investigations. Preparedness is her slogan and she wishes her preparation to be not only effective and economical but as devoid of objectionable features as possible. Hence "frost fighting tests", "smudge pots", gas heaters, electric heaters, every kind of heater is to be given practical orchard test during next week.

It's six months till possible frost time but the citrus growers need every moment.

The Chamber of Commerce of Pomona is the moving body in this preparation. The dates set for the test are the nights of Tuesday, Wednesday and Thursday of next week, June 12, 13 and 14. The test will be in an orchard on San Antonio Avenue near Holt.

C. N. Burton is chairman of the committee having matter in charge and announces that a practical working test of the various heaters will be made. About 20 types of heaters will be tested and several hundred will enter. "More heat and less smoke" will be the slogan.

MY FLAG

Observe the fifth word in the flag salute on the cover of this issue of the Cultivator. "Our" Flag is good, but "My" Flag, in the most generally observed flag salute is still better; it indicates a more personal relationship.

But let not this personal feeling lessen our reverence. We have seen some uses of the flag which must have a tendency to lower respect for it. Its use in advertising and attracting attention for selfish reasons has been taboo for some time so that it is little used in this way now, and it is a satisfaction to see the general use in homes, on flag poles and on autos.

In this latter use, however, we have seen a case which is worthy of criticism, we believe. We noted one machine with four flags, three, perhaps entirely properly used, on the front, and one attached to the rear axle, hanging almost to the ground, dusty, with an occasional oil spot and splash of mud. It was a most sorry sight. We think the intention of the driver was to honor his flag, but the position in which he placed it was not so taken by observers.

Let us display our flag in every place of honor.

BOUGHT YOUR BOND?

France with a population of 39,000,000 and a total wealth of $60,000,000,000, and Germany with a population of 68,000,000 and a total wealth of $103,000,000,000 and Great Britain with a population of 46,000,000 and a total wealth of $81,000,000,000 have each appealed to their people for well up toward a score of billion dollars to conduct the war. The United States with a population of approximately 101,000,000 and a total wealth of $206,000,000,000, or almost as much as the three countries mentioned, is now asking us to subscribe, and as quickly as possible, $2,000,000,000 in the liberty bond issue. We are all writing and talking and waving flags and urging more liberal signing. Meantime the signing up continues, but not as swiftly as it should.

This is not the time for discussion of politics or reasons of the war. We are at war with the most powerful military organization in the world. We should show to the boys who are asked to go into the trenches against such a nation that instant support of the war will be given by the "stay-at-homes". This $2,000,000,000 of bonds should be oversubscribed many times. The moral effect would mean the saving of thousands of lives and the quicker end of the war.

As the president has said "We have no selfish ends to serve. We desire no conquest, no dominion. We seek no indemnities for ourselves, no material compensation for the sacrifices we shall freely make. We are but one of the champions of the rights of mankind."

The American people abhor war, and were it not for the hope that our entrance into this war may be a help toward an everlasting peace we believe we would not be in it. Then let our fight be with all the energy at our command—as to brains, muscle and capital. Every one of us can "Do our bit."

Agricultural Notes

Tillman County, Oklahoma, has a County manager.

The almond crop of Eastern Sicily is only one-third that of 1916.

Banana flour as a substitute for wheat or potato flour is now suggested by chemists.

The crop of onions in Egypt is much smaller than usual and not in satisfactory condition.

The entire world's crop of wheat this year is one-fourth less than last year's according to reports received and compiled by the international institute of agriculture at Rome.

Denmark on February 20, 1917, took a special census of live stock and, contrary to expectations, the result of the investigation indicated that the number of animals had not decreased.

The general manager of the Pacific Fruit Express estimates that 9950 cars will be required to handle California's cantaloupe crop this year, and 79,700 tons of ice will be used in icing the shipments.

A committee has been appointed by the Argentine government to prepare a plan for a campaign against the locust pest in that country. The locusts did serious damage to the cereal crops in many sections last season.

Switzerland's 1916 crop of potatoes was a failure, therefore the government on March 12, 1917, empowered cantonal and municipal authorities to require owners and renters of land to plant certain areas to potatoes.

During the current season the United States bureau of fisheries will maintain a field station on the Salmon River, Idaho, to collect eggs of the early run of chinook salmon, which has the highest commercial value of any of the salmon entering the Columbia River.

Canners of tomato paste in Italy are embarrassed by shortage of tin. There is thus a probable shortage of output for 1917 as well as a probability of increased prices. Exports of paste to the United States from the one port of Catania increased to 130,337 for 1916, from 24,715 pounds for 1915.

The acreage of potatoes on May 1, 1917, the United States over, was 281,700 as compared to 242,900 in 1916. The condition is indicated by the statement that it is 86 per cent of normal and from that the deduction is made that the total production this year will be 33,516,000 bushels as against 26,481,700 bushels in 1916.

Shortage of food for animals in England threatens to put cattle, horses, swine and poultry on compulsory raticns. President Prother of the board of agriculture says: "In the present national crisis it is necessary to bring in human food rather than raw materials for food such as feeding stuffs for live stock, which can only be converted into a much smaller weight of human food.

Vancouver, British Columbia, is plowing vacant lots at cost for gardening because of the high price of seed. Many are trying the method of using most of the potato for the table and saving the end that contains the "eyes" with just enough of the flesh to constitute little more than a good thick peeling. In this form of planting a few more of the "eyes" are placed to a hill so as to allow for some not sprouting.

Agricultural News Notes of the Pacific Coast

Northern California

Pear growers of Napa County expect a 100 per cent crop.

The girls of the Gridley high school have organized a canning club.

It is estimated that 3000 acres of sorghum have been planted in Yolo County.

The Mt. George farm bureau enjoyed a picnic at the Coombs Ranch on May 19.

The farm adviser of Napa County is making a post card labor survey of the county.

Yolo County farmers report offers of two cents for their 1917 barley and $15 for alfalfa.

The first forest fire of the season, covering about 30 acres, is reported from Glenn County.

The new fruit standardization bill passed by the legislature has been signed by Governor Stephens.

Dean Van Norman of the university farm at Davis addressed attendants at the Mt. Vernon farm bureau picnic Saturday, May 26.

The Glenn County farm bureau announces June meetings at Codora on the 12th, Jacinto 15, Orland 19, Plaza 22, Elk Creek 25.

Rice farmers of Yolo County are suffering damage from crickets. The only successful way discovered to get rid of the pests is by drowning.

J. J. Fox has resigned as horticultural commissioner of Napa County, to assume duties of appraiser with the federal land bank at Berkeley.

A cloud of grasshoppers are said to have assembled in Butte County between Oroville and Chico. Orchardists are adopting preventive measures.

The state department of engineering has reported as feasible the proposed Scott Valley Irrigation project in Siskiyou County, comprising 5558 acres.

The committee on resources and food supplies of the State Council of Defense is urging that potatoes be allowed to mature and not be used as half grown new potatoes.

On complaint of a resident of Willows a band of 200 goats which had invaded his place was taken up by the poundmaster and held awaiting disposition by their owner.

There will be farm bureau meetings in Sacramento County at Orangevale June 11, Fairoaks 12, Elk Grove 14, Cosumne 15, Carmichael 19, Hood 20, Franklin 22, Sacramento 23.

Several breed meetings were held at Davis the last two days of May. The California Draft Horse Breeders and the Hereford Breeders met on Tuesday, the State Swine Breeders on Wednesday.

Delegations of farmers from various sections of the Sacramento Valley went to Sacramento to be present at the hearing by Governor Stephens of the Polsley bill. The provisions of this bill exempt practically all of Butte County from the Sacramento and San Joaquin drainage district.

With a view to the completion of California's highway system the advisory board of the state engineering department has requested Governor Stephens to instruct the state treasurer to proceed with the necessary preliminaries for the sale of $5,000,000 worth of the bond issue voted in 1916.

Central California

Nine new packing houses are now in prospect for Lindsay.

"Plant sorghums" is the general advice being given on all sides.

Picking of Valencia oranges will start in Tulare County early in June.

Sequoia and General Grant national parks were opened to the public May 21.

The Tulare Cooperative Poultry Association reports doing an $18,682.95 business in the month of April.

The question of water transportation for the Fresno section was discussed at the recent Commercial Club meeting in Fresno.

The campaign to carry through the $9,000,000 Pine Flat irrigation project is being continued in Tulare, Kings and Fresno Counties.

Tulare creameries paid out more than $138,000 for butter delivered during April. This is $28,000 more than paid for March deliveries.

Lindsay is to have another large olive packing plant built during the summer. This will be erected by the California Associated Olive Growers.

S. R. Squibb, secretary-treasurer of the California Farmers' Union has been elected secretary-treasurer of the Prune and Apricot Growers' Association.

The Dairymen's Cooperative Creamery Association and the Tulare Cooperative Poultry Association held their big cooperative picnic at Mooney Park on May 31.

Twenty-two grape growers have been granted judgments against the California Wine Association for refusing to carry out contracts for buying wine grapes in 1915.

Meetings of the San Joaquin County farm bureau are announced for June 4 at Thornton, 6 Farmington, 11 Lockeford, 13 Linden, 14 Bellota, 15 Manteca, 18 Escalon, 22 Ripon.

The San Joaquin Valley demonstration train has been sent out on its Eastern tour, making its first stop in Kansas. The train was held for several days in Fresno to be given its finishing touches.

The great Woodward dam of the South San Joaquin irrigation district was christened May 18. More than 11,000 people were present to witness the services and 2000 autos were parked beside the dam.

Managers of the Fresno district fair have arranged for two monster tents for the housing of machinery and auto exhibits. Three thousand four hundred and fifty dollars has been appropriated for cattle prizes.

The Tulare County Cow Testing Association has raised the standard of its roll of honor to production of 50 pounds butter fat instead of 45 as so many cows are coming above the 45-pound test. April's roll of honor shows 28 cows producing over 50 pounds.

The new farm adviser of Merced County has announced a regular schedule of local meetings: First week of each month—Monday, Dos Palos; Wednesday, Cottonwood (Ingomar and Gustine); Friday, Planada. Second week—Monday, Stevinson; Wednesday, Irwin; Friday, Delhi. Third week—Monday, Livingston; Wednesday, Winton; Friday, Amsterdam. Fourth week—Monday, Merced; Wednesday, El Nido; Friday, LeGrand.

Southern California

San Bernardino has organized a local farm bureau.

Bean aphis are showing up in the Santa Barbara fields.

Brawley is shipping its first tomatoes to the San Francisco market.

E. H. Erickson of Brawley is making heavy daily shipments of apricots.

The cantaloupe acreage of the Calipatria district is double that of last year.

San Luis Obispo County reported on June 1 practically all bean acreage planted.

It now looks as if the government's army concentration camp will be located at San Diego.

Beaumont's cherry crop is several weeks later than usual but shipments are now going forward.

Contracts for lima beans are reported being made in Ventura County as low as six cents per pound.

Warning has been sent out by the government that the crest of the Colorado River will probably reach Yuma on June 1.

All former residents of Maine in Southern California are invited to a big all-day picnic in Sycamore Grove, Los Angeles County, on June 9.

June 22-24 will be the dates of the Friendship Fiesta at San Diego when Governor Cantu of Baja California will participate with Californians.

The California Milch Goat Association held an exhibition at Pasadena on May 26. The president of the association is Dr. G. Roscoe Thomas of Pasadena.

The Colton Fruit Exchange of Colton received word from England of the sale of a carload of oranges averaging $3.30 a box. Previous carloads averaged $3.80.

It is estimated that the California Lima Bean Growers' Association will this year control between 350,000 and 400,000 bags. The 1916 crop is practically cleaned up.

A petition will be submitted to congress for appropriation of a half million dollars to irrigate 30,000 acres adjacent to the present Palo Verde Irrigation District.

Manager Shipley of the California Lima Bean Growers' Association has resigned, his resignation to take effect July 1. A successor has not yet been chosen by the directors.

Cool weather has held back Imperial Valley's cantaloupe crop. It will probably be the middle of June before any quantity of Imperial cantaloupes reach the Eastern market.

Dairymen and stock breeders from all over Southern California gathered at Stalder Brothers' Rosamond Farm near Wineville, Riverside County, May 21, for the auction sale of Percherons and Holsteins.

At the recent annual meeting of the Beaumont Fruit Growers' Association the following directors were elected for the coming year: N. C. Beebe, W. J. Dwyer, William Mohr, R. N. McCahan, R. D. Rosenberger, K. R. Smoot and R. L. Wilson.

The American Beet Sugar Company has announced a new schedule of prices for this season, based on $4.50 per ton for 15 per cent beets, with additional payments for high sugar content and for increased net price of sugar over four and a half cents.

The Coast

Salt Lake plans to have a municipal market.

Nampa, Idaho, will hold its Harvest Festival September 17-19.

Farmers of Star, Idaho, have drawn up plans for a cooperative warehouse.

Sicilian lemons are meeting a poor market in eastern ports of this country.

Convicts of New Mexico will farm a 1000-acre ranch in Torrance County.

A sale of 40,000 pounds of wool is reported from Boise, Idaho, at 52½ cents a pound.

Washington County, Idaho, has organized farm bureaus and will have a farm adviser appointed.

Farmers of American Falls, Idaho, are planting beans on land where wheat was winter-killed.

As insurance against a possible hay shortage many Idaho farmers are building silos and planting the corn to fill them.

The Columbia County, Oregon, Fair Association has changed the date of its fair from September 26-28 to September 19-21.

The crop report of the Southern Pacific Railway shows crops in the Willamette Valley of Oregon to be in tip top condition.

Hermiston, Oregon, reports fruit trees well loaded with fruit and berries and vegetables making an unusually good showing.

From Custer County, Idaho, comes the sad plaint: "The farmers here would be glad to build homes for hands, but there are no hands."

Bloom in the apple orchards of the Wenatchee district of Washington was three weeks later than usual this year. Indications now are for a heavy crop.

Many sales of wool at 50 cents per pound and over are reported in Oregon, Montana and Idaho, but wool owners are inclined to hold for still higher prices.

A contract to furnish the government with 30,000 pounds of butter at 45 cents a pound has been awarded to the Linden Creamery of Bellingham, Washington.

Farmers of Monroe, Washington, have organized a sale association, holding sales on special market days of live stock, machinery, harness, household supplies, etc.

Farmers of Willcox, Arizona, are discussing advisability of building a cooperative warehouse. Farmers of Pearce are also planning to build a cooperative warehouse.

It is estimated that the strawberry crop of the Kennewick district of Washington will be about 75,000 crates this year as against 50,000 last year. The crop is nearly a month late.

The last legislature of Colorado passed cantaloupe standardization laws. Under the provisions of the bill a state inspector is appointed with assistants in the various cantaloupe raising sections.

The enrollment period for grain sorghum clubs, being formed by the agricultural extension department of the University of Arizona, has been extended to July 1. Each contestant is required to grow at least one acre of sorghum.

Get Rid of Worms!

Many animals, especially hogs, are troubled with worms. When your hogs are unthrifty, you hear a little cough now and then, suspect worms.

Dr. Hess Stock Tonic

Keeps Hogs Healthy **Expels Worms**

So sure am I that Dr. Hess Stock Tonic will keep your hogs healthy and expel the worms, that I have authorized my dealer in your town to supply you with enough Tonic for your hogs and, if it does not do all I claim, just return the empty packages and get your money back.

My Stock Tonic is not a feed, but a true conditioner and tonic, highly concentrated, which contains blood purifiers, laxatives and drugs which are powerful worm expellers. Feed in small quantities, watch your hogs improve.

NEVER PEDDLED. SOLD ONLY BY DEALERS.
28,000 reliable dealers in U. S. handle it. Why pay the peddler twice my price?

25-lb. Pail, $2.25; 100-lb. Sack, $7.00

Smaller packages as low as 65c. Valuable stock book mailed free, if you write for it.

DR. HESS & CLARK, Ashland, Ohio

Dr. Hess Poultry Pan-a-ce-a conditions fowls, makes hens lay and is a great help at moulting time. Valuable for chicks, for pullets starting to lay and for all grown fowls. Costs a penny for 30 fowls per day. 1½ lbs., 25c; 3 lbs., 50c; 7 lbs., $1.00; 25-lb. pail, $3.00. *Guaranteed.*

Dr. Hess Instant Louse Killer A reliable lice killer, very quick acting. For use on poultry and stock. Use by dusting and sprinkling. Destroys bugs on cucumber vines, cabbage worms, slugs on roses. In handy sifting-top cans. 1 lb., 25c; 3 lbs., 60c. *Guaranteed.*

Write Dr. Hess about any sick animal or live stock trouble, enclosing 2c stamp. He will advise you free.

Santa Anita Rancho
Anoakia Breeding Farm

ARABIAN THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three-year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars. Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent **Santa Anita, Cal.**

Hauser's Digester Tankage

GIVES GREATEST VALUE FOR LEAST MONEY.
IT MAKES THEM FAT.

Hauser Packing Co. **Los Angeles**

Papec Cutter and Blower Run it with Your Auto

Save Money, Power, Expense of Upkeep and Labor. It lasts always and has a positive guarantee. Ask for Catalogue.
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The Best That Money Can Buy
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State Dairy Cow Competition

THE following cows produced over 40 pounds of butterfat during April, 1917. Name of owner is given first, then list of cows with performance. The abbreviations Gr., Ay., G., H., J., stand for Grade, Ayrshire, Guernsey, Holstein, Jersey. The first figures indicate age (where age is not given it is indicated by dash). For instance, "Mabel Haskins Colantha Girl H. 4-2" means that animal is a Holstein aged four years and two months. The next figure (33) indicates number days in milk at beginning of month; the next (2319.9), production of milk in pounds for the month; the next (3.86), percentage of fat; the last (89.548), pounds fat for the month.

Abbot, K. W.—Mabel Haskins Colantha Girl, H., 4-2, 33, 2319.9, 3.86, 89.548; Zaza, Gr. H., 6-18, 1584.7, 4.25, 67.350; *Blossom, Gr., —, 5, 1373.8, 3.51, 60.997; Colantha, Gr., 6, 39, 1630.0, 3.55, 57.865; Birdie, Gr., —, 24, 1743.8, 3.28, 57.197; Molly, Gr., —, 18, 1602.7, 3.55, 56.896; Melba, Gr., —, 117, 1712.9, 3.31, 56.697; Riverside Beauty 2d, H., 8-7, 114, 1266.4, 4.35, 55.088; Carrie, Gr., —, 14, 1567.8, 3.45, 54.089; Rilla, Gr., —, 170, 1441.8, 3.72, 53.635; Norma, Gr., —, 5, 1410.4, 3.74, 52.749; Nellie, Gr. S., 8, 30, 1441.0, 3.60, 51.876; Pet, Gr. H., —, 98, 1272.5, 4.00, 50.900; Ella, Gr. H., —, 165, 1141.9, 4.40, 50.244; Della, Gr. H., —, 68, 1457.2, 3.40, 49.545; Gretchen, Gr. H., —, 69, 1232.8, 4.00, 49.312; Opal, Gr. H., 3-8, 39, 1436.6, 3.25, 46.690; Emeline, Gr. H., 4-4, 145, 1200.8, 3.75, 45.030; Illa, Gr. H., 3-11, 81, 1011.0, 4.35, 43.979; Tulip, Gr. H., 3-0, 61, 1165.3, 3.71, 43.233; Lillian, Gr. H., 2-9, 33, 1052.5, 4.05, 42.626; Pansy, Gr. H., 3-10, 16, 1310.6, 3.19, 41.808; Charlotte, Gr. H., —, 83, 1296.1, 3.22, 41.734.

Baldwin, Anita M.—Mabel Wyntje 2d, H., 9-0, 34, 2444.8, 3.22, 78.690; El Prado Walhalla, H., 3-3, 66, 1917.6, 3.63, 69.609; Mabel Aouda, H., 5-3, 26, 2457.6, 2.82, 69.304; Rhedon of Bloom, H., 2-4, 64, 1665.1, 4.08, 67.936; Alba Sadie Cornucopia Creetia, H., 7-4, 37, 2272.0, 2.92, 66.342; Princess Zozo Pontiac, H., 4-4, 133, 1576.6, 3.83, 60.384; Miss Gelsche Walker Korndyke, H., 2-4, 109, 1680.0, 3.51, 58.968; Linden Spofford Walker, H., 2-1, 137, 1534.9, 3.81, 58.480; Pearl Beets Walker, H., 2-1, 58, 1645.0, 3.52, 57.904; Leda Hengerveld De Kol Korndyke, H., 2-1, 75, 1827.3, 2.85, 52.078; Josephine De Kol Walker, H., 2-6, 53, 1446.1, 3.46, 50.035.

Beebe, Floyd—Blackie, Gr., 7-0, 25, 1809.0, 4.6, 83.214; Rosie, Gr. S., 11-0, 154, 1623.0, 3.8, 61.674; Tessie, Gr., 2-11, 11, 1596.0, 3.6, 57.456; Olga Petrova, Gr., 4-0, 95, 1215.0, 3.9, 47.385; Helga, Gr., 4-0, 47, 1116.0, 4.2, 46.872; Jessie, Gr., 1-11, 32, 1314.0, 3.4, 44.676; Brownie, Gr., 4-0, 120, 1194.0, 3.7, 44.178; Toots, Gr., 2-0, 16, 1041.0, 4.0, 41.640.

Bibens, A. M.—Holland Aaggie Belle Colantha, H., 7-9, 60, 2356.1, 3.48, 81.992; Abbie de Kol of East Bank 2d, H., 5-3, 136, 1934.7, 3.57, 69.069; Hermana Mechthilde Ciruela 3d., H, 7-2, 72, 1483.6, 3.71, 55.042.

Bohnett Bros.—Spot, J. H., 5, 146, 1003.1, 6.70, 67.208; Cecil, J. H., 3, 7, 1098.9, 4.71, 51.758; Flossy, Gr. J., 9, 83, 1121.4, 4.56, 51.136; Dorris, G. H., 7, 210, 1018.6, 4.36 44.411; Sophia, Gr. J., 7, 51, 989.0, 4.50 43.605, Daisy, Gr., J., 4, 158, 886.4, 4.87, 40.733; Fayne, Gr., 6, 113, 992.0, 4.08, 40.474.

Christen, J. M.—Aralia De Kol Y, Gr. H., 3-7, 27, 1211.0, 4.15, 50.257; Alcartra Y De Kol, Gr. H., 2-8, 20, 1155.0, 3.81, 44.066; Comedia Solcene Hengerveld, H., 8-10, 5, 1453.0, 2.77, 40.248.

Coppini, J. W.—Lady Mc., Gr. J., 12-10, 25, 1644.0, 4.4, 72.336; Princess 2d, Gr. J., 6-10, 52, 1170.0, 5.9, 69.030; Beauty 1st, Gr. J., 8, 28, 1281.0; 5.1, 65.331; Rosalee, Gr. J., 11, 29, 1059.0, 6.0, 63.540; Marigold of Ferndale, J., 5-1, 15, 1137.3, 5.2, 59.140; Pride of California, J., 3-0, 16, 1078.7, 5.46, 58.897; Marigold Olga Ann, J., 7-11, 21, 1117.3, 5.24, 58.547; Little Glynlyn, J., 6-8, 29, 1143.5, 5.08, 58.090; Dina, Gr. J., 8, 23, 1116.0, 5.2, 58.032; Florinda, Gr. J., 5-10, 29, 1074.0, 5.4, 57.996; Beauty 2d, Gr. J., 6, 11, 1377.0, 4.2, 57.834; Olga Darling, J., 2-11, 5, 1074.6, 5.34, 57.384; Bellina Darling, J., 5-1, 22, 1014.3, 5.56, 56.395; Brace, Gr. J., 6, 16, 1284.0, 4.2, 53.928; Olga Fern Smith, J., 5-11, 51, 967.0, 4.94, 47.770; Melia Olga Pogis, J., 2-11, 37, 847.4, 5.14, 43.556; Tormentor's Easter Lily, J., 5, 14, 834.2, 4.94, 41.209.

Elliott - Brant Rancho—Elsie Argie Granger, G., 5, 51, 1321.2, 5.77, 76.233; Butternut Queen, G., 8-1, 123, 1269.7, 4.60, 58.406; Little Beauty 2d G., 5-1, 82, 1167.8, 4.98, 58.156; Nerio's Elsie Granger, G., 4-1, 5, 903.9, 5.03, 45.466; Imp. Victime of Iowa, G., 5-2, 61, 914.8, 4.95, 45.283.

Gross, Dr. H. E.—King's Lady Maggie, J., 7-3, 12, 1107.0, 4.31, 47.712; Marion of Butter Valley, J., 4-10, 133, 736.2, 5.58, 41.080.

Guise, N. J.—Guise Beauty, Gr. Jr., 5, 68, 972.0, 5.19, 50.447.

Henderson, Dr. J. W.—Clementine Mabel, G., 11-11, 69, 1366.0, 4.30, 58.738; Kitchener's Clementine of Belle Vista, G., 2-1, 142, 1226.3, 4.19, 51.382.

Higdon, W. J.—Senorita Ciruela

Lemoore High School Agricultural Club

The boys are admiring the champion sow, Candy Kid, two weeks before farrowing time, her weight being 700 pounds. Candy Kid is the property of Wm. Bernstein, Kings County.

Mechthilde 3d, H., 5-2, ..., 2266.7, 3.71, 84.095; Paula Segis, H., 5-2, 126, 2055.3, 3.19, 65.564.

Hollow Hill Farm—476, Gr. G., 5-1, 30, 1445.6, 4.79, 69.244; 459, Gr. G., 6, 65, 984.3, 6.23, 61.322; 811, Gr. G., 4, 120, 1268.4, 4.76, 60.376; Imp. Brittleware Mistletoe, G., 4-9, 126, 1244.1, 4.62, 57.477; Imp. Cherry III of the Effards, G., 4-7, 151, 1363.4, 4.11, 56.036; 458, Gr. G., 5-2, 5, 1110.3, 4.98, 55.293; 482, Gr. G., 4-9, 101, 1037.3, 5.15, 53.421; 480, Gr. G., 4-9, 86, 1086.0, 4.54, 49.304; Imp. Brittleware Wild Rose, G., 4-11, 111, 872.3, 5.23, 45.621; 485, Gr., G., 4-5, 151, 798.9, 5.18, 41.383; 812, Gr. G., 4, 125, 734.5, 5.15, 40.398.

Hewins, Homer Jr.—Silver Gloss Poplar 2d, H., 7, 94, 1355.5, 3.70, 50.154; Pauline of Bloom, H., 6-7, 149, 1156.9, 3.54, 40.954.

Iverson, Iver—Roan, Gr. G., 7, 12, 1664.7, 4.13, 68.820; Bony, Gr. J., 6, 49, 1241.6, 5.24, 65.100; Little Red Cow, Gr. J., 7, 13, 1416.7, 4.24, 60.140; Little Guernsey, Gr. G., 9, 9, 1593.4, 3.70, 58.900; MacFarland, Gr. G., 3, 17, 1339.2, 4.25, 56.885; Kern's Holstein, Gr. H., 10, 9, 1235.4, 4.59, 56.730; Silky, Gr. J., 3, 11, 1216.8, 4.64, 56.420; Jef. Brownie, Gr. J., 7, 14, 1195.1, 4.64, 55.490; Babe, Gr. J., 6, 15, 1192.0, 4.60, 54.870; Little Brownie, Gr. J., 8, 47, 1068.0, 4.95, 52.855; Foster's Brindle, Gr. J., 5, 15, 1269.5, 3.96, 50.220; Big Brindle, Gr. J., 5, 16, 1331.5, 3.75, 49.910; Aud Spotted, Gr. G., 5, 13, 1281.9, 3.74, 48.050; Foster's Jersey, Gr. J., 5, 14, 936.2, 4.77, 44.640; Danahue, Gr. H., 7, 5, 1226.1, 3.41, 41.850.

Kell, F. J.—Creamcup Poebe, H., 5-10, 66, 2319.0, 3.1, 71.889; 63, Gr. H., 3-1, 65, 1884.0, 3.2, 60.288; 65, Gr. H., 3-1, 64, 1722.0, 3.5, 60.270; 66, Gr. H., 3-2, 37, 2007.0, 2.8, 56.196; 1, Gr. H., 3-2, 38, 1998.0, 2.5, 49.950.

McFarland, E. B. — Willowmoor Vesta 4th, Ayr., 4-5, 216, 1440.6, 4.67, 67.276.

Mealey, S. A.—Beauty, Gr. H., 5, 181, 1425.0, 3.8, 54.150.

Miller, Guy H.—Lorita of Venadera, J., 10-2, 44, 1108.7, 5.17, 57.320; Annette of Venadera, J., 6-7, 30, 1183.1, 4.41, 52.175; Juanita of Venadera, J., 8-7, 36, 907.3, 5.66, 51.353; Lorna of Venadera, J., 2-8, 120, 915.5, 5.43, 49.712; Goldie of Venadera, J., 7-1, 121, 1047.6, 4.58, 47.780; Gladys of Venadera, J., 4-7, 5, 852.7, 5.56, 47.410; Pearl of Venadera, J., 10-6, 215, 798.8, 5.76, 46.011; Zama of Venadera, J., 1-11, 111, 713.5, 5.63, 40.170.

Morris, A. W. & Sons, Corp.—Aaggie Acme of Riverside 2d., H., 6-1, 146, 2260.6, 4.24, 95.849; Aralia De Kol 3d, H., 6-2, 144, 2130.7, 3.7, 78.836; Hartog Creamelle De Kol, H., 7-5, 148, 2342.7, 3.32, 77.778; Aralia De Kol Pontiac Mead, H., 2-7, 136, 1551.9, 4.34, 67.352; Aralia Mead Pontiac De Kol, H., 2-7, 150, 1589.4, 3.48, 55.311; Cobossie Korndyke Burke, H., 2-3, 126, 1373.0, 3.42, 46.957.

Napa State Hospital—Monte 1st, Gr. H., 6, 16, 2792.7, 3.30, 92.159; Brownie, Gr. H., 6, 110, 2143.8, 3.14, 67.315; 15, Gr. H., 6, 155, 1698.9, 3.44, 58.442; 68, Gr. H., 4, 131, 1962.9, 2.96, 58.102; Beauty, Gr. H., 3, 100, 1625.0, 3.46, 56.225; Queen, Gr. H., 7, 120, 1954.4, 2.81, 54.919; 29, Gr. H., 5, 151, 1414.4, 3.80, 53.747; Shy Lady, Gr. H., 3, 70, 1966.0, 2.69, 52.885; 67, Gr. H., 4, 130, 1375.1, 3.31, 45.516; 30, Gr. H., 4, 200, 1572.6, 2.71, 42.617.

Palo Alto Stock Farm—Imp. President Doris of L. G., 7, 6, 1705.6, 5.64, 96.196; Imp. Miss Jane of L. G., 5-8, 87, 2010.9, 4.49, 90.289; Roxie Pauline Burke Hengerveld, H., 6-3, 74, 2472.6, 3.42, 84.563; Jennie Terzool Hicks 4th, H., 7-9, 71, 2632.5, 3.20, 84.240; Kitchener's Dainty Lass, G., 5-7, 73, 1351.1, 5.38, 72.689; Mousie De Kol Lady 2nd, H., 5-8, 131, 2053.2, 3.39, 69.603; May Wa Wa De Kol Burke 3d, H., 6-11, 123, 2223.8, 3.1, 68.938; Imp. England's Lady Orange, G., 5-6, 99, 1251.1, 5.16, 64.557; Mysie's Jane of Alta Vista, G., 7, 59, 1443.7, 4.35, 62.801; †Athalva 2nd, H., 5-2, 145, 1819.4, 3.2, 58.221; Gold Leaf Pontiac, H., 6-5, 5, 1696.0, 3.19, 54.102.

F. Stenzel—Alice, Gr. H., 5, 21, 2474.9, 3.76, 93.056; Hilda, Gr. H., 5, 109, 2186.3, 3.24, 70.836; Blackie, Gr. H., 5, 95, 2155.8, 3.20, 68.986; Jenette, Gr. H., 5, 133, 2095.4, 3.09, 64.748; Rosa, Gr. H., 5, 103, 1782.6, 3.58, 63.817; Brownie, Gr. H., 5, 70, 1707.6, 3.66, 62.498; Rumpy, Gr. H., 5, 151, 2051.6, 3.09, 63.394; Carmelita, Gr. H., 3, 87, 1580.2, 3.78, 59.732; Spot, Gr. H., 3, 72, 1689.8, 3.28, 55.425; Fannie, Gr. H., 5, 148, 1707.4, 3.23, 55.149; Spot Teat, Gr. H., 3, 110, 1673.5, 3.13, 52.381; Dixie, Gr. H., 3, 126, 1492.0, 3.00, 44.760.

Trigg, G. E.—Queen, Gr. J., 20, 1581.0, 5.80, 91.698; Lady Fern, Gr. J., 20, 1371.0, 6.00, 82.260; Irene, Gr. J., 15, 1584.0, 5.19, 82.210; Mabel, Gr. J., 15, 1455.0, 5.40, 78.570; Brindle, Gr. J., 6. 1881.0, 4.10, 77.121; Naida, Gr. J., 22, 1461.0, 5.20, 75.972; Martha, Gr. J., 12, 1314.0, 5.50, 72.270; Frances, 13, 1425.0, 4.90, 69.825; Reddy, Gr. J., 21, 1485.0, 4.70, 69.795; Fanny, J., 27, 1155.0, 6.00, 69.300; Hilda, Gr. J., 22, 1266.0, 5.40, 68.364; Bonnie, Gr. J., —, 20, 1062.0, 6.20, 65.844; Beauty, Gr. J., 10, 1338.0, 4.90, 65.562.

University Farm—Interested Jap's Santa, J., 4-2, 91, 1372.6, 6.69, 78.101; xQueen of Hopland, H., 10-3, 5, 1226.9, 4.91, 60.241; Korndyke Senorita, H., 6-2, 112, 1914.4, 3.13, 59.921; Fern Ridge Pearl, G., 7-3, 93, 931.2, 6.09, 56.710; Cherry, Gr. S., 8, 124, 1189.4, 3.79, 45.078; xMeridale Jap's Nora, J., 4-6, 5, 795.6, 5.30, 42.167.

Vina Ranch, Leland Stanford Jr. University—Boweda, H., 6-13, 138, 1750.4, 3.62, 63.364; Colantha Ormsby Muchacha, H., 2-7, 70, 1417.5, 3.93,

Gardena, Los Angeles County, Agricultural Boys

High school class visiting the Poland-China County and inspecting a bunch of brood sows on the Bernstein Ranch. These sows range from one to four years and weigh from 300 to 700 pounds.

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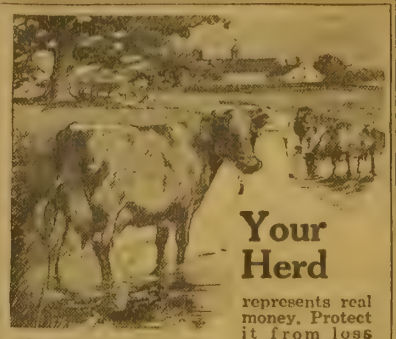

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55.708; Lady Spotlight Ormsby of Vina, H., 3-11, 57, 1503.1, 3.31, 50.646.

Van Derpoel, F. H.—Fern's Silver Ray, J., 7-11, 76, 1595.4, 5.16, 82.323; Katie Snyder, J., 8-9, 5, 1198.8, 4.50, 51.089; Lowland Lad's Lily, J., 12-11, 69, 882.1, 4.90, 43.223.

A. J. Welch—Imp, Acadia of Linwood, G., 4-2, 53, 995.0, 6.42, 63.879; Imp. Alcia of Linwood, G., 4-8, 25, 1079.0, 5.09, 63.661; Raymond's Lily of St. Saviours, G., 5-1, 27, 1307.9, 4.39, 57.417; Imp. Governor of the Chene's Herald Queen, G., 4-2, 47, 1149.9, 4.76, 54.735; Imp. Amy of Ore Hill 52271, 4-2, 60, 930.5, 5.24, 48.758.

Total entries in competition, 812 cows. Average production for April (217 cows) 1347.3 pounds milk, 55.285 pounds fat. (Range, 96.849 to 21.656 pounds.)

*28 days.
†21 days.
x22 days.

Another Successful Sale

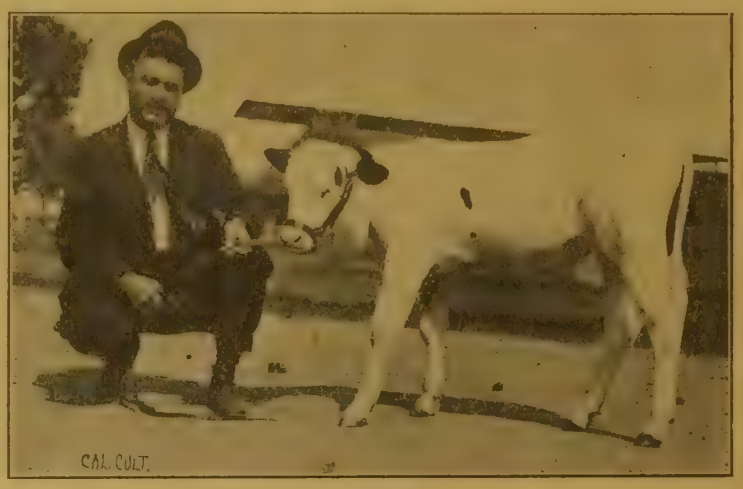
Written for California Cultivator By C. A. Briggs

MAY 31 was the day, Sacramento the city, and the state fair ground the place. The occasion was the second Sacramento sale of registered Holsteins by the California Breeders' Sales & Pedigree Company. Sixty-four head sold for $15,075, an average of $235. The leading lady was Spring Farm Cornucopia Ormsby, a fine typey two-year-old heifer consigned by the Bridgford Company of Knightsen. Starting with a bid of $800 by J. M. McAlister of Chino a spirited three cornered fight between McAlister, Gotshall & Magruder and Guion Gibson carried the figure up to $1400, at which price she was knocked off to Gibson. After the sale Mr. Gibson resold his bargain to Gotshall & Magruder at an advance of $250. She is in good hands and will surely be heard from among the record makers. The Bridgford Company's string of 11 head not alone topped the sale with this animal but also brought the largest average consignment price, $444. Other consignors were Henderson Company, Sacramento; Frank Hatch, Modesto; Palo Alto Stock Farm, Palo Alto; Toyon Farm, Los Altos.

Fifteen buyers kept Colonel Ben Rhoades and his son on the jump. Those who secured animals were: W. H. Calhoun, Healdsburg; Gotshall & Magruder, Ripon; J. P. Phillips, Fresno; H. E. Cornwell, Modesto; Napa State Hospital; Kaiser Bros., Ceres; Bonita Stock Farm, Lodi; C. C. Lester, Gilroy; Geo. P. Robinson, Sacramento; C. F. Silva, Sacramento; A. E. Greene, Hood; Chas. Yocum, Tulare; S. G. Kounias, Modesto; R. C. Gruhlke, Dixon; A. C. Holly, Dixon.

Top Notch Heifer

E. A. Bridgford holding a two-year-old, one of the top notchers at the Sacramento sale May 1. This is Spring Farm Cornucopia Ormsby, consigned by Bridgford Company and sold to J. S. Gibson Company for $1400. After the sale she was resold to Gotshall and Magruder for $1650.



Some Calf

A bull bought by George Kounias for $425. He was consigned by Toyon Farms.

At noon a dandy lunch was served. C. L. Hughes managed the sale and genial "Charley" Paine, state fair secretary, managed to make everybody happy. Sellers were satisfied and buyers sure that they got good money's worth.

Roughage is absolutely necessary to maintain the health of the cow and enable her to make the most efficient use of her grain ration. It is safe feeding to allow the cow two pounds of roughage for every pound of grain. If the cow will eat 20 pounds of good roughage with ten pounds of wholesome grain feed, there is no danger of impairing her digestion.

DO NOT NEGLECT MARES AT FOALING TIME

A year's effort may be lost by neglecting brood mares at foaling time. In view of the time which it takes to produce a foal one can ill afford not to give the necessary attention to the animals. A little care for a few nights will often save the entire year's work. E. A. Trowbridge, professor of animal husbandry in the Missouri college of agriculture, offers the following suggestions concerning the care of mares at foaling time:

In-foal mares may be worked to within two or three days of foaling. Should work cease before that time, rations should be decreased materially. Rations should consist of bran, oats and other laxative foods.

In-foal mares should be provided with box stalls, if possible, sometime before they foal. These stalls should be kept clean and properly disinfected.

As soon after birth as possible the foal's navel should be tied and disinfected with iodine or some other good disinfectant. Careful attention should be given to see that foals' digestive apparatus and kidneys are in working order within 24 hours after birth.

Mares, after foaling, should be given water, not too cold and not in too large quantity. The ration for two or three days should be comparatively light, and similar in nature to that fed before foaling. After normal conditions seem to have been established, the ration may be increased.

DON'T SELL BREEDING ANIMALS

"Don't sell your breeding animals unless you can replace them immediately with better ones," is the message the United States department of agriculture is sending to farmers and stockmen everywhere. "Don't let the temptation of high prices now being offered for live stock or undue fear of the prices asked for many popular feeds mislead you into selling a cow or sow that will drop the golden calf or litters. Such near-sighted profit-taking or lack of courage, if widespread, would strike at the foundation of the country's live stock industry and cripple it for years to come. As there is a shortage of meat animals throughout the world we can not hope to import new breeding stock to replace those we foolishly have killed off. Our own breeding animals, therefore, must be regarded as the seed essential to the domestic meat supply of the nation.

"Feeds not available or needed for human consumption should be used as largely as possible in feeding live stock. In this way a large proportion of the straw and stover ordinarily burned or wasted can be manufactured into meat and milk. Grain sorghums, wherever they are available, should be fed to release corn for human uses. Grain, where fed, should be used as economically as possible.

In constructing new buildings the farmer should consider at least five factors: Permanence, sanitation, fire resistance, first cost of construction and maintenance. Probably cement will come nearer to meeting all of these requirements than any material now used for building purposes.

Community breeding and community selection ought to be backed up strongly by the organization of a cow testing association, in order to make complete the success of farm dairying.

A New California State Record

The accompanying picture is of K. P. Tola Joe, a daughter of the King of Pontiacs from Tola Joe Gelsche, a 23.98 senior three-year-old daughter of the wonderful sire, Joe Gelsche De Kol Burke, whose dam was the famed old producer, Prilly, conceded by all breeders as one of the greatest producing and transmitting cows the world has ever known.

K. P. Tola Joe is owned by Karl A. Gotshall and A. R. Magruder and on May 23 she completed a seven-day official record of 21.719 pounds of fat from 459.1 pounds of milk at an average test of 4.73. Computing the above on an 80 per cent basis would be equivalent to 27.14 pounds of butter, which is now the senior two-year-old state record and, according to information obtainable, makes this California heifer the second highest two-year-old daughter of the famous King of Pontiacs, also the 208th A.R.O. daughter.

K. P. Tola Joe

The picture of K. P. Tola Joe does not do her justice as the same was taken by an amateur and without any previous preparation. The care of the heifer was in charge of D. W. Keel, superintendent for Gotshall & Magruder.

Mr. Magruder purchased K. P. Tola Joe at the Rhoades-McAlister sale last September from McAlister & Son. The heifer was bred by Stevens Brothers of New York state.

K. P. Tola Joe freshened at the age of two years, 11 months and 28 days, dropping a heifer calf sired by King Korndyke Sadie Vale 27th. From the date of her purchase until the middle of February she ran with the other heifers, receiving no special care. However, at this time Mr. Keel placed her in a fitting pen which was accessible to a large, roomy box stall where she received her fitting ration which was fed to her five times a day. This feed consisted of wheat bran, beet pulp, oats, barley, and linseed meal and was fed to her during the time the two and three time strings were milked. This ration amounted to approximately 12 pounds daily. It was Mr. Keel's belief that in feeding her often her appetite was stimulated. She always had alfalfa hay in front of her. She freshened in ideal condition, having a soft, pliable udder which on the fourth day developed to a very serious caked condition, causing her to go completely off her ration. To reduce this condition of fever hot applications were applied for 12 hours, during which time practically no milk could be obtained.

On the seventh day she was fed a ration consisting of three pounds of linseed oil meal, three pounds equal parts of oats and barley, five pounds of bran, 15 pounds of beet pulp. The ration was continued during the entire test. Mr. Keel attempted at various times the feeding of beets, cotton seed meal, molasses and middlings, but found none of these palatable to her. In fact he found it difficult to coax her to consume the extremely light ration she did.

A Year of Guernseys

A review of the activities of the American Guernsey Catte Club is being sent out by the secretary. From it we take the following facts:

The bulls admitted to the Herd Register now number 43,625, and the cows 72,614, a total of 116,239.

There was a gain of 47 per cent in the number of bulls registered this year over those entered last year and a gain of 37 per cent in the number of cows registered.

The transfers show an increase of 37 per cent over last year.

Twenty-eight bulls and 777 cows, a total of 805 head of Guernseys, have been imported during the year. From Guernsey, 24 bulls, 551 cows; from England, 3 bulls, 177 cows; and from Alderney, 1 bull and 47 cows.

Less than four per cent of the members of the association are on the Pacific Coast. Nearly 40 per cent of members reside in the Middle Atlantic section.

Three hundred breeders located in 27 states are now testing 1390 cows. This is an increase of 30 breeders and 217 cows during the year. The largest number of applications ever received in one week came to the office during the week of April 9.

High Producing Guernseys

On April 1, 1916, the average production of the ten highest cows in the aged class (five years or over) of the American Guernsey Cattle Club was 18193.4 pounds of milk and 948.98 pounds of butter fat. On April 1 of this year the average production of the ten highest cows in the same class is 19056.8 pounds of milk and 976.15 pounds of fat, showing an increase of 863.4 pounds of milk and 27.17 pounds of fat. During the year there has been an increase of 300 records in Class A with an increase in fat of 6.27 pounds.

The last cow to enter the class with over 900 pounds of butter fat is Imp. Dora II. of les Marais 37737. Her recently completed record is 16664.5 pounds of milk and 904.71 pounds of butter fat with an average test of 5.43 per cent. By this production she secures tenth place.

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THE IDEAL GREEN FEED SILO

Every dollar you put into an IDEAL now will bring you big returns next Winter

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With Alfalfa Meal Attachment and Molasses Mixer

If molasses is mixed with cut feed more of it is eaten and better results obtained both in beef and milk production.

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Stationary, Portable — Semi-Portable.
Sizes 1½ to 28 H. P.

Equipped with a high-class built-in magneto—Batteries, Coils and ignition troubles eliminated.

Alpha Engines start on the Magneto without Cranking.

Easiest starting engine in the market.
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Catalogs and full particulars gladly furnished to anyone interested in First Class Dairy Equipment.

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Poland Chinas, Medium Type

Choice breeding stock, both sexes, from Panama-Pacific International Exposition prize winning strain. 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to

M. Bassett
Hanford, Kings County, Cal.

FOREST GROVE LAUREL 8TH
First and Reserve Grand Champion
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The Type We Are Breeding For

Hardy, prolific sows of best blood lines and breeding. Strong, upstanding, prepotent boars. In short the best possible specimens of the Berkshire breed. We plan to do this by breeding large numbers and from them making a rigid selection.

James Mills Orchard Corporation
Hamilton City, California

Use Tuberculin Tested Sires in Your Herd

WE HAVE A NICE LOT OF SHORTHORN BULLS and HEIFERS THAT WILL SELL FAST WHEN THE SPRING FEED COMES. SELECT YOURS NOW FROM THE BRIGHTON FARM HERD.

H. L. & E. H. Murphy, Perkins, Cal.

Shorthorn Cattle and Berkshire Hogs

Shorthorn herd headed by Count Glory 426982, grand champion at the California State Fair, 1916. Berkshire herd won Premier Exhibitor's banner at P. P. I. E.

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CARRUTHERS FARMS
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Shorthorns—Paicines Ranch Company

Offers for summer and fall delivery both registered and unregistered weanling bull and heifer calves. For prices and particulars apply to

David J. Stollery, 320 Sharon Bldg. San Francisco, Cal.

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TREES

For Sale—7000 Eureka lemons, 500 Washington Navel orange trees, budded from selected buds, on sour root in May, 1915. Very healthy, clean and uniform. Will caliper around one inch. No better trees anywhere. Price 15c per tree in the ground at San Dimas. W. B. Richards, 935 N. Park Ave., Pomona. Phone Pomona 6302.

Here Is Your Opportunity to Secure A1 citrus trees. We offer several thousand 2-year-old lemons; Eureka and Villa Franca, also Washington navels; also several hundred Valencias on sweet root. We call these good trees and we know whereof we speak. ALBERT JACKSON, Upland, Cal.

Citrus Trees—All leading varieties. Large line, Lisbon and Villa Franca Lemon and Washington Navel trees. All first class and clean. Special prices to dealers or in carload lots to growers. Randall Bros.' Nurseries Co., Whittier, Cal.

By Far the Lowest Priced means of reaching a buyer for what you have to sell is through classified advertisements in California Cultivator. The cost is only 3 cents per word per issue, with a minimum of 35 cents.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

Bargain Sale for 4000 Eureka Lemons, 1500 Washington Navels 25c loose roots, or 30c balled, 2-year-old, any size and only 500 more Valencias 50c each. K. Minabe, Azusa, Cal.

For Sale—Two-year sour seed bed stock, thrifty with good roots. Only 20,000. Price $20 and $25 f.o.b. Be quick if you expect to plant. C. W. Wilhite, Glendora, Cal. Phone 303.

Citrus Trees—All kinds, any quantity. Butler's Morning Side Nursery, Lamanda Park, Cal.

For Sale—1600 very choice Valencia trees on sour stock. A. O. Hayes, San Dimas, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Quality Trees—Prune trees 10c each. Cash Nurseries, Sebastopol, Cal.

For Sale—1-year-old Sour Florida Seed bed stock. A. R. Klemm, Azusa, Cal.

SEEDS AND PLANTS

Giant Winter Rhubarb—Last chance to get extra fine subdivisions at special low price; offer expires June 15. $673.70 from ⅝ acre first season. Grand prize San Diego Exposition. Booklet free. W. A. LEE, Covina, Cal.

Plant a Few Acres of Dwarf Milo Maize for seed. Good seed requires about 2 pounds per acre. Choice pedigreed Dwarf Milo 10c per lb. Delivered your station. Fred M. Mahoney, Box 420, Tulare, Cal.

For Sale—Tepary Bean Seed, limited quantity 20c per pound f.o.b. Thermal, Cal. Write or wire amount desired. Grown in Arizona. The Hollis Ranch, Thermal, Cal.

Six Sacks Sudan Grass Seed—Absolutely pure. For quick sale 40 cents per pound. Imperial Valley Seed House, El Centro.

Sudan Grass Seed—100 per cent pure, state analysis 40c lb. Kelly's Nursery, El Centro.

WANTED

Wanted, Agents! — Men and women make big money selling greatest household necessity of this age. A time, labor and money saver never equalled. Biggest thing in sight. No experience necessary. Easy, pleasant work. All or spare time. Cole Lite and Sales Co., 1216 East 41st, Los Angeles, Cal.

Wanted—Man in each California county to represent established California company. Should have rig or auto to get around. Good pay and several weeks' work to right parties. Address J. H. Yetter, Sales Department, 810 Santa Marina Building, 112 Market St. San Francisco, Cal.

One of the Most perplexing problems to farmers and ranchers is that of help. A small liner ad in California Cultivator is the quickest and easiest means of securing farm help.

Wanted—Work on a general farm, anywhere in the West. Am 24 and will start at $30 a month. Box K, Cultivator.

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Large Assortment slightly used and agents' sample plows, harrows, cultivators, wagons. Call and see them before buying. Save 50 per cent on some. Four floors. Largest stock. Arnott & Company, Ranchers' Supply House, 112 to 118 South Los Angeles St., Los Angeles.

HOGS

Chester Whites, the Billiken Brand—Bred sows and gilts. Every rancher should carry at least one good brood sow; are you going to help out our future meat supply? I have the following to offer, first class in every respect and priced low: 2 young tested sows to farrow in July; 6 spring gilts to farrow in September; 18 fall gilts to farrow in October. Weaned pigs, both sexes, to be delivered during the month of June, 4 young boars ready for service. Write for prices and circulars. C. B. Cunningham, Mills, Cal.

Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

Special Sale of weaned boar pigs of the famous Whitten Ranch Poland-Chinas. Get one and grow him out. He will put money-making qualities into your herd. Prices very low; satisfaction guaranteed. Send for free booklet, "Hogs for Profit". Packed with valuable information; tells how to become successful. Ranch in Tulare County, but address owner, R. H. Whitten, 610B Security Building, Los Angeles.

For Sale—Nice lot of young pure bred Poland-Chinas. Young boars ready for service. Nice lot of young gilts soon ready to breed. Weanlings of either sex. Sired by Joker, Iowa Wonder and Sunnydale's Chief. For prices and further information write Geo. A. Smith, Corcoran, Cal.

Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P.P.I.E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

Superba, World's Grand Champion Poland-China boar and one of the greatest sires of the breed. Spring boars ready for service, also few sows bred to this noted sire, reasonably cheap. Rough's Greenfields, Arlington Sta., Riverside, Cal.

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Normandy Farms herd of Berkshires are now to be found at A-1 Ranch. Write for catalogue. Arlington M. Smith, Visalia, Cal.

One Large and two medium type boars, extra choice, 9 and 10 months old. W. Bernstein Ranch, L. C. Trewhitt, Mgr., Hanford, Cal.

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For Sale—Fine registered Jersey heifer, two years old. Bred to registered Jersey bull and due to freshen fore part of November next. From Guy Miller stock. Price $125. Address Thaddeus Lowe, 1300 Garfield Ave., S. Pasadena, Cal.

D. O. Lively Stock Farm, Inc., 215 Hobart Bldg., San Francisco. Breeders of Hereford cattle. A few choice heifers for sale. We buy and sell live stock on commission. Farm at Mayfield, Cal.

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D. E. Kelliher, importer and breeder of Hampshire sheep, Eugene, Cal., offers for sale a choice lot of Hampshire ram lambs, sired by Walnut Hall and Butterfield Rams, purchased at Salt Lake, August, 1916. Lambs ready for delivery after July 15th, 1917. Inspection and correspondence invited.

Butte City Shorthorns, Shropshires, Berkshires and Ponies. Stock of all ages for sale. Can supply one or a carload. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., Cal.

At Last the Perfect Silo—the Stay Round. No hoops, no bolts. No experiments. Any one can erect. Close price. Address D. O. Lively, 125 Hobart Bldg., San Francisco.

Registered Shires — Blackhawk Stock Ranch. Importers and Breeders. Easton & Ward, Burlingame, Cal.

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Material guaranteed. It's 2nd hand after used few times, but not necessarily worn out.

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Let the wind do it. 8-ft., $25; 10-ft., $32.50 to $35; 12-ft., $45 to $55. Have three 16-ft. mills, $125 and $95, cost new $285. Pumps as much as 4 h.p. engine for nothing once installed, beats gas at 19c.

TANKS—TANKS
1000-gal., $32.50; 2000-gal., $44.00. Used tanks guaranteed; 200-gal. redwood, like new, $7.50, with covers, $9.50; fine galv. 500-gal. with cover, $22.50; 1500-gal. galv. with cover, $22.50; 10,000-gal. galv., $125; 16,000, $175; swell heavy 20,000-gal. corrugated galv. tank with conical cover, $235; 10,000-gal. redwood, $75; new and used redwood and galvanized tanks, all sizes. See who's cheapest.

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Most all sizes—in good shape.
Centrifugal pumps, 2-in. $24; 3-in., 4-in., 5-in., double runner; all size plunger pumps, $5 up; new pump jacks, $12.50; double-acting No. 3 Ames, $200, cost $660; Means double-acting deep well pump, $275; pumps 50 inches; 12-h. Lambert engine; 9-h. Foos, $135; 6-h. Stearns, $89. Many other first class engines very cheap.
Brass Cylinders, All Sizes.
Plunger rods, pipe, pipe fittings.
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Dandy for small rancher, pulls 2 4-gang mouldboard plows $295. Cheaper than horses and do 3 times the work.
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Wanted to buy first class material. No junk wanted. Pioneers in our line. DEMMITT CO., Upstairs, 120 N. Main. Yards, 816 Yale, Los Angeles.

Several new and slightly used engines at a bargain. Best makes. 1 to 35 h.p. Arnott & Company, Wholesale Machinery and Implements, 112 South Los Angeles St., Los Angeles, Cal.

For Sale—10 h.p. Fairbanks Morse engine and No. 4 Byron Jackson pump. In A1 condition; price very reasonable. L. Bayha, McFarland, Cal.

For Sale—38 H.P. "Otto" gas engine in good shape, at a bargain. E. A. Hayes, El Monte, Cal. Phone 48 R.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit". It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

Young Man or young lady desiring to attend college can secure tuition and part or all of living expenses through easy, agreeable work during spare time at home, for established California company. State which college you prefer to attend. Address J. H. Yetter, 115½ N. Broadway, Los Angeles.

While the War Lasts—To help farmers grow larger crops at lower cost I reduce my charge for soil analysis from $11.50 to $7.00. Get particulars from R. R. Snowden, Agricultural Chemist, 320 Stimson Bldg., Los Angeles, Cal.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St. San Francisco.

For Sale—Bostrom farm level, same as new. Address W. Fletcher, Orange, Cal.

BEE SUPPLIES

For Sale—175 to 250 colonies Italian bees with extra equipment; in eight-frame hives; can remain in present location if desired. Geo. A. Sill, Watsonville, Cal.

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Roofden Ranch Chicks are well hatched from first class utility breeding stock; money making egg producers our aim, and the prices are right. 7 to 14c, depending on breed, month, quantity (dozen to thousands). White, Buff, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks. For Dollars and Sense. Send card for circular. Roofden Poultry Ranch and Hatchery, Campbell, Cal.

Order Your Baby Chicks Now for next two weeks. Last chance. White Leghorns 8 cents, Brown Leghorns 10 cents, R. I. Reds, Black Minorcas, White and Barred Rocks, 12 cents, any quantity 20 to 500. First class chicks and safe delivery guaranteed. Circular free. Roofden Poultry Ranch and Hatchery, Campbell, Cal.

Baby Chicks from my carefully selected, thoroughbred flock of S. C. White Leghorns, June and July delivery at $9 per 100, $85 per 1000. A strong, thoroughbred chick at a reasonable price. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

Free—How to Mate and Breed Rhode Island Reds. Just what you want to know, but could not get correct information. Send stamp. Trap-nested stock, both combs, big dark velvety red strain for sale. Ava Poultry Yards, Ava, Mo.

200-290-Egg Early Maturing Winter Laying White Leghorns, White Wyandottes, Rocks, Reds, Anconas. JUNE SALE. Eggs 60 per cent off. Few pens all breeds, half price. 8-week chicks. C. Beeson, Pasadena, Cal.

Model Poultry Farm, White Leghorn specialists. Baby chix and hatching eggs from heavy laying stock, bred by us for thirteen years. Our prices are right. W. C. Smith, Prop., Corning, Cal.

Petaluma Hatchery, Established 1902, Capacity 16,000 chicks a week—the kind the hen hatches. Five varieties. Send for free circular. L. W. Clark, Petaluma, Cal.

Baby Chicks—White Minorcas and Golden Buff Leghorn. Two popular breeds. Cockerels for sale. Sandridge Hatchery, Kerman, Cal.

"Eastman's Bred-to-Lay" Barred Plymouth Rocks. Chicks, eggs, cockerels. We Hoganize and trapnest. Fairmead Poultry Farm, Fairmead, Cal.

Baby Chicks—White Leghorns, Brown Leghorns, Reds, Barred Rocks, Black Minorcas, Anconas. Prices on application. Orland Hatchery, Orland, Glenn Co., Cal.

Baby Chix — White Leghorns, White Rocks, "quackless" White Muscovy ducklings. White Star Hatchery, Kerman, Cal.

For Sale—Rhode Island Red Baby Chicks from our carefully selected matings. $12.00 per hundred. Williams Poultry Place, 236 No. Gage, Los Angeles.

China Pheasant Eggs 50c per dozen, 65c by parcel post. A. R. Rideout, Whittier, Cal.

EGG PRESERVING

EGG PRESERVER, GREAT DISCOVERY, NEW PATENTED process, awarded the highest indorsement from over 30 UNITED STATES EXPERIMENT STATIONS, covering tests of 10 different preservatives. No trouble, no worry. Price 75c postpaid. Absolutely guaranteed to keep 600 eggs perfectly fresh 10 months. Double quantity $1.40. J. C. HENDERSON, BOX 476, SAN FRANCISCO.

FARM LANDS FOR SALE

State, Government and Indian Lands. Bargains overlooked. Free New Blue Booklet. Joseph Clark, Sacramento.

624-Acre Stock Ranch for sale at a sacrifice. For particulars address J. F. Salcido, Lookout, Cal.

DOGS

Collie Puppies Cheap—Toulouse geese $5.00, ganders $6.00. One and two years old. Trade chickens, rabbits. Box 32, Encanto, Cal.

MONEY TO LOAN

Money to Loan—On improved farms, city property or for building loans, also on cattle or cotton crops. C. G. Paul, 206 North Glendale Ave., Tropico, Cal.

LUMBER

AAA—Lumber, New and Second-Hand; rough, $10 M; finished, $15 *A*R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St., San Francisco, Cal.

SAFE GRADE CROSSINGS

Repeated investigations of accidents at places where highways cross railways at grade show that a large part of these accidents is due to the failure of drivers to slow down as they approach the crossings. For this reason some public officials believe that the roads should be so constructed at the most dangerous crossings that drivers must reduce speed to a low rate. The California railroad commission has recently sent to a number of cities and countfes six plans for accomplishing this, with a request that they be tried or at least criticised. In each case there is a conspicuous signal or sign in the middle of the road near or at the crossing, and the driver must swerve to one side to reach the track. In some of the plans the driver must make an abrupt right-hand turn and another left-hand turn before the track is reached, so that slowing down is compulsory and not voluntary.

THE WASTEFULNESS OF SWARMING

THE old time beekeeper boasted of the number of swarms which issued from his hives, but the modern beekeeper knows that swarming is one of his worst obstacles to producing a large crop. The modern beekeeper knows from experience that after he has given all his energy to getting every colony as strong as possible at the beginning of the honey flow he must not permit the bees then to spoil it all by dividing their forces.

Of course it is impossible to do anything toward controlling swarming when the bees are in a box or "gum", and this is the chief reason why bees in a movable frame hive are more profitable. It is also unfortunately true that in spite of the beekeeper's most strenuous efforts colonies will sometimes swarm. In that event the beekeeper makes the most of a bad situation by keeping the forces together in another way.

If swarming occurs when honey is coming in the hive should be at once removed to a new place and a new hive placed in the old location, the bee specialists of the United States department of agriculture advise. The swarm is now hived in this new hive and because it is in the old location all returning field bees from the colony join the swarm and the population is kept up. Later on there are various ways of reducing the parent colony still more, for by this means the issuing of worthless after swarms is prevented.

The beekeeper who desires to get the greatest possible crop does not permit even one swarm to issue if he can help it. When swarming time arrives he examines every colony once a week. If he finds queen cells with eggs or small larvae in them he cuts every one out and thus makes it necessary for the bees to build other cells if they still persist in their efforts to swarm. If, however, he finds larger cells with old larvae he knows that the impulse to swarm has developed too far, so he must satisfy it in some way. He may make an artificial swarm—at his convenience and not at that of the bees—or if he is a producer of comb honey he may cut out all the queen cells and cage the queen for ten days until they get over their "swarming fever."

The skill of the beekeeper can usually be measured by the results of his work in curbing swarming. The poetry which others see in issuing swarms is entirely lost on a good beekeeper.

FARMERS' MUTUAL FIRE INSURANCE COMPANY

The organization and management of farmers' mutual fire insurance companies is discussed in detail in a new publication of the United States department of agriculture, Bulletin No. 530. These companies, it is said, represent one of the most successful forms of rural cooperation in the United States. Nearly 2000 of them are in existence and the total amount of insurance they have outstanding exceeds $5,250,000,000. In some states of the Middle West fully three quarters of all the insurable farm property is insured in companies managed by the farmers themselves, and organizations of this character exist in every state except Florida, Mississippi, Louisiana, New Mexico, Arizona and Nevada. The increasing number and size of these companies make it important that they should be founded on sound principles. The bulletin already mentioned takes up the problems that are likely to arise and discusses them fully. In addition suggestive articles of incorporation and by-laws are contained in the appendix, together with forms of application and policy blanks.

Book Review

THE MODERN GAS TRACTOR

"The Modern Gas Tractor, Its Construction, Operation, Application and Repair," by Victor W. Page, M.S.A.E., published by the Norman W. Henley Publishing Co., at two dollars.

This is a new edition of a book which became most popular with tractor owners. It is a book of 500 pages and on almost every one of them there is an illustration. There are also detailed drawings showing almost every feature of the gas tractor. There are 12 chapters touching upon the scope, advantages and application of power traction, design and construction, making and exploding gas, cooling and lubricating, functions and construction of clutch, gearset and differential, the tractor frame, driving and housing, troubles and their elimination, and designs for 1917 tractors. The book ends with miscellaneous rules and formulae.

We note in the preface: "The internal combustion motor has been responsible for many developments in the industrial sciences, but its greatest achievement has been the promotion of economical and efficient transportation. The improvements in the design of the modern gas tractor, which have made it an entirely practical and satisfactory source of power, have also opened up fields where it can be used to advantage and profit that would have been impossible with steam traction engines formerly the vogue, or other forms of power. * * * This treatise is intended to bridge the gap existing between the purely technical work and the manufacturers' instruction book dealing with one specific construction. If it has accomplished this the writer will feel amply repaid for the time and labor expended on its compilation."

LUBRICATION OF TRACTOR

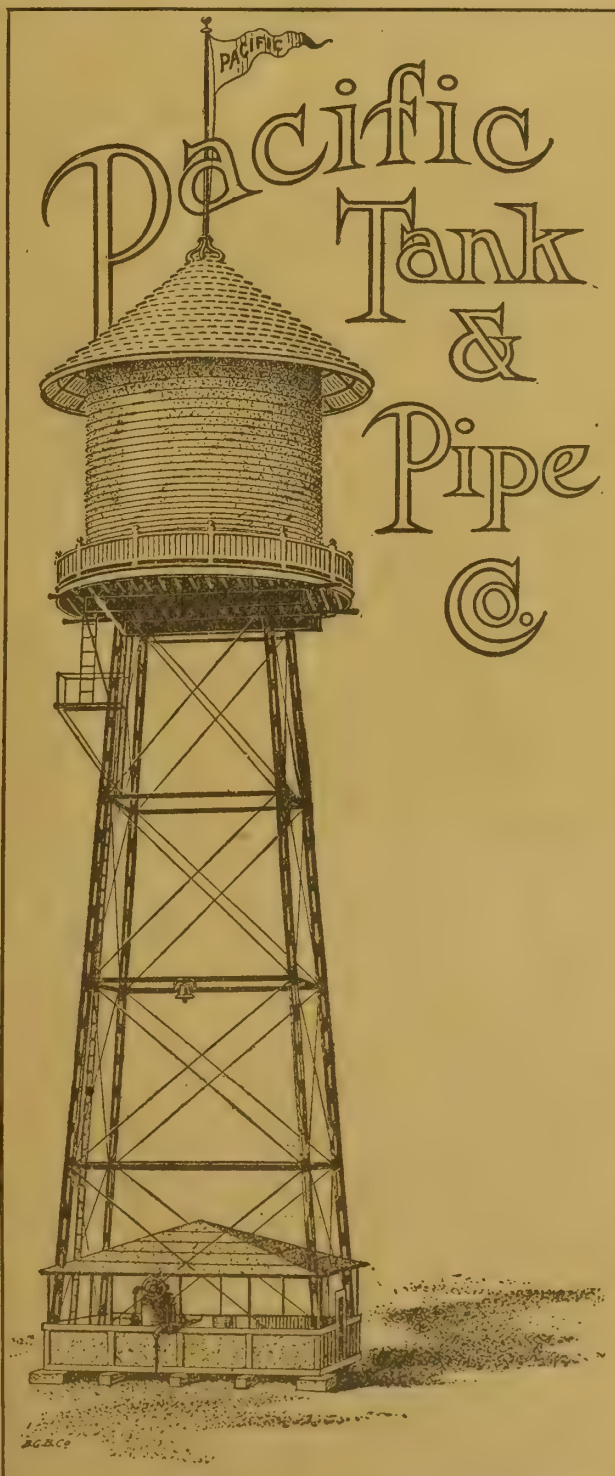
The one thing which stands in the way of the wear of the working parts of any machine is lubrication. Failure to provide adequate lubrication for all parts of the tractor has been the cause of more trouble and expense than any other cause. The failure to fill one grease cup, as has recently come under the observation of the writer, resulted in a large repair bill of $125.

The tractor motor should have an adequate supply of clean oil at all times. Although cheap cylinder oil is to be avoided, it would seem that clean oil is more important than expensive oil. One of the best tractor records known to the writer was made by an owner who, regularly at the beginning of each week, filled his engine with fresh oil after drawing off the dirty oil and washing out the crank case with distillate. So marvelous was the result that the engine ran for four years with little adjustment to the bearings. All this was accomplished with a medium-priced oil.—Prof. J. B. Davidson.

FOX TAIL

There are fields where foxtail has practically taken the alfalfa. There is not much that can be done with these but to plow them up and reseed. I have seen pastures so badly infested with foxtail that it was necessary to take the beards out of pigs' eyes every day. And even then some are almost sure to be overlooked and the sight of an eye lost. A pair of veterinary artery forceps is a good thing to use for taking foxtail beards out of an animal's eye.

In the interest of increased production of feed every bad foxtail field where irrigation is available should be plowed up and corn or sorghum planted during May or June.



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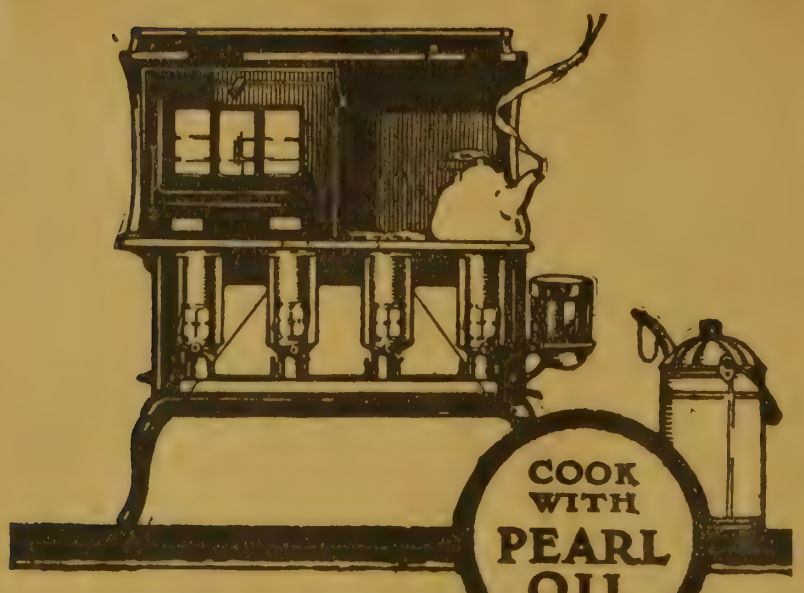

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Oh, say, can you see by the dawn's early light,
What so proudly we hail'd at the twilight's last gleaming,
Whose broad stripes and bright stars through the perilous fight,
O'er the ramparts we watched were so gallantly streaming?
And the rocket's red glare, the bombs bursting in air,
Gave proof through the night that our flag was still there!
Oh! say, does that star-spangled banner yet wave
O'er the land of the free and the home of the brave?

On the shore dimly seen through the mist of the deep,
Where the foe's haughty host in dread silence reposes,
What is that which the breeze o'er the towering steep,
As it fitfully blows, half conceals, half half discloses?
Now it catches the gleam of the morning's first beam,
In full glory reflected now shines on the stream.
'Tis the star-spangled banner. Oh! long may it wave
O'er the land of the free and the home of the brave.

And where is that band who so vauntingly swore,
'Mid the havoc of war and the battle's confusion,
A home and a country they'd leave us no more?
Their blood has washed out their foul footsteps' pollution;
No refuge could save the hireling and slave
From the terror of flight, or the gloom of the grave,
And the star-spangled banner in triumph shall wave
O'er the and of the free and the home of the brave.

Oh! thus be it ever, when freemen shall stand,
Between their loved home and the war's desolation;
Blest with victory and peace, may the Heaven-rescued land
Praise the power that made and preserved us a nation.
Then conquer we must, when our cause it is just,
And this be our motto, "In God is our trust."
And the star-spangled banner in triumph shall wave
O'er the land of the free and the home of the brave.—Francis Scott Key.

OUR FLAG

THE subject of a flag or standard was considered early in the Continental Congress; and, on the 14th of June, 1777, this resolution was passed:

Resolved, That the flag of the thirteen United States be thirteen stripes, alternate red and white, that the Union be thirteen stars, white, in a blue field, representing a new constellation.

The admission into the Union, after the establishment of the present government, of Vermont and Kentucky as new states, caused the number of stars and stripes to be increased to 15 each; and the subsequent addition of five other states led to the following enactment, which is yet in force, approved on the 14th of April, 1818:

An act to establish the flag of the United States.

Be it enacted by the senate and house of representatives of the United States of America in congress assembled, that from and after the fourth day of July next, the flag of the United States be thirteen horizontal stripes; alternate red and white; that the Union be 20 stars, white in a blue field.

Sec. 2. And be it further enacted, That on the admission of every new state into the Union, one star be added to the union of the flag; and that such addition shall take effect on the fourth day July then next succeeding such admission.

Whenever, therefore, an American sees this glorious ensign of his country, the stripes recall to his mind the birth of the republic, with the events that surrounded it; the stars suggest its wonderful development in size, in resources, and in power; and, in homage to the national grandeur and protective authority which it represents, wherever he beholds it—whether in mid-ocean floating at the head of a passing ship, or waving aloft in the streets of foreign lands,—he lifts his hat to it with a patriotic feeling of filial love and pride.—Edmund Alton in St. Nicholas.

HOW TO DISPLAY OUR FLAG

IN order to show patriotism fittingly and to indicate the unanimous support of the president in his course in this great war, the American flag is being displayed liberally throughout our city. Our flag, however, is more than a piece of bunting. It is an emblem of our government and its principles, and as such an emblem our flag should be treated with due respect. As sometimes through thoughtlessness or carelessness our flag is handled without the respect which should be shown to it, the following rules found in the Army and Navy Journal of April 14, 1917, are published for the information of all who display the flag.

1. Our flag should never be used as a cover for a table or a desk, or otherwise placed where any object can be put upon it.

2. It should not be used to decorate a platform so that the speakers or those occupying the platform would be above the flag. If used about a platform it should be hung above the platform so that it would be above those occupying the platform. The flag must be above the man.

3. Our flag should never be draped or festooned, however attractively the colors may lend themselves to such effect. If draping or festoon effects are desired they should be made with red, white and blue bunting. When using bunting the red should be on top, the white should follow, and the blue should be below.

4. Of course everyone knows that in flying our flag the union should be up. If our flag is not flown from a mast or staff it should be so hung that the union is to the north or east as the case may be; the union should not be to the west or south.

If the foregoing rules be observed our flag will be treated with the dignity and reverence to which it is entitled as the emblem of all those principles of liberty and justice upon which our government is founded.

MY PET ECONOMY

Written for California Cultivator
By Mrs. S. B. Kohler, Oxnard

HERE is one of my pet economies. It is stove wood. Perhaps that seems strange, but I only use wood once or twice a week. I manage in this way, having a coal oil stove and a fireless cooker. I get breakfast on the oil stove and as soon as it is done turn out the fire and it stops consuming fuel, while the range would still be chucked full of wood and could not be turned out.

Then right after breakfast I heat radiators for the fireless cooker and put my midday meal to cooking in the fireless, which may be soup, meat and potatoes, say pot roast and potatoes cooked in the same kettle and a vegetable. As I have three kettles to my cooker I can cook the entire meal. Then a salad and a pie or some other dessert, and we have our meal. This takes about 45 minutes or can be done

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while doing the kitchen work, then my meal is cooking and I have the rest of the forenoon to do something else besides carry in wood and stand over a hot kitchen range.

I bake bread once or twice a week, generally Wednesdays and Saturdays, and on those days do my cooking on the range. Have a boiler attached which heats bath water at the same time.

I live on a ranch and have a family of seven most of the time and all hearty eaters. So for my evening meal I always plan something that will cook quickly on my oil stove. When baking with the oil stove such things as pies, biscuit, cake or pudding I also manage to cook the rest of the meal in the same oven and at the same time.

Wood is perhaps a funny thing to be saving with, but the present prices make one want to do so. Wood is eight or nine dollars a cord and coal oil only ten cents a gallon when taken from the company's wagon, and $2.50 worth of oil will keep one supplied for two and a half or three months while a cord of wood will not do so much more, if as much. Now don't think for a minute that I am trying to drum up trade for Mr. John D., because I am not at all interested in his business (but in my wood pile).

My fireless is another great help to save even the oil and time too. When one puts meals to cook in the fireless there is no fear of them burning, but the satisfaction at meal time that they are done and ready to serve piping hot. And one has many hours to spend calling or doing some other work, and the kitchen is always clean which is another comfort.

I have another pet, and that is butter. I never use butter in making cakes or cookies. I find that cottolene is much better. The cake will not sink nearly so easy as with butter, but one must add a little salt. Cream or work in the sugar same as butter.

Well, I think I will say good bye because I think two pets are enough for any one woman.

BEATING THE HIGH COST OF DRY GOODS

Written for California Cultivator
By Mrs. C. S. C, Saticoy

IT seems to me that my whole life is one round of economies, saving all left over eatables for stews or salads, making over clothes and passing them on to the "third and fourth generation," saving everywhere so it's hard to choose just one "pet economy." However, I think I'm proudest of my use of flour and sugar sacks.

I use just about enough flour to keep myself in 50 pound sacks for dish towels, this being to my notion the handiest size for the towels. Then I go to the baker's and buy the empty hundred pound sacks which vary in price from 40 to 60 cents a dozen. They also vary in quality, but are mostly quite heavy and are easily bleached. And Oh, the things you can do with them! Hem four of them and then faggot them together into a square, and you have as dainty a breakfast cloth as any Japanese affair at a cost of 20 cents or less.

The younger children have night gowns made of the same material and when trimmed with braid or feather stitching, are as nice as any one could wish for summer wear. Of course they are most too light for winter use.

The kiddies every day underwear descended from the flour sack, and I'm sure no other muslin of like quality could be bought for five cents a yard—(or less as the case may be), and I mustn't forget the pillow cases for the sleeping porch! All of flour sacks of course. Just rip your sacks and bleach them, cut right size, sew up and hem, and you have a slip that is much easier to wash than the firm pillow case muslin and only costs five cents a slip.

Sugar sacks, when hemstitched, make the nicest kind of sash curtains.

Then the five and ten pound meal sacks, when hemmed, make the nicest kind of napkins for the children's lunch baskets, and it causes no heartaches if one is lost or badly stained, as it does when such things happen to mother's good napkins.

One of my neighbors once dyed some of the sacks and made herself a nice house dress. That I haven't done yet, but I have dyed some of the light weight ones for comfort covers, and I know if I just keep thinking I will find many other uses for the lowly flour sack and incidentally reduce the dry goods bill.

MAKING SOAP—CLEANING HATS

Written for California Cultivator
By Miss A. Butcher, Healdsburg

IN this time of high cost of living a few suggestions along these lines will not come amiss. By carefully saving every bit of grease that might seem of no consequence a bar of soap for kitchen use may be made. Dissolve one teaspoon of lye (use paper bags or old gloves to protect the hands) and a quarter of a teaspoon of borax in four teaspoons of hot fat and set the mixture aside to cool. When cool enough to handle stir with a stick, always stirring in the same direction to make a smooth soap. Stir until the soap is about as thick as honey, then pour it into a wet tin mould. Do not remove too soon or it will crumble.

To Renew An Old Hat

A paste of lemon juice and sulphur rubbed on a leghorn hat will make it look almost like new. Rub the paste thoroughly over the hat and allow it to dry. Then brush the hat vigorously to remove the dry powder. The result will surprise you. Equal parts of magnesia, pulverized soap and French chalk will clean a chiffon or lace hat. Cover the hat well with the combined powders and let it stand for 24 hours; then lightly shake off the powder,—the old soiled hat will be as clean as new.

TO PROLONG THE SERVICE OF OLD SHOES

Written for California Cultivator
By Mrs. A. C. Butcher, Healdsburg

WHEN a crack or a hole appears in a leather shoe it may be patched in the following manner: Cut from a discarded leather shoe a piece of soft, pliable leather for a patch. With the scissors trim to a neatly round shape larger than the hole to be mended. Apply a heavy coat of warm glue that has been dried down to a very thick consistency, then place the patch over the hole and press firmly with the fingers. Allow it to dry in the sun or near the stove. The glue must be very thick or the leather will curl on the edges. If properly done patch will last a long time.

The inconvenience of using shoestrings that have lost the tined ends may be very satisfactorily overcome by dipping the end in hot glue and when almost dry pressing into the rounded shape desired.

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Northwestern Pacific

The Ounce of Prevention for Turkeys

Written for California Cultivator By Jean A. Koethen

DOCTORING sick chickens is hard enough and hopeless enough, but doctoring turkeys is even harder and more hopeless. The sick turkey is the most forelorn, miserable creature to be found anywhere, and doctoring it is a waste of time and medicine. The one exception I have seen to this rule is swellhead. Turkeys are not as subject to colds as chickens are. When they do appear with swollen eyes and sticky nostrils, one may put it down as settled that there is either serious mismanagement or some roupy taint in the blood. In the one case, persistent use of the permanganate treatment will usually effect a cure, though the bird should, of course, never be allowed in the breeding pen; in the other, removal of the cause is sufficient.

Taking it by and large, the only cure for sickness in turkeys is prevention. This sounds more difficult than it really is, for the turkey is a creature of simple needs, and once it reaches roosting age requires little attention. The first few weeks are trying but need not be as trying as they generally are.

The first and most common of the ills young turkeys are heir to is blackhead, a disease we supposed till recently was not to be found on the coast. Now we know that blackhead, instead of being passed from bird to bird through the droppings, is a disease to which every turkey is liable. The infection is not outside but in its very constitution, and is developed by overfeeding. This seems to be the plain truth, as it has been worked out at the Rhode Island station and through the experience of many breeders. If you can keep your turkeys from ever eating too much they will probably never develop blackhead, but what is too much? The Rhode Island experts, to whom I referred last week, think that all a poult will eat in two or three minutes is not too much, but you notice they say, "two or three", and that is not very exact. I would sooner keep it down to two, myself, but it is quite possible one poult could bear three minutes of feeding where another would be killed by it. So it seems that the Rhode Island station, while it has given us something to think about, has not brought us so very far on the way to sure prevention of blackhead.

It must be remembered, and never for a minute forgotten or overlooked, that blackhead is more likely to appear toward the end of the second month than either earlier or later. As this period approaches it is a good plan to cut down the ration and force the poults to depend more on their own foraging. The hungrier they act when you come to feed them, the better pleased you may be, for a perfectly healthy poult is always hungry. But do not let this hunger beguile you into feeding them a little longer or a little oftener. They must be kept hungry. This is the secret, if secret there is, in preventing blackhead.

Even when the second month is past do not think you are out of the woods. Some poults can withstand the evil effects of overfeeding longer than others, and you may get them through two months only to see them collapse in the third. After the third they are comparatively safe.

Roup, swellhead and catarrhal colds of all sorts, from watery eyes up, nearly all come, as I said in the beginning, from mismanagement. The turkey is a fresh air bird. It must have fresh air night and day. If you shut poults and mother in a tight coop that contains only oxygen enough for the hen, the poults will suffer. And not only will they suffer for lack of air during the night, but they will be too warm, and, coming out into the chill morning air after 12 hours of overheating, will inevitably take cold.

But there is another enemy to the poult's health almost as great as foul air, and this is dampness. Keep them out of the rain and off wet ground. Rheumatism is quite a common disease among little turkeys and comes invariably, I believe, from exposure to dampness. The coop they sleep in should have a board floor. Their run should be so arranged that it can be covered if one of our rare May rains comes on. The ground they run on should be dry. A little dew does no harm if the mother is kept in the dry run where they can always go to her for warmth.

Of lice, to which the death of young turkeys is so often attributed, I have little to say, for I have never lost a poult from this cause nor seen a louse on one. That they do become so infested and die when the hen is lousy, I do not doubt, but when the hen is kept clean during incubation and dusted occasionally while she mothers the poults, and they are dusted now and then, there is no danger of lice. It is well of course to keep lice in mind, along with the other enemies of young turkeys, and to see that they are properly guarded against, but they are not the serious menace that overfeeding is. And the same thing may be said of mites. I presume mites would kill a poult even more quickly than a chick, but there is no excuse whatever for allowing them to get into the coop. A clean coop to begin with and occasional painting with kerosene and carbolic acid (one part crude carbolic to four or five of kerosene) is absolute prevention.

A condition, rather than a disease, to which half grown turkeys are liable, if they have not been carefully fed, is known as pendulous crop. The crop begins to stretch, and stretches till it sometimes touches the ground. This condition is supposed to come from overfeeding or irregular feeding. The membranes are easily stretched, and if stretched a little by one over-hearty meal, will stretch a little more when the poult is given another opportunity for stuffing. In time the membranes are so stretched that they can not regain their normal size without assistance. Then the crop must be bandaged or a piece of it cut out, an operation that is by no means easy. Careful feeding is a sure preventive for this annoying trouble. Turkeys that are never allowed to stuff their crops when they are little may stuff them later, to be sure, but the membranes are less elastic and no harm is done.

Whatever we may think of the danger of blackhead from running on filthy ground, it is only right that every brood of young turkeys be started on clean ground and with as much room to range and as much green feed to nibble at as possible. Don't let them run in dirty chicken runs. It may not hurt them, but they are vastly less liable to disease if they are on good, clean green range. Our turkey crop in California ought to be immensely profitable, with all the virgin land we have for range, and it will be when farmers realize how little beside good clean range turkeys require.

Red Comb Chick Mash With Buttermilk

The greatest Chick Grower ever produced. Prevents White Diarrhoea—Authority for this statement found in Bulletin No. 162, University of California, Berkeley, California. Write to Berkeley for this bulletin. Hale & Edwards Co., Chicago, who manufacture the RED COMB and RED HORN FEEDS are the only people who have succeeded in drying buttermilk—without killing the Lactic Acid Bacilli or materially reducing digestibility. Tests made after this Dry Buttermilk has been manufactured SIX MONTHS show 10,000 Live Active Lactic Acid Bacilli to the centimeter. Send for a small sample of this Dry Buttermilk and convince yourself of its merit.

Globe Mills Western Distributors
Los Angeles, Cal.

DRY MASH GLOBE A-1

The food with the punch. Gets the eggs. Highest analysis, cheapest price $2.65 per 90-lb. bag. Special price on quantities. Write for free feeding sample and descriptive circular. At your dealers or

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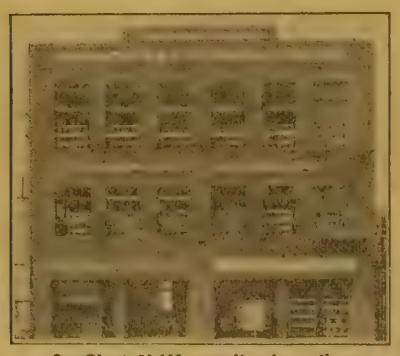

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You raise the poultry and do the work. Why allow others to get the profit? It belongs to you.

You can ship to the largest exclusive wholesale poultry house on the Pacific Coast, and receive the highest prices, honest weights and an immediate return. Write for prices.

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607 East Third St.
LOS ANGELES, CALIFORNIA

PEERLESS CHICK FEED

OUR LIFE INSURANCE

Feed a Clean Chick Feed

One that will raise your chicks. Peerless is free from cheap filler commonly found in chick feeds to increase profit for manufacturer and dealer. Peerless contains the largest percentage of Hard Red Cracked Wheat; the wheat which has the highest protein content. Insist on your dealer supplying you with Peerless Chick Feed.

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Baby Chicks Many Varieties

Ten, 12 and 15 cents. We ship everywhere. Free 66-page illustrated catalog. Ducks, Turkeys, Rabbits, Guineas, Pigeons, etc.

Pioneer Hatchery, 320 S. Spring St., Los Angeles

Three-Day Poultry School at Van Nuys

The Van Nuys Poultry Association calls attention to the three-day poultry school to be held by the University of California at Van Nuys, commencing Tuesday, June 12, 1917, under the auspices of the Van Nuys Poultry Association and Chamber of Commerce.

This school is designed to serve all poultrymen and persons interested in poultry craft, living in Southern California, and who are not convenient to the school at Davis. The instruction will be in charge of Prof. J. E. Dougherty of the Davis school and is absolutely free to all who desire to attend. All expenses of the school are borne by the state.

There will be lectures each forenoon and afternoon, and it has been arranged to provide practical instruction in the poultry yards by trips through the ranches in the Van Nuys colony each afternoon following the lecture. The lectures will be held in the High School auditorium, which will seat 900 people.

Program

Tuesday, June 12.—10-12—Housing and Yarding Poultry; 1:30-3:30—Feeding for Profitable Production.

Wednesday, June 13.—10-12—Vital Factors in Incubating Chicks; 1:30-3:30—The Fundamentals of Successful Brooding.

Thursday, June 14.—10-12 Principles of Poultry Breeding; 1:30-3:30—Selecting and Culling the Layers.

All who desire to take the course will register on Tuesday morning from 9 to 10. Bring pencil and note book and come prepared to take notes and ask questions, as time will be given for a discussion of each lecture. In addition to the regular students, visitors will be welcome to attend.

The High School Domestic Science Class will serve lunch each day at 25 cents a plate. Any of the poultry students who so desire, can obtain their noon luncheon there.

A great many from surrounding communities expect to come by auto each morning and return home after the afternoon lecture. Ample room will be provided for parking the machines during the day.

A field trip through the poultry colony will be made every afternoon after the lecture.

Los Angeles Market

LOS ANGELES, June 5, 1917.

BUTTER

Wholesale prices:

Rcts. wk. ending June 5, 267,810 lbs.
California extra creamery 37
Prime first 36

Extr. Cry. Exch. past wk.

May	30	31	June 1	2	4	5
'17	38	38	38	38	37	37

CHEESE

Brokers' prices:
California fresh, lb. .....24@25
Oregon Longhorn 28
Tillamook Trip. 27

EGGS

Exchange quotations:
Rcts. wk. ending June 5, 1987 cs.
Fresh extras 35
Case count 34
Pullet 32

Fresh Ranch Exch. past wk.

May	30	31	June 1	2	4	5
'17	34	34	35	35	35	35

POULTRY

We quote from growers:
Broilers .....20@24
Fryers 25
Hens—Leghorns 13-15; Heavy Col'd..20
Roasters 25
Ducklings, lb. 18
Squabs, doz. .....3.00@4.00
Roosters, old 10
Turkeys .....21@24

LIVE STOCK

We quote cwt. f.o.b. L. A.
Cattle—
Beef steers, av. 1000 to 1100 lbs.....10.00
Heifers, good 8.00
Cows, good .....7.00@7.50
Fair .....6.50@7.00
HOGS—
Av. 125 lbs. .....12.00@12.25
Av. 150 lbs. .....12.50@13.00
Av. 175-225 lbs. .....13.25@13.50
Rough, docked 20 lbs.; piggy sows, 40 lbs., stags, 40 per cent.
Prime wethers .....9.50@10.00
Ewes .....9.00@9.50
Lambs 13.00
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:
Northern 5.00
Oregon 5.00
Russets 5.00
Sweet, lb. 8
New, lug .....1.10@1.35

ONIONS

Wholesale selling price:
Onions, Brown, lb. .....8@10
Crystal Wax, cr. .....1.40@1.50
Bermuda, cr. .....1.40@1.50
Garlic, lb. 10

VEGETABLES

Wholesale prices:
Arichokes, doz. .....50@75
Asparagus, lb. .....10@11
Beans—Wax, String .....6@6½
Ky. Wonder .....6½@7
Beets, doz. bunches 40
Cabbage, lb. .....2@3
Carrots, doz. 40
Chicory, doz. .....40@50
Cauliflower, doz. 1.00
Celery, doz. .....1.00@1.50
Corn, lug 1.50
Cucumbers, Hothouse, doz.....75@1.25
Eggplant, lb. 20
Horseradish, rt. lb. 15
Lettuce, doz. 25
Leeks, doz. 30
Mint 40
Onions, green, doz. 25
Oyster Plant, doz. 45
Peas, lb., Telephone .....5½@6
Peppers, Chili, lb., 25; Bell .....30@40
Parsnips, doz. 45
Parsley 20
Radishes, doz. 20
Rhubarb—Crimson Winter 75
Strawberry .....1.05@1.10
Giant 1.35
Romaine, doz. 45
Spinach, doz. 20
Squash, Summer, cr. 1.25
Turnips, doz. 40
Tomatoes, cr. .....1.90@2.00

FRUITS

Wholesale prices:
Apples—W. W. Pearmain 2.75
Newtown Pippin, Yellow 2.75
Avocados, doz. .....6.00@10.00
Apricots, cr. .....1.80@2.00
Bananas, lb. 5
Cherries, lb. .....10@11
Bings, lb. 13
Figs, bx. 1.25
Loganberries, bskt. .....6@7
Loquats, cr. 2.00
Peaches, cr. 1.75
Blackberries, basket .....7@8
Raspberries, basket .....5@6
Gooseberries, lb. .....9@9½
Strawberries, basket .....5@6
Pineapples, lb. 8

CITRUS

Lemons .....2.25@2.85
Juice 1.25
Grapefruit .....2.50@3.50
Limes, basket 1.00
Valencias .....2.50@3.10
Navels .....2.50@2.75
Tangerines, lug 1.50

HONEY

Wholesale prices:
Extr. lb. White 8½@9½c; A. 8½@9c; W.W. .....10@11
Comb., lb. W. 12½c; Lt.A.....12½@14c
W.W. 14½
Beeswax, lb. 32

NUTS

Peanuts, raw 11
Pine Nuts 20

BEANS

Wholesale Prices:
Lady Washington 17.50
Limas 17.00
Pinks 12.50
Manchurian Reds 12.00
Baby Mex. 8.50
Garbanzos .....9.00@10.00
Small White 17.50
Blackeyes 12.00
Tepary 12.00
Lentils 18.00

HAY

Hay market is decidedly quiet and purchasers holding off for more settled conditions.

We quote ton f.o.b. L. A. to producers:
Barley .....17.00@19.00
Alfalfa .....13.00@16.00
Straw .....10.00@12.00

GRAIN AND FEEDSTUFFS

Wholesale cwt. f.o.b. L. A.
Alfalfa Meal, 100 lbs. 1.75
Alfalfa Molasses, 100 lbs. 1.80
Barley, Rolled 2.50
Barley, Recleaned Whole 2.55
Barley, Hulled 3.00
Beet Pulp 1.80
Bran, heavy 2.35
Cocoanut Meal 2.05
Cottonseed Meal 2.50
Corn, Yellow 3.70
Corn, White 3.80
Corn, Cracked 3.75
Corn, Egyptian 3.70
Milo Maize 3.70
Corn, Feed Meal, 100 lbs.....3.80
Middlings 2.95
Oat Chop 2.10
Oats, White 2.70
Oats, Rolled, White 2.75
Oats, Hulled 4.60
Oilcake Meal 3.30
Wheat, No. 1 .....4.60@4.65
Wheat, Cracked, No. 1.....5.00
Rye 4.65
Blood Meal .....4.50@4.60
Bone, Green .....2.65@2.75
Bone, Dry .....2.85@2.95
Charcoal, 50-lb. sk. .....2.55@2.65
Clam Shell .....70@80
Grit Granite .....65@75
Hemp .....5.50@5.60
Oyster Shell .....1.25@1.35
Sunflower Seed .....4.10@4.20
Soya Bean Meal .....3.30@3.40
Scratch Feed .....4.15@4.25
Scratch Gritless .....4.35@4.45

San Francisco Markets

SAN FRANCISCO, June 4, 1917.

BUTTER

Dairy Exchange quotations, lb.:
Fresh extras 36½
Prime firsts 36

Extr. Cr'y. Prod. Exch. past wk.

May	29	30	31	June 1	2	4
'17	.....34½	....	33½	33½	33	33
'16	.....24½	....	23½	24½	25½	....

CHEESE

Dairy Exchange quotations:
Cal. Flats ...21@22½ Y. Am.....23@23½

EGGS

Rcts. wk. ending June 4, 17,621 cs.
Dairy Exchange quotations:
Fresh extras 33
Firsts 32½
Select Pullets 28½
Firsts 29

Fresh Extr. Prod. Evch.. past wk.

May	29	30	31	June 1	2	4
'17	38	..	36½	36½	36½	36½
'16	25	..	25½	25	25½	..

POULTRY

We quote from producers, lb.
Hens, large 24@25; Leghorns .....16@17
Small Colored .....20@21
Fryers, lb. .....33@35
Broilers, large 27@28; small .....25@26
Roosters, old 13@14; young .....33@35
Squabs, doz. .....2.25@2.75
Ducks .....18@20
Geese .....19@20
Belgian Hares, live 14@15; dr. .....17@18

LIVE STOCK

Prices gross weight:
Cattle:
The following prices are for gr ss fed stock. Hay fed bring ½ to ¾c more.
Steers, lb., 7@9, cows and heifers, 4@7½; calves, 6¾@8¾.
Sheep:
Wethers, 11; shorn, 1½@2c less; ewes, 10; lamb, lb., 12@12½.
Hogs:
Hard grain fed, wt. 100 to 150 lbs., 12¼@12½c; 150 to 300 lbs., 13¼@15½; 300 to 400 lbs., 14¾@15; undesirable, 6@9.

POTATOES

Wholesale selling prices at wharf:
Oregon Burbanks, old, cwt.....4.50@4.75
Delta, lb. .....3¼@3¾
Southern, lb. .....3@3¾

ONIONS

Wholesale selling price on wharf:
New crop.
Crystal Wax, cr. .....1.75@2.00
New Red and Silverskin, sk....1.25@1.50
New Green, bx. .....50@85
Bermuda, cr. .....1.75@2.00
Garlic, lb. .....1@3

VEGETABLES

Wholesale selling price:
Asparagus, bx., Fy. Wh. lb.....6@7
Green .....2.00@2.50
Artichokes, doz. large 40
Beans, String, lb., 5@7; Wax.....6@8
Ky. Wonder, lb. .....8@9
Corn, Green, doz. .....30@60
Cucumbers, bx., hothouse.....1.25@1.50
Outdoors .....1.25@1.50
Peas, sack .....1.50@2.00
Peppers, Bell, 25; Chili .....15@20
Rhubarb, bx. .....1.00@1.25
Squash, Summer, cr. .....50@1.00

FRESH FRUIT

Wholesale selling price:
Apples—Newtown Pippins .....1.35@2.00
Apricots, cr. .....1.50@2.00
Bananas, bunch .....1.25@1.75
Cherries—
Black Tartarian, dr. .....90@1.10
Royal Anne .....1.00@1.10
Black, lb. .....8@12½
Figs, blk. bx. $1.25@1.50; wh..1.00@1.25
Peaches, cr. .....1.75@2.00
Strawberries—
Longworths, chest .....5.50@6.00
Large varieties 6.00
Blackberries, cr. .....1.25@1.50
Gooseberries, lb. .....4@6
Raspberries .....1.00@1.25
Loganberries, cr. .....75@1.00

CITRUS FRUIT

Wholesale selling price:
Lemons .....1.75@3.50
Lemonettes .....1.25@2.25
Limes, Mex., cs. .....4.25@5.50
Grapefruit .....1.75@3.00
Navels, bx. .....1.50@2.90
Tangerines, half orange box....1.75@2.00

PEACH PRICES

A circular of Peach Association says:
According to inventory, we have unsold a limited quantity of both yellow and Muir peaches. We, therefore, offer our remaining stocks, each car to contain the following approximate percentages of grades, and at prices set opposite:
40 pct. Standard Muirs at 7½c
5 pct. Fancy Muirs at ..... 9 c
10 pct. Extra Fancy Muirs at..... 9½c
10 pct. Standard Yellows at 7½c
5 pct. Choice Yellows at 8¼c
10 pct. Fancy Yellows at..... 8½c
20 pct. Extra Fancy Yellows at..... 9 c
All quotations bulk basis.
For 50-lb. bxs. unfaced, add.... ¾ per. lb.
For 50-lb. bxs. faced, add..... ⅞c per lb.
For 25-lb. bxs. unfaced, add .. ⅞c per lb.
For 25-lb. bxs. faced, add ....1 c per lb.
For 10-lb. bxs. unfaced, add ..1⅛c per lb.
For 10-lb. bxs. faced, add ....1⅛c per lb.
We also have approximately three cars of slab peaches, which we offer at 7¼c, bulk basis.
We will continue to receive orders until further notice for fancy peeled peaches, either for assorted or straight car lots, at 12c, bulk basis.
All of the above we quote f.o.b. factories, California, where stocks are available, subject to our confirmation and subject to goods being unsold, for May-June shipment; prices guaranteed against our decline to June 30th, 1917.

DRIED FRUITS

Wholesale quotations:
PRUNES—Bulk basis, per lb.: 30s to 40s, 9½c; 50s to 60s, 9¾c; from 60s to 70s and 70s to 80s, 9¾c; 80s to 90s and 90s to 100s, 10c.
Other fruits, 50-lb. boxes:

	Stand-ard	Extra Choice	Choice	Fcy.
Apples	....	10¾c	11c	11½c
Pears	.....7½c	9½c	10½c	12¾c

BEANS

Jobbers' prices, cwt. recleaned:
Limas .....15.75@16.25
Bayous .....11.25@11.50
Garbanzos .....6.50@7.00
Cranberry 12.00
Small White .....16.00@16.25
Mexican Red .....11.25@11.75
Large White .....15.75@16.00
Pinks .....11.50@12.00
Black Eyes .....9.25@9.75
Red Kidneys .....13.00@14.00

NUTS

Peanuts, Jap, 7@7½; Eastern 7½
Pecans .....19@20
Pine Nuts .....15@17

HONEY

Jobbers' prices:
Comb, lb., W.W., 13@15; A., 8@10c; Lt. A. .....11@12
Ex. Fy. W. lb. .....10c; Lt. A.....8
Beeswax, lb. .....30@32

RICE

Price to growers:
Cal. Rough cwt. .....3.25@3.50
Lower Grades .....2.50@3.25

HAY

Under date of June 2 Scott, Magner & Miller say:
Arrivals past six days 1116 tons. All of the horse hay which arrived consisted entirely of hay from old crop. None of the new crop has as yet come in. The demand is rather light. Harvesting is in active progress and the general quality appears to be exceptionally good, superior to last year's crop. We quote today wholesale prices in carload lots as appear from dealers' transfers. For prices to consumers, charges of cartage, commission and handling expenses must be added.
Wheat, Fy., lt. bales.....29.00@30.00
Wheat or Wh. and Oat, No. 1.27.00@28.00
Wheat or Wh. and Oat, No. 2.25.50@26.50
Oats, Choice Tame .....29.00@30.00
Other Tame .....24.50@26.00
Barley .....25.00@27.00
Alfalfa, first cutting.....14.00@15.50
Stock Hay, new .....10.00@12.00
No. 1 Barley Straw, Baled.....1.00@1.10

GRAIN

Grain Exchange prices, ctl.
Wheat—No. Bluestem .....4.40@4.50
Corn, California .....3.25@3.50
Corn, Eastern Yellow .....3.25@3.30
Corn, Egyptian White .....4.15@4.25
Oats, White Feed .....2.60@2.70
Barley, Feed, old 2.10-2.25; new 2.00-2.05

FEEDSTUFFS

Wholesale prices per ton:
Bran .....41.00@43.00
Cornmeal .....71.00@72.00
Cracked Corn .....71.00@72.00
Cocoanut Meal .....35.00@36.00
Middlings .....54.00@56.00
Alfalfa Meal, carlots .....33.00@34.00
Shorts .....46.00@48.00
Rolled Barley .....49.00@50.00

SEEDS

Prices in round lots, lb.:
Millet, recleaned .....3¼@4
Alfalfa .....20@21
Flax .....5@6

TOLD HIM TRULY

"Johnnie, how do you spell nickel?" the proud father asked.

"N-i-k-l-e," responded Johnnie.

"That is not the way the dictionary spells it," said the father.

"You didn't ask me that. You asked me how I spelled it."—Exchange.

Citrus Fruit Market

LOS ANGELES, June 6, 1917.

Navels are still selling in the auction but as far as shipments are concerned are practically cleaned up. This has lessened the number of cars forwarded and market has materially strengthened. Four dollar prices have been received for many shipments. Shipments are now falling below the 150 market and the Valencias which will have the market from now until late November have practical assurance of good market.

Shipments

Shipments of oranges from Southern California to date since November 1, 1916, 27,153 cars, lemons 4824, total 31,977; to same date last season, oranges [illegible], lemons [illegible], total [illegible]. From Central California to date this season oranges 4094, lemons 164, total 42[illegible] to same date last season, oranges [illegible], lemons 146, total 5494. From Northern California to date this season, oranges 845; to same date last season, oranges 601, lemons 1.

FROM THE AUCTION

May 31

New York: 46 oranges, 4 lemons, market stronger. Nav., $2.45@3.75; sales generally running about $3.00.

Boston: 25 cars, higher. Nav., $2.45@3.50; grapefruit, halves, $2.65@2.90.

St. Louis: 10 cars. Nav., $1.60@3.25; lemons, $2.30@3.35.

June 1

New York: 23 oranges, 1 lemon. Nav., $2.70@3.65; bloods, $2.70@3.05.

St. Louis: 13 cars. Nav., $2.15@3.00; seed., $2.30@2.85; lemons, $1.70@2.90.

June 4

New York: 43 oranges, 2 lemons. Higher. Oranges, $2.75@4.05; grapefruit, $1.70@2.00.

Boston: 26 cars. Nav., $2.30@3.60.

June 5

New York: 33 oranges, 1 lemons, slightly lower averages. Nav., $2.10@3.85; Mikes, $2.95@3.75; Val., $3.20@3.65.

Philadelphia: 10 cars. Nav., $2.15@3.40; Val., $3.25@3.60; lemons, $3.30@4.00.

Boston: 14 cars. Nav., $1.80@3.65; lemons, $3.05@3.75.

WEATHER CONDITIONS

For the Week Ending June 2, 1917

	Rainfall Wk.	Season.	Norm.	Temp. Max.	Min.
Eureka	.04	31.30	45.10	54	46
Red Bluff	.00	19.24	24.61	88	52
Sacramento	.00	12.94	19.96	86	48
San Francisco	.03	15.78	22.12	64	46
San Jose	.04	12.61	16.73	78	44
Fresno	.00	7.25	9.61	90	48
San Luis Obispo	.04	23.02	20.44	72	46
Los Angeles	.00	15.06	15.57	74	48
San Diego	.01	10.11	10.00	64	50

HELPED BY THE SERMON

A colored preacher was vehemently denouncing the sins of his congregation. "Bredern an' sistern, Ah warns yo' 'gainst de heinous sin ob shootin' craps! Ah charges yo' 'gainst de black rascality ob liftin' pullets. But above else, bredern an' sistern, Ah demolishes yo' 'gainst de crime ob melon stealin'."

A brother in a back seat made an odd sound with his lips, rose and snapped his fingers. Then he sat down again with an abashed look.

"Whuffo, mah fren'" said the parson sternly, "does yo rar up an' snap yo' fingers when Ah speaks ob melon stealin'."

"Yo' jes remin's me, pahson," the man in the back seat answered meekly, "wha' Ah lef' mah knife."

SPEED OF CREAM SEPARATORS

Thousands of tests made with different cream separators during the past two or three years by government experiment stations and other dairy authorities have proved conclusively that many thousands of dollars worth of cream were being lost by farmers because they turned their cream separators too slowly.

It was shown that in many cases, with a herd of ten cows, this loss ran from $50 to $100 a year, and often more.

As a result of these investigations, and the investigations made by its own engineers, the De Laval Separator Company designed and perfected a Bell Speed-Indicator, and one of these indicators is now a part of the regular equipment of every hand-operated De Laval Cream Separator. Its operation is simple and is such that the bell rings as long as the machine is run below the proper speed and is silent whenever the proper speed is maintained.

Alfalfa Land

For Dairying

Also First Class Orchard Land
10 Acres and Up

BRENTWOOD IRRIGATED FARMS

in Contra Costa County

(63 miles from San Francisco)

Easy terms of payment. For prices, etc. address

Balfour, Guthrie & Co.

Land Department

350 California St. -:- San Francisco

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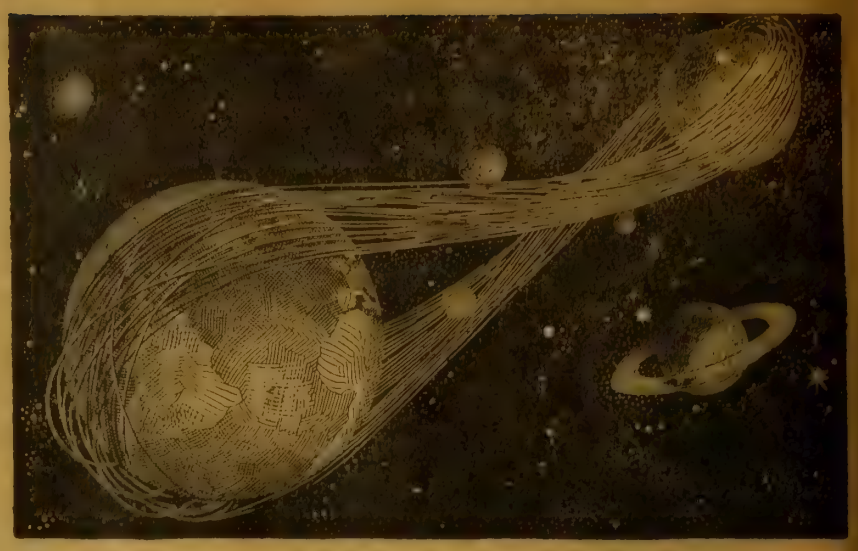

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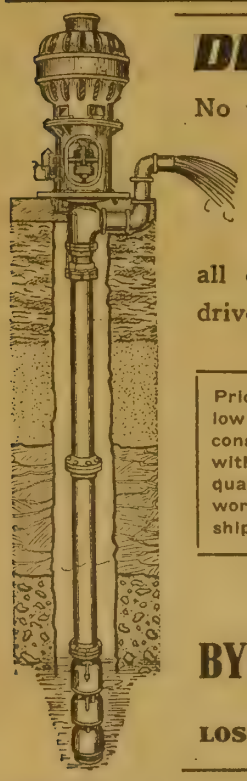

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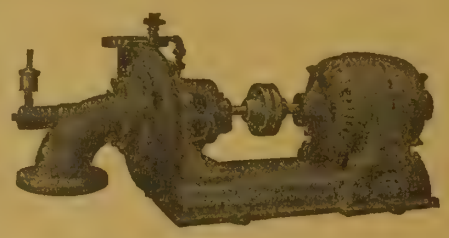

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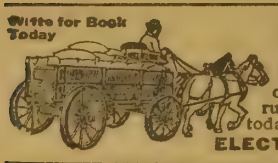

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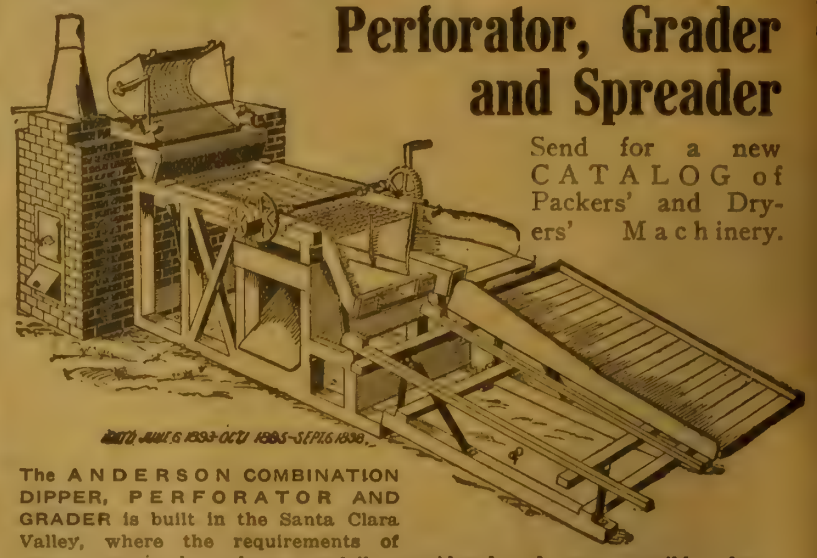

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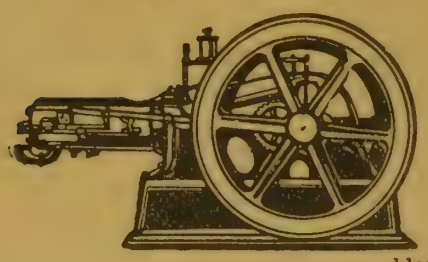

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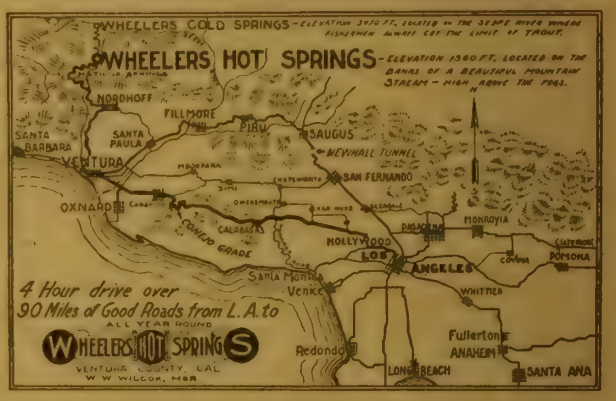

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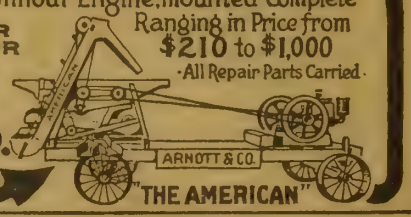

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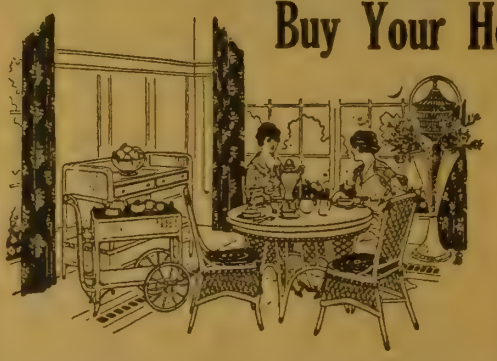

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California Cultivator

Vol. XLVIII No. 24 LOS ANGELES: June 16, 1917 One Dollar Yearly

Some Hints on Onion Culture

Written for the California Cultivator by John N. Gardiner. Notes from Practical Experience

THE accompanying picture shows three onions placed side by side, measuring 13½ inches, weighing 2½ pounds in all, which were grown by the writer from seed sown the first of September last and harvested the latter part of May. They are the White Queen variety, and about ¾ ounce of seed was used at a cost of 20 cents. The space in my garden where these onions were grown measures 45 feet long by 6 feet wide, whereon about 150 pounds of the bulbs were harvested, running all the way from two to five inches in diameter. This season there were quite a few thick necks, due to the long continued cold, which materially retarded the growth, as they should have been cured a month or six weeks earlier.

The onion requires for proper development cool weather and ample moisture in the early stages, concluding with heat and dryness at the time of ripening, hence the best time for starting the seed is late in the summer and early in spring, as during our hot dry months it is difficult to prevent the bulbs from ripening prematurely. The plant is a heavy feeder, and it is practically impossible to have the ground too rich, and as a large yield can be had from a small space, it is advisable to manure heavily. However, fresh manure will produce large tops at the expense of the bulbs, but if it is thoroughly incorporated with the soil and wet down sometime in advance of planting, good results should be obtained. Poultry manure is considered the best fertilizer for this crop, especially as a top dressing, and can be applied two or three times during the growing season. Some growers use a solution of nitrate of soda, which I have found will force the onions to good sizes, but as it is a strong stimulant, the keeping qualities of the bulbs will be seriously impaired. If you have some wood ashes available, spread thin

Nearly a Half a Yard of Onions

Grown under right conditions, the onion makes a great crop. The center one weighs 24 ounces. Grown by John N. Gardiner.

Continued on Page 674

Is Not Your Home Place Worthy a Name?

For Sentimental and Financial Reasons and for Convenience a Name for the Farm is Desirable. The State Will Protect the Name and, More, the Name May be Made a Brand and Trade-Marked

SOME years ago the California Cultivator urged the naming of the farm and gave at that time several lists which were made up from names which were adopted. There are hundreds of such named homesteads now in the state. How these names may be protected has been a frequent question so we wrote the department of state of California, and from the Trade-Mark department have the following from its attorney:

H. M. Standerwick

Any farm, ranch or villa owner in California may have the name of his farm, ranch or villa registered by forwarding proper application together with a filing fee of $1 to the secretary of state. This registration is provided for in an act of the legislature approved March 2, 1911.

The state of California has also provided for the filing of claims to trade-marks in the office of the secretary of state, the essential requirements being a specification of the trade-mark, together with an affidavit of exclusive ownership. The filing fee for a claim to trade-mark is $5.

In some quarters confusion has arisen as between a farm name filing and a trade-mark filing. The former is limited to those cases where the name is used merely as a fanciful designation of a farm, ranch or villa. The latter is proper where the name chosen is used, not as a fanciful designation for a farm, ranch or villa, but as a trade-mark upon the products produced upon such farm, ranch or villa.

As a matter of fact the filing under the farm and villa act has little or no advantage viewed from a commercial standpoint. The act covering this filing is brief. It provides for the form of application, instructs the secretary to issue a certificate of registration, where no similar name has already been registered, and carries but one penalty, namely:

"Any person who shall register as his own any such name already in use in this state, knowing such name to be adopted as the name of a farm, ranch or villa therein, or shall make use of such name when regularly registered and in use by any other person entitled thereto under the provisions of this act, shall be guilty of a misdemeanor."

It will be noted that there are no specific provisions for civil remedies as in the case of a trade-mark. For in the case of trade-marks, one may prevent illegal use by injunction or recover in a civil suit for damages, and the criminal liability also remains.

Since the enactment of the farm and villa act there has been a very small registration of names, the total up to June 7th being an even 150. As against this trade-marks are registered at an average rate of 40 a month, and at present there is in excess of 10,000 claims, estimated on file in the office of the secretary of state.

It would seem, in view of some of the trade-mark provisions, that when one chooses a name for a farm, as for example, Sunnyside Farm, he should be protected in this name as a trade-mark under the farm and villa act filing. For example, section 3199 of the political code provides that any person who has first adopted and used a trade-mark or name, whether within or beyond the limits of this state, is its original owner. Various state and federal decisions point out that "the mere act of filing or registering does not confer title." Therefore if one should register his farm name "Sunnyside," and use this name as a trade-mark upon the products of his farm, and subsequently another should register the trade-mark "Sunnyside" for use with farm products, it would appear from the foregoing that the first user would be the original owner and therefore entitled to exclusive use of the trade-mark, and his original use would be evidenced by his prior filing of the farm name.

However, as against this the point is made, and this is the rule now governing filings in the office of the secretary of state, that the trade-mark laws do not contemplate that a farmer may register his trade-mark for $1 and all other classes of producers be required to pay a fee of $5 for a registration of their trade-marks. If so the act of 1911 would constitute class legislation and be held unconstitutional.

Also there is this to remember: The application for a registration under the farm and villa act is very brief, contains few details and is not supported by an affidavit. It reads:

"APPLICATION

To all to whom it may concern:

Be it known that ..... being the owner of a ..... located at ..... County of ....., State of California, hereby applies for registration as a name for said ..... the following words ....."

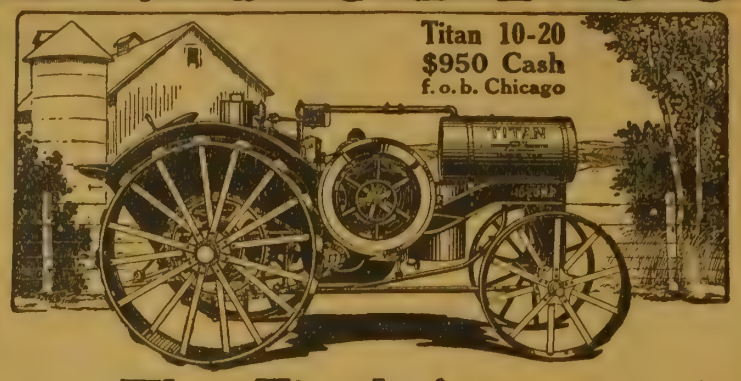
You will note that not even the signature of the applicant is required. Therefore such an application when relied upon as evidence of ownership of a trade-mark, would have little weight with the courts.

On the other hand the trade-mark laws are more strict. The applicant must set forth that he is the exclusive owner of the trade-mark and swear to this statement before a notary public. The words he chooses must constitute a trade-mark in law before he can obtain exclusive use to them, while any words not already chosen by another may be registered as a farm name. Under the trade-mark law no one may obtain exclusive use to descriptive words or phrases or geographical names. If this rule were in vogue under the farm and villa act, it would knock out nearly all of the present filings of farm names.

Personally I am of the opinion that a filing under the farm and villa act can have no great advantage unless regarded in the light of a luxury. One may choose the name, say Chispa Villa, for his country home, have mail addressed to Chispa Villa, and by registering the name prevent another from using the name Chispa Villa for the little shack across the creek, but here, with his pride satisfied, his privilege ends. For should he go into court to prevent another from selling Chispa spuds, when he himself has failed to comply with the trade-mark laws and relies only on his farm name registration, he will find the courts a cool receptor of his claims.

Our advice, based upon a study of the problems that have come up from time to time, to the man who seeks a filing under either or both of these acts, has been:

"File under the farm or villa act, if you wish to protect merely a fanciful designation for your farm, ranch or villa; file under the trade-mark laws if you wish to protect the name as a trade-mark for products produced upon the farm, ranch or villa, and file under both acts if you wish to make the double protection."



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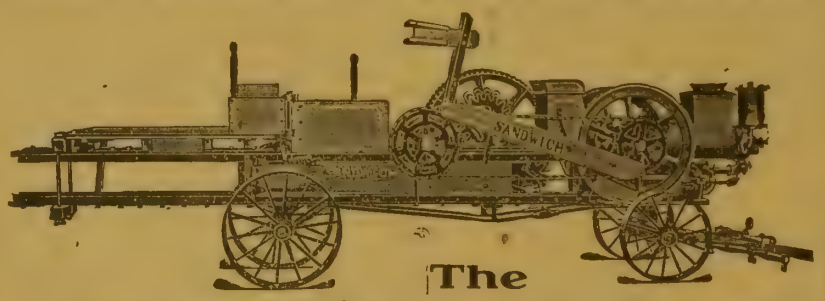

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Processing Citron

By Special Contributor

THESE very complete directions for processing citron were given in the Cultivator of September 14, 1911. Upon request we repeat.

In preparing citron for preserving it is halved, put in brine for three weeks, and said brine must be strong enough to bear the weight of an egg the entire time the citron is in it. By keeping up the proper strength of the brine, the citron can be kept in storage until necessary to use it, being kept this way many months.

You can not depulp the citron raw, as the fiber between pulp and rind is too strong. The citron is boiled in water from 45 minutes to an hour, which boiling loosens up the pulp so it can be easily removed with a spoon. The boiling also brings out the salt in the fruit and after it is dipped in two washings of cold water, all salt should have been removed.

Now the citron is ready for taking up the syrups. Since the citron has already been boiled in only water for about one hour, its texture is softened up so that syrups can soak through it evenly. A syrup can be prepared thick as honey and the citron boiled in it (do not put into the syrup more than one-half its weight of citron—into 100 pounds of syrup put only 50 pounds of citron), the water in the citron will dilute the strength of the syrup. Hence the water of the citron must pass off as steam during the cooking and at the end of one hour the syrup should be just as dense as at the start. Now the citron can be removed with its syrup and both allowed to stand for nearly a week in some vessel.

At the end of the first week the cook will find that the strength of the syrup has greatly decreased. Now the syrup should be brought to its proper strength and the citron cooked in it a second time.

Each time the citron is removed from the vessel in which it is cooked to the vessel it is to stand in, the syrup should be of proper strength. This recooking should take place as often as the syrup is found below the standard in strength. When the syrup has become constant in density, the citron can be kept stored this way at the desire of the cook as long as the syrup covers the fruit, though it is exposed to the air. Dense syrups are preservatives, but weak ones invite fermentation.

Citron should cure up in the syrup for at least four weeks. After this time the syrup should be drained from it and the fruit allowed to dry upon trays in a dry place away from the sun and the bees. It will take from five to seven days for the fruit to dry.

When it is dried, it is dipped into a crystallizing syrup made from pure cane sugar. The syrup is prepared by dissolving sugar in boiling water until you get a super saturated solution—allow the syrup to stand for five hours when a crust of sugar will be formed upon the top—remove the crust and dip the fruit well. Next lay the fruit upon clean trays and after 24 hours standing, a nice crystallization of sugar will cover the fruit. At last the fruit is ready for boxing for shipment.

Note: Prepare your syrups used for cooking three-fifths glucose and two-fifths cane sugar. Cooked in clear glucose the flavor is lost and fruit is too tough. Cooked in straight sugar syrup after standing awhile the sugar crystallizes in it, and transparent condition is lost and fruit becomes brittle.

Orange and lemon peel can be candied according to the same process.

Avocado

PRESIDENT H. J. Webber and Secretary Charles D. Adams of the California Avocado Association have sent to the California Cultivator the following letter:

At the meeting of the California Avocado Association held in Los Angeles, May 18 and 19, the following resolution was unanimously adopted:

"Resolved that the California Avocado Association urge upon the various Los Angeles papers publishing market reports the importance of using the name 'avocado' instead of 'alligator pear' or 'avocado pear' and of classing the avocado under the appropriate name of fruits rather than vegetables. Resolved further that the secretary be instructed to send each paper publishing market reports a copy of the above resolution."

We beg to call attention to the fact that "avocado" is the name used and sanctioned by the United States department of agriculture, the state university of California, and the Avocado Growers' Associations of Florida and California. It is a name common in English literature since the sixteenth century and is the recognized English term.

On the other hand "alligator pear" or "avocado pear" and similar expressions have come to be used by some of the shippers in handling this fruit, but among the people as a whole are not so well recognized as the name "avocado". It is important in introducing this new fruit that it become known under a suitable and proper name. We shall thus be greatly obliged if you will kindly so far as possible assist the California association in getting the correct terminology of this important fruit generally recognized in California.

Dates in Fresno County

W. R. NUTTING of Fresno was a pioneer in raisin culture and later the prime mover in the organization of the association which has saved and made most profitable the raisin industry. Now he is pioneering in the matter of commercial date culture in the central part of the state. On a tract of some 40 acres about 18 miles east and south of Fresno Mr. Nutting is planting dates, and so far as can be determined from the young seedlings is securing some promise of future results. One requirement of the date is abundance of water, and to save every drop he has constructed a system of redwood flume which is not only a water-saver but a labor-saver. One who has seen Mr. Nutting's flume in-

stallation and examined its workings writes:

"Mr. Nutting is very enthusiastic over his discovery, which he has applied with thoroughly satisfactory results to a tract of agricultural land which he is developing near Fresno.

"Irrigation ditches, particularly in sandy soil, very often break as a result of gopher holes that begin with seepage and finally break completely through. This necessitates expensive delays on the ranch while repairs are being made. Mr. Nutting has devised a system of flumes made of 1 x 12-inch redwood boards. He now has half a mile of these flumes and is planning to build another half mile. He finds this gives perfect control over irrigation. The distribution of water is entirely by gravity, using a pump to raise it at the source of supply. In addition to a uniform and dependable supply of water, this system of redwood troughs can be taken up and relaid, thus changing the direction of flow with small expense. Mr. Nutting's experiment with this type of irrigation is being watched with great interest by the ranchers and the same system will be installed on quite a number of other ranches."

Redwood Makes a Fine Flume
W. R. Nutting of Fresno County is planting 40 acres to dates. His soil is sandy and to prevent loss of water and conserve labor has irrigation system of redwood fluming which means efficiency.

Irrigating Dates in Fresno County
Seedling dates on ranch of W. R. Nutting.

Saving Labor

MANAGER Niswander of the California Peach Growers is appealing to the trade to permit the saving of labor in cured peach packing as much as possible. In a recent circular he says:

"It has been the custom of jobbers in many sections of the country to require a very large percentage of their purchases of dried fruits to be faced, especially in 25-pound boxes. In view of the labor shortage that the country is sure to experience during the present year we appeal to you to cooperate with us to the end of inducing jobbers to specify the packing of their dried fruits unfaced, whether in 50 or 25-pound boxes.

"We believe that the jobbing trade can handle to advantage the coming season any line of dried fruit, even though it be not faced, and we hope, in no case, will a jobber specify facing on more than from 20 to 25 per cent of any car order. Dried fruits are faced only for display purposes, and a few boxes faced in each order should be sufficient for this purpose.

More than a thousand workers, including men and women, are engaged in California for several months during the late summer and fall in the facing of dried fruits, which we feel can be largely reduced if the trade generally cooperate with California shippers in this important matter.

"Consider this matter carefully, discuss it with your trade and advise us promptly as to the attitude of your trade in this direction."

NEW BRANCH FOR FOOD-INSECT CONTROL

To enlarge the campaign toward the control of insects infesting stored food products, a new section has been organized in the bureau of entomology of the department of agriculture. The secretary of agriculture has appointed to the new position Dr. E. A. Back of the bureau as entomologist in charge of stored-product insect investigations. This change allows Dr. F. H. Chittenden, who has heretofore carried on the food-insect work of the bureau in connection with investigation of truck-crop insects, to give his entire time to pests of truck crops,

Take This Advice

Buy building and plumbing material now. The prices will advance on account of large purchases made by "Uncle Sam" for his army. The man who buys now will make a profit on his purchase.

Our five story building at Ninth and Maple Avenue, Los Angeles, is crowded with stock purchased long ago before prices began to rise. You now get the benefit of our buying ability.

Lowest Prices in California

Special Paint Bargains

Large stock of reliable paint bought from bankrupt firms, now priced low to sell quickly. Interior washable wall, also cement paint, $1.50 a gallon. Regular $2.25 to $3.00 house paint, big assortment of colors (no white) on sale $1.50 a gallon. $3.00 red wagon paint now $1.50 a gallon.

FIVE CARLOADS of Vitreous China Toilets for which other stores pay $22.50, wholesale, we sell to you for $19. 5½ and 6-foot bath tubs for quick disposal $22.00.

WALL BOARD. Well known Cornell make, $30 per M.

ROOFING PAPER. 1-ply, $1.50; 2-ply, $1.75; 3-ply, $2.00 per roll.

BUILDING MATERIALS. Yes, "Best for Less."

EVERYTHING FOR YOUR BUILDING

AT 9th AND MAPLE WHITING'S BEST FOR LESS L.A.

Yamamoto Citrus Nurseries

Huntington Drive, San Marino, Cal.

WHOLESALE and RETAIL

Orange, Lemon and Grapefruit

120,000 Trees

60,000 Strong, clean one and one-half year old stock

100,000 Florida Sour Seed Bed Stock

Car Lines—Sierra Madre, Monrovia, Glendora. Phone Alhambra 731W

Mail Address R F D 1, Box 666, San Gabriel, Cal.

Back-East Excursions

Have You Bought Your Liberty Bonds?

Reduced round trip tickets to eastern points

Going:—

June 16-17-26-27-30
July 1-2-16-17-24-25-31
August 1-14-15-28-29
September 4-5

Return limit three months, but not later than October 31, 1917.

Some fares:		
	Chicago	$80.00
	Kansas City	67.50
	St. Louis	77.50
	New York	118.20

Proportionately low fares to many other points

Southern Pacific

—See the Apache Trail of Arizona.

AMERICAN BEAUTY DUST SPRAYERS PROTECT

"A Puff in Time Saves the Vine"

The best knapsack sprayers. Kill red spider, mildew, and insects in record time. Indispensable for bean growers - - orange growers—truck gardeners. Powerful bellows, perfect cloud—no waste.

Ask your dealer—or send us $12.50 for vineyard size, $14.50 for orchard size. All charges paid. Trail offer. Send for circular.

We Fully Guarantee Every Machine

THE CALIFORNIA SPRAYER CO.
6029 Pasadena Ave., Los Angeles, Cal.

a field also of great importance at this time.

Dr. Back left Washington this week to investigate the grain and food storage situation through the country. He will study present storage conditions and determine the needs, as they relate to insect control, for proper care of the food crops after the coming harvest.

Dry Wine Grapes for Hogs and Cows

WITH this year's abnormally high price for grain many vineyardists may find that the most profitable use of their wine grapes would be to dry them and feed them to hogs or cows. Feeding tests made by the University of California at the farm at Davis have shown that dried grapes may be successfully used to replace half the grain of the ordinary ration for hogs. They are best fed in connection with grain, alfalfa, and similar feed. While the acidity of the raisins is wholesome they may produce digestive disturbances in live stock if they form too large a proportion of the ration.

The grapes should be allowed to ripen as much as possible before drying as this will not only make the drying more rapid, but will much increase the yield per acre and the nutritive value of the dried grapes.

Eleven varieties of wine grapes grown by the university on a two-and-a-half acre plot at the Kearney experiment vineyard produced the following average yields; 3-year-old vines, 2.6 tons to the acre; 4-year-old, 6.2 tons; 5-year-old, 10.6 tons of fresh grapes to the acre. This was equivalent to .83, 1.98, and 3.39 tons of dried grapes respectively per acre. These crops, harvested last fall, if dried and now sold as feed for live stock in competition with the present price of $60 a ton for ground barley would represent a gross return per acre of $49, $112, and $200 respectively.

Figuring on a yield of five tons of fresh grapes to the acre as a reasonable average crop for wine grapes in the San Joaquin Valley and estimating $40 a ton as a selling price for dried grapes to be used as feed for hogs and cows, the gross returns would be $64 an acre.

Such use of dried wine grapes as feed for live stock would not be profitable at normal prices for wine grapes and normal prices for grain, but is one of the vagaries of war time prices for farm products.

Promise of Record Fruit Crop

Reports received by State Commissioner Geo. H. Hecke from the horticultural commissioners of the 45 fruit producing counties of California, showing fruit conditions on June 1, promise the largest crop setting on the trees in years. A shortage is noted in some localities in a few varieties, while other sections show above the average, and the new acreage coming into bearing should offset the losses.

The weather for the month of May, while cooler than usual, has benefited the grain crop and has not proved injurious to the fruit crop, except in one county—some sections of Sonoma County suffered a slight loss from a freak frost visitation, and yet this county as well as nearly all others of California shows a more optimistic outlook than a month ago. For example, by way of comparison, with the May reports:

Almonds made a gain of one point during the month, moving from 58 per cent to 59.

Apples lose one, from 93 in May to 92 in June.

Apricots show a handsome increase, moving from a 57 per cent crop on May 1 to 65 per cent June 1.

Other fruits as follows:

	May 1 Pct.	June 1 Pct.
Cherries	68	67
Figs	94	95
Lemons	91	91
Olives	96	96
Oranges	94	100
Peaches	83	86
Pears	99	89
Plums	60	61
Prunes	91	77
Walnuts	94	99

Because of the important bearing the fruit crop, California's chief food industry, has on the unusual world conditions more or less anxiety has been manifested, but Mr. Hecke now feels that with the usual care and continued favorable conditions a record crop of fruits may be prophesied for 1917.

OUTPUT OF STATE'S DECIDUOUS FRUITS

The following table gives the estimated per cent of the total crop of the principal California fruits grown in each of the main producing counties during a season of normal production. It is compiled from reports of the county horticultural commissioners by Geo. P. Weldon Chief Deputy State Commissioner of Horticulture.

County	Almonds	Apricots	Cherries	Figs	Peaches	Pears	Plums	Prunes	Walnuts
Alameda	—	14	9	..	..	2	—	—	..
Butte	12	..	—	3	3	—	—	2	..
Colusa	4	—	..	..	—	—	..	..	..
Contra Costa	11	—	—	..	..	6	—	—	..
El Dorado	..	..	—	..	..	3	—	..	..
Fresno	..	5	..	58	29	..	..	—	..
Glenn	—	—	..	..	..	..	—	..	..
Humboldt	..	..	..	..	..	..	..	..	..
Imperial	..	—	..	—	..	..	..	..	..
Inyo	..	..	..	..	..	..	..	..	..
Kern	..	—	..	..	—	—	—	—	..
Kings	..	5	..	..	6	..	..	—	..
Lake	—	—	..	..	—	8	..	—	..
Los Angeles	2	4	..	—	4	—	3	—	30
Madera	—	—	..	3	—	..	..	—	..
Mendocino	..	..	..	..	..	..	—	..	..
Merced	—	—	..	9	3	..	..	..	..
Modoc	..	..	..	..	..	..	..	..	..
Monterey	—	2	—	..	..	—	..	..	..
Napa	—	—	—	—	—	4	—	4	..
Nevada	..	—	—	..	—	—	—	..	..
Orange	..	4	..	..	..	..	..	..	33
Placer	—	..	3	—	6	7	39	..	..
Riverside	3	7	—	..	—	—	—	—	..
Sacramento	6	—	5	..	—	18	8	—	..
San Benito	—	6	—	..	—	—	—	3	..
San Bernardino	..	4	—	..	5	..	..	..	2
San Diego	—	—	..	..	—	..	..	—	..
San Joaquin	12	3	25	—	8	4	—	—	..
S. L. Obispo	—	—	..	..	..	..	..	..	..
Santa Barbara	..	—	2	..	..	..	..	..	10
Santa Clara	—	21	26	—	5	9	18	55	..
Santa Cruz	..	3	2	..	—	..	..	—	..
Shasta	—	..	..	..	—	—	—	—	..
Siskiyou	..	..	..	..	..	..	..	..	..
Solano	6	3	10	..	3	6	16	4	..
Sonoma	—	—	9	—	—	6	—	12	..
Stanislaus	6	—	—	5	3	—	..	..	..
Sutter	9	..	—	.	2	—	—	—	..
Tehama	—	—	..	—	—	2	—	—	..
Tulare	—	—	..	6	9	..	2	4	..
Ventura	..	6	..	..	..	..	..	..	20
Yolo	11	5	..	5	2	9	4	2	..
Yuba	—	..	..	2	—	—	—	—	..

(—) Less than 2 per cent of state's normal crop grown in county.

Big Increase Over 1916

A few comparative figures indicate a big increase this year:

The GREAT REPUBLIC LIFE INSURANCE COMPANY

of Los Angeles, has a business offer especially desirable, and of especial interest to every Rancher, Horticulturist and Livestock man in California. We are in business with thousands of our fellow producers.

For the Hour and the Need we are writing three policies that every Producer should know about.

Safeguarding the Future by making a small investment now is a simple matter under the plans we offer.

Life Insurance was never more valuable than now. Our policies are incontestible after one year.

The Officers, Directors, and Stockholders of this Company are Californians of financial power, and every policy written is safeguarded by a bulwark of assets and sound business administration making this YOUR HOME COMPANY a most desirable business partner.

Literature regarding our Company and the policies we write will be sent upon application.

Great Republic Life Insurance Company
626 South Spring St. - - LOS ANGELES

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

Citrus Trees

Orange Lemon Pomelo Lime

Selected Buds (Pedigreed) from tested quality fruit and productive trees; Trees carefully propagated to produce a thrifty and prolific root system; Intelligently trained to induce a strong development of fruit bearing wood; Attentively dug and handled so as to insure growth when planted in orchard.

Owing to the late spring and cool summer there is no better time in which to plant citrus trees than right now, and particularly so if you will plant our bud-selected, well rooted, carefully trained and properly packed orange and lemon, pomelo and lime trees. We have been growing citrus trees for nearly a third of a century, and hence feel convinced we can please you; that if you plant Teague Stock your orchard under proper care will earn you dividends. Direct-to-you-prices on Teague Quality Trees will surely effect an economy in your citrus tree buying. Write us your wants.

THE R. M. TEAGUE CITRUS NURSERIES

The Oldest and Exclusively Citrus Tree Business in America

R. M. TEAGUE, Manager - - - SAN DIMAS, CALIFORNIA

"You will never regret planting Teague Trees."

Almonds are tied with last year's report, indicating 59 per cent for June 1.

Apricots showed 40 per cent last year and 65 per cent this year.

Peaches 68 per cent in 1916 and 86 per cent 1917.

Pears 63 per cent 1916; 89 per cent 1917.

Prunes 52 per cent last year and 77 per cent this year.

Other fruits show about the same ratio.

Preservation of Vegetables by Salt and Fermentation

VEGETABLES can be preserved more cheaply than in cans or jars and more simply, for household use, than by drying. The methods make use of the preservative qualities of salt and lactic acid, says a circular now being mailed by the division of viticulture of the University of California.

1. Preservation in Brine.—The vegetables are first washed, and sliced. They are then placed in a crock or barrel or other wooden vessel containing a strong brine. Metal vessels cannot be used. The brine is made by mixing 3½ to 4 pounds of salt to each gallon of water. All of this salt will not dissolve in the water, but the juices of the vegetables will dissolve the excess. The vegetables must be kept submerged by means of a well-fitting wooden cover weighted with a stone or similar object that will not be acted on by the brine.

2. Preservation in Salt.—Prepare the vegetables as above. Weigh them and take one pound of salt for each two pounds of prepared vegetables. A layer of salt is first placed on the bottom of a crock or barrel and then a layer of vegetables. Similar layers are alternated until the vessel is full, finishing with a good layer of salt. A wooden cover is then applied and weighted as in the first method. After a few days there will be a considerable shrinkage in volume and the vessel can then be filled with more layers and weighted as before.

These methods are suitable for most root vegetables, string beans, cabbage and cucumbers. The second is preferable.

The large quantities of salt used must be removed by soaking before the vegetables are eaten.

3. Preservation by Fermentation.—Cabbage, string beans, beets, and cucumbers can be preserved by covering them with a weak brine and allowing them to undergo spontaneous fermentation out of contact with the air.

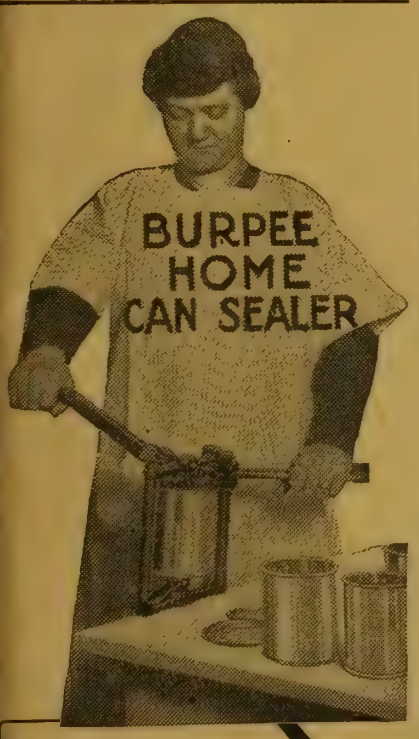
The vegetables, prepared as above, are mixed with salt at the rate of one-quarter to one-half of a pound of salt to ten pounds of vegetables and tightly packed in a deep crock or barrel. They are then weighted down with a tightly-fitting wooden cover and a heavy stone. The salt and pressure force out the juice of the vegetables and they decrease in volume one-third to one-half.

If kept in a warm room (65 to 70 degrees Fahrenheit) a gaseous fermentation commences and continues for several weeks. This fermentation produces lactic acid, which preserves the vegetables. When the fermentation is over and the vegetables taste a little sour the liquid is drawn off and replaced with a brine containing one-half of a pound of salt to one gallon of water. In this they will keep in good condition for a long time if well protected from the air.

THE CHERRY COUNTY

The finest cherries we have ever seen we have just found in a box from Solano County. They were grown on the ranch of Millard Sharpe and put up in a most perfect pack. The layers were packed nine by ten, absolutely uniform, and even the selection for color was perfect. The cherries were of the Bing variety and of excellent flavor.

The state ships 250 to 300 carloads of cherries to Eastern markets. These have sometimes sold for as high as ten dollars per pound. We grant this is only an exceptional case where the first boxes of cherries reach the market very early. In addition the canneries pack each year 175,000 cases. Solano County produces more than any other one section, and nearly all the output is from north of Tehachapi. Only two sections in Southern California, in the mountains of San Bernardino County and in San Diego Couty, produce any cherries and this in very small quantity.



Follow President Wilson's Advice

SAVE ALL
YOUR PRODUCTS—
DON'T WASTE ANYTHING

Help to correct America's great fault of wastefulness. Raise big crops, and put into cans all that you cannot sell now. There'll be a big demand for them next winter.

You can save everything with a

BURPEE HOME CAN SEALER

A simple, low-priced machine that makes any kitchen a canning factory. Clamps on any table. No acid nor solder required. Satisfaction guaranteed or money back. Cans easily secured at our distributing stations.

Free book of recipes, compiled with the assistance of U. S. Dept. of Agriculture, goes with each machine.

Write today for free booklet.

BURPEE & LETSON, LTD.
So. Bellingham, Wash.

MAIL THIS COUPON TODAY

BURPEE & LETSON, LTD.,
So. Bellingham, Wash. E

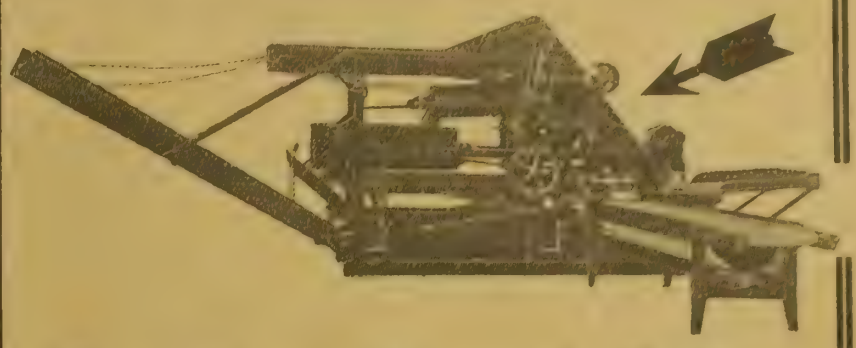
Dear Sirs:—Please send free illustrated folder on BURPEE HOME CAN SEALER.

Name .....

Address .....

Mr. Almond Grower

You can reduce the cost of your own hulling fully 80 per cent, and hull your neighbors' almonds at a profit of $20.00 per ton with this wonderful machine.



The Read Almond Huller and Separator

will hull and separate almonds—quick and clean—at a cost of only $5.00 A TON.

The hand method costs from $25 to $32 a ton.

No wonder one owner says, "It would be impossible to do without it."

Let us send you our literature describing it, and telling what other owners say about it. Would ask that you get your order in early, so that you will not be disappointed in delivery, as we are behind in filling orders in all our departments, and will be for some time to come.

Write now while you think of it. Address,

Schmeiser Manufacturing Co.
22 Mechanic Street Davis, California

The Food Problem Solved

Make Summer Garden Supply Winter Table Our Economy Steam Canner Does it

With it you can utilize the fruit jars you have—Masons, Economy, tin, glass, earthen, or other material.

ANY WOMAN WHO KNOWS HOW TO PUT UP FRUIT AND VEGETABLES CAN OPERATE IT SUCCESSFULLY. Full instructions accompany each shipment. **Agents Wanted Everywhere.**

ECONOMY HOME STEAM CANNER CO.
516 South Hill Street - - Los Angeles, California

Cut Citrus Crop Losses by Summer Spraying

PROTECT YOUR PROFITS WITH TRIUMPH AND BORDEAUX

Don't wait until fall to use an insecticide on your trees. By then the insects will have done irreparable damage.

Reduce insect injury to the minimum by spraying your grove this summer before the larvae mature with our TRIUMPH and Bordeaux combination spray—Scientifically Right, Grove Tested, Commercially Satisfactory. It is not a "shotgun" mixture.

The TRIUMPH and Bordeaux Combination is a Fungicide as well as an Insecticide. It controls insect pests and fungus diseases at the same time at the cost of one spraying. It is safer as regards spotting of fruit and tree injury than is a straight insecticide.

The supply and price of Triumph and Bordeaux are certain. Stocks are on hand in Los Angeles and San Francisco. Quotations upon request.

Clip and mail the coupon for our new free book, "Spraying of Citrus Trees." It is crammed with new, accurate information, formulas and quantity tables.

BALFOUR, GUTHRIE & CO.

Box C, 350 California St., San Francisco, or 816 Higgins Building, Los Angeles.

Insecticide
Department
Paul R. Jones,
Entomologist

UNIVERSAL BRAND ORCHARD SPRAY

Please send your free book on "Citrus Spraying" to

Name.....

.....

Address.....

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No. acres in grove.....

Kind of trees.....

Age.....

Make the reading of advertisements in the California Cultivator a habit. They will broaden your knowledge of the manufacturing improvements.

Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Paddy Rice for Chickens

Please advise if rice with hulls on is injurious to chickens when fed the same as wheat.—Subscriber, Sacramento County.

As noted in a former Cultivator, rice with hulls on or "paddy" rice is not especially desirable for any stock. That is, there is practically no nourishment in the hulls and they are extremely hard and indigestible. Fed in large quantities paddy rice might prove injurious. Answering our request for information as to the value of paddy rice for poultry feed, Prof. M. E. Jaffa of the state university writes: "I know that there is considerable of the rice paddy being fed by poultrymen and others. Personally I would not feed it for several reasons among which may be mentioned:

"The price of rice paddy is practically the same as that of rolled barley, wheat, oats, and higher than sorghum.

"Rice paddy consists of an average of 80 per cent rice and 20 per cent hulls. The hulls have no practical food value, or whatever they have is less than that of wheat straw. Furthermore there is some likelihood of the hulls causing trouble, as indicated by the statement found in Henry's "Feeds and Feeding".

Personally I do not think there is any comparison between rice paddy and rolled barley. I would certainly prefer the latter. I fully appreciate the fact that if the rice paddy can be ground finely there probably would not be the same likelihood of danger as when the rice hulls are fed, and furthermore the feeding of paddy rice is not as bad as feeding rice hulls themselves."

Address Wanted

We will be glad if H. C. Tracy, who wrote the hint, "Keeping Away the Rabbits" will send to the Cultivator his address, which has been lost.

Hogs Per Acre

How many hogs will one acre of alfalfa carry the year round?—Subscriber, Santa Barbara.

This query was referred to Prof. J. I. Thompson of the state university, who answers:

"We ordinarily figure that from 2000 to 2400 pounds of pork can be carried on an acre of alfalfa when grain is fed at the same time. When the ration is a heavy one, as much as 3000 pounds of pork can be carried. That would mean from 10 to 15 200-pound hogs or their equivalent. It is not very easy to determine how many hogs one acre will grow, producing all the feed necessary. Where only one crop of grain is secured it takes approximately six times as much grain area as alfalfa area. Where a crop like milo maize can be matured after a crop of barley has been taken off, it requires about three times as much grain areas as with alfalfa. Should skim milk be available in abundance, to supplement the grain, the land area for grain production may be reduced about one fourth."

Beans and Peas for Poultry

An inquirer recently appealed for information as to the value of blackeye beans for poultry feed. The question was referred to the college of agriculture, and W. E. Lloyd of the poultry division answers: "Cow peas or blackeye beans have a very high nutritive ratio, none of them being wider than 1:3.5. On the basis of their nutritive ratio they are excellent poultry feeds but from the standpoint of palatability when fed dry they are practically worthless. Some few of the peas will be picked up by the poultry but practically none of the beans. However, if they are steamed or soaked for 24 hours or put through any process which will soften them and give them a little greater succulence their palatability will be very greatly increased. These feeds are used to considerable extent in certain sections where they can be obtained cheaply. They have a very high percentage of digestibility. They are sometimes fed ground rather fine, in a dry mash."

Hen With Dropsy

An Orpington hen with a swelling below the vent as large as a man's fist was cut open and a great quantity of water came out. This one and another like her lay bloody eggs (inside) with some white adhering in lumps and the yolk together with a slight odor and disagreeable appearance throughout. Are the eggs and flesh fit to eat? They are fed rolled barley and kafir three to one and the C.P.A. mash, also kitchen scraps and green feed.—Subscriber, Los Angeles.

The hen with the abdominal swelling probably has dropsy, a disease which is rarely curable. Letting out the water was all right, and a one-grain dose of iodide of iron daily might be helpful, but if she is old or not specially valuable it would be better to save yourself trouble by killing her. If there is no fever or other evidence of inflammation the flesh may safefly be eaten.

The blood in the yolks of the eggs comes from a rupture in the ovarian follicle and indicates unusual activity of the reproductive organs. These cases usually occur in the spring when the hens are doing their best laying. Such eggs should not be marketed, but may be made fit for use at home by removing the blood spots. If this cannot be done because of the size of the spots, boil them and use for chick feed.

USE LIME

Prices of most commercial fertilizers at present are high. Potash is almost unobtainable.. Only by most scrupulous conservation of stable manure, and an increased use of legumes as green manure, and of ground rock phosphate, can the commercial fertilizer shortage be met, even temporarily. There remains one thing, however, that may be done to increase yields, which costs no more now than it did before. It may safely be said, I believe, that if all sources of artificial chemical fertilizers failed, our total farm output in many sections could not only be maintained, but even increased for a considerable time simply by the application of lime to acreages that now are low in yield or lying fallow because they are too sour to grow profitable crops. Lime can and should be put on all sour land. By a plentiful use of lime we can, figuratively speaking, make our "war bread" of stones.

EXPERIENCE

Years of Caterpillar-building—thirty-four years of tractor-building experience—and today Holt is acknowledged the world's greatest tractor manufacturer.

There's but one Caterpillar Holt builds it

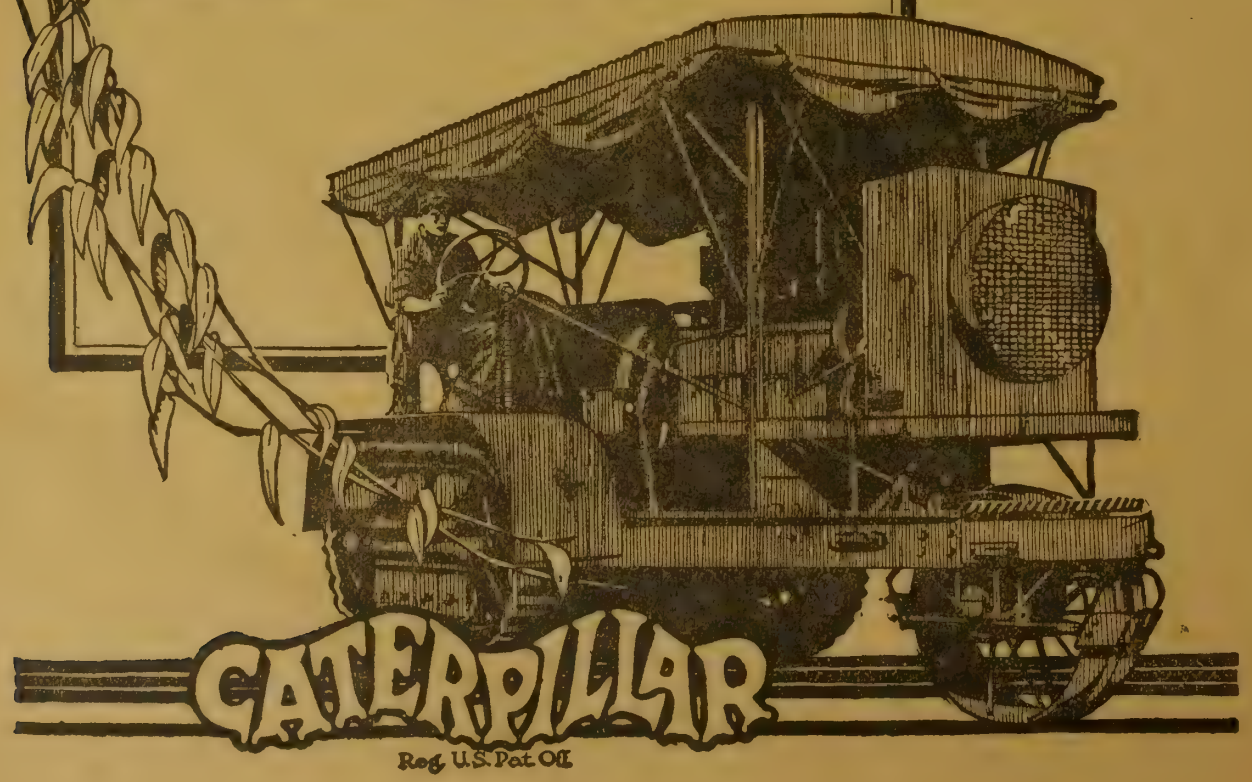
Thirty-four years' experience in tractor-building has developed the most expert workmen, the strongest, longest-lived construction, the greatest tractive power, found only in Benjamin Holt's great invention, the Caterpillar.

The result to the Caterpillar owner is lowest cost per working hour—and therein lies the Caterpillar's success.

We will gladly send you details on all models

The Holt MANUFACTURING CO. Inc.

Stockton San Francisco Los Angeles Portland Spokane



Protect Your Crops

Against the ravages of fungous disease and insect pests with the
SPARK SULPHUR MACHINE

Thoroughly coats plants, bushes, trees and vines with the dry chemical—acknowledged by commercial growers and authorities on insecticides and fungicides to be the most effective method.

Send for free booklet just published. It contains the latest information on dry spraying and the SPARK SULPHUR MACHINE. Ask for booklet "E".

Hammer-Bray Co.
MANUFACTURERS
Oakland, California

PUMPS

American Centrifugals
American Deep Well
American Turbines
Brisco Belted Pumps (no Gears or Cams)

ENGINES

Rawleich and Alamo (have oscillating Magnetos)
Muncie Oil Engines (best in the long run)

Motor Driven Pumps

California Hydraulic Engineering & Supply Co.
73 Fremont St., San Francisco

American Pump Company
422 East Third, Los Angeles

PLANT YOUR POTATO LAND WHEN CROP IS OFF TO

Rhubarb

If planted then you can expect BIG PROFITS by fall or early winter.
OTHERS MAKING $1,000 PER ACRE ANNUALLY — SO CAN YOU. Don't put it off any longer. April, May, June positively best months to plant. Write

J. B. WAGNER
"Rhubarb Specialist"
PASADENA - CALIFORNIA

ARNOTT & CO. HAY PRESS HEADQUARTERS

Only Two Men to Run Easy on Men and Team - THE AUTO FEDAN - Means One Less Man

Three Stroke - Great Capacity - Self Feed No Danger - Smoothest Bales - Easily Moved and Set - Extra Power - Simple - Durable - Guaranteed - Sold on Easy Payments CATALOG MAILED FREE

THE ANN ARBOR "35" - Great Capacity Low Upkeep - Especially Strong for Alfalfa - Feed Hopper only 39 Inches from Ground - Largest Feed Opening

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Angeles St. Los Angeles

The advertisers in the California Cultivator are known to be reliable and we recommend them to our many subscribers.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Bloody Milk

Recently purchased a nine year old high producing Jersey cow, fresh but a few weeks. Slightly bloody and curdy milk began showing in one quarter with slight swelling in the udder. Bloody milk showed but a few milkings but curdy milk continued. Rubbing with hot oil took down swelling but cake continued and milk flow almost ceased. The trouble is showing in the other quarters, but have kept it in check by rubbing with hot oil until now when it seems to be worse. On advice of a neighbor have been using teat tube and injected peroxide of hydrogen.—Subscriber, Alpaugh.

Your treatment has been all right so far as the udder is concerned but you must cool out the whole system. The udder may have been injured to start the irritation, but the system must be in a feverish condition or the irritation would not continue and extend to the rest of the udder. First give her a physic of one pound epsom salts, half pound common salt and two drams powdered nux vomica. Dissolve all in two quarts hot water and when cool give at one dose as a drench. Then mix two pounds epsom salts, one pound common salt and half pound saltpetre. Give handful of the mixture once a day. Be sure she gets plenty of water to drink and feed her green stuff to keep the bowels loose. Be sure that the udder is milked out clean twice or oftener each day.

Pigs Ailing

About a year ago I had the experience of hand raising a litter of eight pigs. All went fine for about two months and the pigs grew like weeds. One day I noticed that one had his head tipped sideways. Soon another had no control over his gait. Some of them would circle around. A cough was prominent and some vomited. I raised only three of them. Last week I brought 12 pigs from pasture that are about three months old but now find that they also have a similar disease, only some act as if they had pain, stretch out, quiver and paw as if in a fit or lift a front foot as if in a cramp. They are fed skimmed, sweet milk, fresh green alfalfa and barley. Please advise what to do for them. Also have a pen of 14 fat hogs that are all right. Do you think this is cholera?—Subscriber, Hood City.

It is not the contagious cholera. I believe the whole trouble is with the skimmed sweet milk. Milk from a separator has air in it and will cause indigestion. It is hard to raise any young animals on such milk. Put the milk in a barrel and let it sour. Soak the barley in the sour milk for some time before feeding it. Sour milk after making butter the old fashioned way was fine for fattening hogs. Lactic acid as you find it in sour milk is fine for digestion and very wholesome.

Swelled Udder

Have a heifer just two years old that was bred the 11th of last December. About a month ago her udder began swelling and got worse until it interfered with her walking. She was in the corral and getting no exercise so we put her out on pasture, gave her a dose of salts and began rubbing the udder with a mixture of lard and camphor. She does not seem to mind the rubbing and the udder is not sore. Her general appearance is not good. She is logy and does not show any life. What is best to do for her?—Subscriber, Valyermo.

Examine the heifer carefully to see if the calf is still alive. It may be dead and have to be removed. If a good veterinarian is near consult him. You did not say whether you were milking her or not; would advise milking her twice a day. Rub the udder and milk out all you can get. Examine her on the right side for the calf, and if there is any motion do

Continued on Page 679

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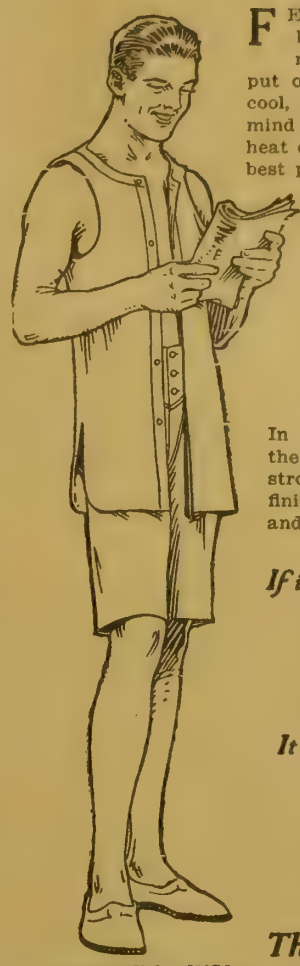

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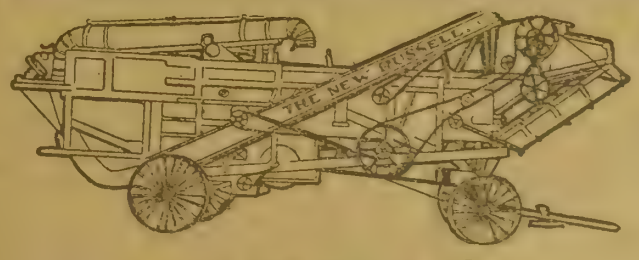

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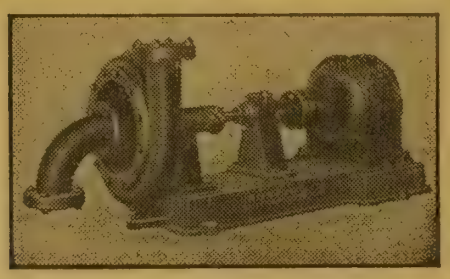

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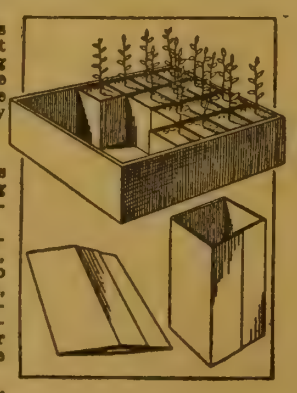

THE EXPAN CO., 935 E. Central Ave., Redlands, Cal.

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How the Crop Volume May be Increased

Written for California Cultivator By E. W. McCullough

SINCE the government has furnished figures to show what our food reserves are in the raw state it has had no difficulty in securing cooperation from all classes in urging everywhere increased planting and making it clear that labor in connection with agriculture at this time is as truly a patriotic service as going to the battle front.

The farm equipment industry, which is one of the largest single lines of manufacture in the country, has for years kept pace with the demand, and competition has so quickened the wits of these manufacturers that today this industry leads the world in producing not only the greatest volume of labor saving machinery but the best found anywhere throughout the world.

Our allies passed through an experience by which we could profit, for in response to the alarm of war the demand for munitions seemed paramount and it was nearly a year before they realized that the food problem was the greatest they had to contend with. Then they began a hasty scramble to rearrange their plans and systems to meet it. The time lost by this delay has not only proven serious but undoubtedly would have been vital if we had not joined with them in the struggle.

In order to do our part satisfactorily, we shall have to move rapidly, for agriculture, unlike manufacturing, is seasonable and, as with time and tide, waits for no man. The manufacturers of implements and farm machinery have suffered serious delays in securing materials during the past three years owing to the congestion of orders at the mills and in transportation. Therefore the production has been below normal. This year these delays have been greater than ever before, and had it not been for some of the railroads placing agricultural implements on the preferred list where embargoes existed, much of the country would have been without adequate equipment to put in this year's crop.

It is fortunate that the manufacturers have had the capacity to meet the demands upon them up to this time, but they are now confronted with a most serious condition in looking forward to the manufacture of implements for use this fall and next spring, because of our government requiring extraordinary amounts of material for war purposes, which naturally must be given precedence over all ordinary demands.

Plowing in the Southwest for fall will follow the June wheat harvest and will gradually progress with the season to all other territory. Consequently the manufacturer must order his materials now and have assurances of deliveries, or it will be impossible for him to plan his production intelligently. If tillage implements are not provided when needed the passing of the season renders them useless until the proper time again arrives, and in this respect the situation with these manufacturers is different from that of most other lines.

Efforts have been made to bring these important facts before those who determine the apportionment of materials to industries which should have preference for the protection of our food supplies. It is hoped that the seriousness of the situation will be so realized that early action will be taken to prefer the necessary materials and labor used in the construction of labor-saving farm equipment, and further that the shipments of this material, not only in the raw state, but when completed, will be permitted quickly and without unnecessary delay.

This is not an instance of an industry asking to be preferred over another, for these manufacturers have already tendered their plants to the government, but it is believed in this present emergency that they can render more efficient service in turning out tools suitable for agriculture than if they were required to produce munitions or other war equipment.

It is hoped therefore that the seriousness of the situation may arouse general interest in this contingency and that all who are disposed to do their bit may see here an opportunity for rendering help. Our farmers, our business men, our agricultural colleges, and all organizations which realize the importance of increasing food supplies may with propriety write to our constituted authorities relative to this matter, until by reason of volume of interest steps may be taken which will provide the desired relief.

A short time since we did not consider that this was our war, but today it is generally realized as our greatest responsibility and that we must move and more quickly.

More About Corn

By Mr. McCloud Before Stockton Demonstration

AT the corn demonstration recently held at the Sperry Flour Mills at Stockton more than 200 corn growers were present. Among the helpful talks was the following by Mr. McCloud of the Sperry Company.

The California grower has, up to last year, been harvesting his corn a good deal like the Indian 300 or 400 years ago. One of the greatest troubles we have had is that corn delivered in the early part of the season arrives at the mill with a moisture content ranging from 16 to 20 per cent.

From some experiments made we thought it possible that by using binders and cutting it about the time it began to glaze, in many cases the corn could be harvested with a low percentage of moisture, without going into the crib. Corn begins to glaze pretty well about the 10th to the 15th of September and could be cut then. You would have hot days from the 15th of September until about the first of November that would more than offset any cold nights that we have here in California.

If the grower allows his corn to stand on the stalks and can market a small proportion of it the latter part of November with a moisture content

ranging from 16 to 22 per cent by harvesting with a corn binder he ought to be able to market a large proportion with a 15 per cent moisture content two weeks earlier.

A good many people are afraid that the corn business will be overdone, but there are many different channels that corn will go to when people find out the actual value of corn. Corn has 10 per cent more feeding value than barley, 7½ per cent more than wheat. Take for instance the hog industry. California raises only about one-third of the pork it consumes; the rest is brought in from the Middle Western states. There is no state better adapted to raising hogs than California. Hogs can be raised on alfalfa pasture at small expense and could be finished off by feeding corn, in three to five weeks' time.

The poultry business in this state is growing every day. It takes a larger percentage of corn to supply the poultrymen, and some poultry centers buy more corn today than we use here in our mills at Stockton.

I think that several of the growers here today have already purchased some of this machinery, and I believe that in another two or three years every corn grower will not only cut down the expense of harvesting, but will also be able to take advantage of an early market. The best market would be the latter end of the old crop in the East, which would be in October, November and December. Of course these are war times and the markets are fluctuating widely. If you are able to market your corn at this time you are going to get high prices in the first place, and you are going to do away with a good deal of cribbing and interest on your investment from December to March.

Some of the corn being delivered now runs as low as 11 per cent, other lots as high as 18 or 19 per cent.

This method of gathering corn is practiced in a good many of the corn states—about half and half from the information I can get; it has been tried out and found thoroughly successful. Has this been done in this state at all? There is a gentleman whom I wish I could have had here to talk to you. About the latter part of September or the first of October he had quite a patch of corn. It was just beginning to glaze. It was about 14 feet high, and the ears on the corn were completely shaded. He cut the corn when it was in heavy glaze, and shocked it. That is the corn stalks they have been running through the husker and shredder today. You can see that it is fully matured and has a better color than some of the corn harvested the other way.

I have looked up an analysis on corn stover and found that it has half the feeding value of ordinary hay, and as a rule corn in a green state produces about 12 tons of fodder to an acre. This will make 2½ to three tons of dry corn stover and would be worth ordinarily $2.50 to $3.00 a ton but today with hay at $30 would be worth about $12 a ton.

I was talking with a man last fall who mentioned the fact that his company had 23,000 head of sheep down on the Delta lands and would like to feed as many more if they just had something like corn stover to carry their sheep along and keep them in good condition.

How many tons of fodder to the acre? 2½ to three tons—12 tons of green fodder with the moisture out will run down to two or three tons.

We made an experiment last fall in a small way. There were two corn fields located about four miles from Stockton, and we selected the greenest stalks in the field, the ears of which were just beginning to glaze, and placed them in bundles in an open lot to mature. The ripest corn in the field was commencing to get hard and as deep a color as when thoroughly ripe. At the end of 25 days the corn cut and shocked when in the glaze, was more mature than the ripest of the corn left standing in the field. This one experiment satisfied us as to what these corn binders would do. They would advance the maturing of corn 15 or 20 days and make a very large percentage of the corn marketable without being put in the crib at all.

Soil Survey

The bureau of soils of the department of agriculture has made a soil survey of the Ukiah area of Mendocino County. The report of the survey just published by the department contains a soil map of the county, on which farmers may find the approximate location of their farms, and 53 pages of text describing the various soils, discussing their capabilities, and suggesting means for utilizing them to better advantage.

The area covered by the survey comprises the valleys of the Russian River and its large tributaries within Mendocino County and a portion of the coast range mountains, covering in all 303 square miles or 193,920 acres. Definite districts listed within the Ukiah area are Potter, Redwood, Cold Creek, Calpella, Coyote, Ukiah, Knights, Sanel and McDowell Valleys.

The report includes a brief historical and geographical sketch of the region surveyed and statistics relating to its climate. Hops is one of the principal crops, while considerable acreage is devoted to grain and alfalfa. Grapes are grown more extensively than other fruits. Live stock is raised on the rolling hill pastures. Fruit growing, the report states, seems destined to be an important industry in the area. On the whole, it is pointed out, the climate is well suited to the production of general farm crops, alfalfa, hops, grapes, and most tree and bush fruits. Though it is not well suited to citrus fruits, there are some areas and hills from 500 to 1000 feet above the valley floors where oranges can be grown, but the area of suitable soil in these regions is very small.

TO FIX AUTO PUSH RODS

Push rods on an auto engine, after long use, become worn and get noisy, writes R. A. Bradley of Colorado Agricultural College.

To adjust them, you will generally find two nuts or a screw and lock nut which you can adjust by loosening the lock nut, and screw the pin out until you have about the thickness of an ordinary business card between the two, being certain that the push rod is in its lowest position.

If no such adjustments are provided, you will either have to draw out the valve stem or take a rod about one-eighth of an inch larger than the stem, drill a hole in the end the size of the stem to a depth of one-eighth of an inch, then cut off long enough to leave a small cup with the bottom in, then dress wih a file until you get the proper clearance.

Two farmers' bulletins recently issued which are of interest are, "Commercial Handling, Grading and Marketing of Potatoes" and "Cotton Ginning Information for Farmers."

The cotton ginning bulletin touches upon separation of seed for planting, the usual ginning process, ginning machinery. The principal value of this bulletin to the general farmer is in its giving an idea of methods of ginning.

The potato bulletin touches upon handling of early new potatoes, need of standardization, containers, brands, loading, marketing, shrinkage, etc.

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Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, June 16, 1917

OUR ADVERTISERS RELIABLE
We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

The roasting ear on the cover is almost real enough for one to make a meal on. We hope it will induce more planting of corn in California. Material addition to the kitchen supply is given by a patch of sweet corn. There will be canned corn and dried corn. Speaking of dried corn takes one back to barefoot days, and honestly we believe nicely dried sweet corn is far superior to the canned article.

MAXIMUM PRICE

We doubt not that with hungry Europe demanding our wheat and with our short crop there may be some form of food control necessary. But as to maximum price the farmer is saying "If maximum prices on our products, then give us maximum prices on the wherewith to produce crops or we perish."

Certainly there should be some method of control or rather prohibition of speculation in food stuffs but in getting the speculator don't "get" the farmer.

PRODUCE MORE

The government crop report sent out from Washington June 8 gives fairly definite information that our crops will be greater than those of last year. The June 1 forecast shows a probable production of 656,000,000 bushels wheat; last year's crop was 639,886,000 bushels—not a great increase, but a most fortunate showing considering the fearful losses from winter killing all over the Middle West. California's estimate is 5,610,000 bushels, only 10,000 bushels greater than its production last year.

The June forecast on barley is 214,000,000 bushels, while last year's crop was 180,927,000 bushels. California little better than holds its own, for the estimate was for 35,100,000 bushels, while last year's production was 33,320,000.

In sugar beets the June 1 condition was 95 compared with the ten year average of 92 in California. The United States over the condition was 93.7 compared with the ten year average of 89.7.

Cotton looks bad. In California the condition is 82 compared with the seven year average of 94. The Imperial Valley has had some very cold weather which cotton has not enjoyed. Its average is better, however, than in the entire United States which shows a condition of 69.5 compared with the ten year average of 79.1.

In the matter of prices all precedents are upset. Wheat in California on June 1 was quoted at $2.65 while its ten year average is 98 cents. The average for the United States on wheat was $2.48½, while the ten-year average is an even dollar per bushel.

FAIR POSTPONED

The directors of the District Fair Association of California which had planned for a great 30 day fair at Exposition Park, Los Angeles, October 20 to November 17, have canvassed the situation with regard to the war and the greater responsibility and necessity for greater production generally facing the people of California and have decided to postpone the fair indefinitely. Members of the association have expressed a wish that it now begin planning for a great fair in 1918.

There is need for every encouragement of greater effort toward production that our armies and the armies of our allies may be fed, and there is need that every activity of this country which will strengthen it at the present time should be encouraged, and the directors felt that in postponing this fair they took the best step to that end. Many of us still feel that this would be best accomplished by maintaining so far as possible our regular activities. We believe that special impetus is given to greater and better production by a well managed agricultural fair and we hope that the 1918 event in Los Angeles will be a complete success. We believe the state fair and all the district fairs in the state will be held.

SECURE FARM LOANS

The president of the federal land bank branch at Berkeley announces that actual loans to members of the federal farm loan associations begin this week. June 15 is the date set for the first loan. Appraisals in many sections of the state have been completed and federal money will soon be in the hands of growers. This great movement is being watched with interest, and it is believed that for the first time in the history of this country rural credits will have justice. The development of every rural community will be stimulated by this cheap rural credit. It will be vastly different when a farmer can pay six or six and a half per cent and in a period of 30 years have these small payments liquidate not only the interest but the principal, where he has been in the habit of paying seven or ten per cent or—as we have known in one case—17 per cent interest, and the principal still remained to be paid.

To increase its funds the federal farm loan banks will issue bonds. These bonds will soon be on the market. We have just ended one campaign for liberty bonds. Those who are disappointed in not securing liberty bonds may perform an equally patriotic service in subscribing for these federal farm loan bonds.

COLD STORAGE

The demands for preparedness, coupled with "needs" of pork barrel legislation, have lowered the available cash of the federal government. One suggestion for bringing in funds is to subject to tax foods placed in cold storage. This suggestion has perhaps been put forth because of charges often made that the beef barons and others are making great profits by storing away and speculating on foods. This may be true to an extent, but it is also true as to all products that there is at times speculation.

The only salvation for the farmer is cold storage, and it would be a serious error on the part of the federal government to discourage this method of preserving foods, thereby bringing gluts at times when the farmer would receive practically nothing for his products.

LIBERTY BONDS

The Cultivator Liberty Loan campaign ends most satisfactorily. During the past week 27 separate bonds have been purchased ranging from $50 to $500. One subscriber, Wein M. Grothe of Cummings, Mendocino County, subscribes for a $500 bond. While none of these subscriptions are large, nor is the number great, it is an indication of the willingness of America's millions to do their patriotic duty and advance the cause of Liberty.

BOUGHT YOUR BOND?

Subscriptions to America's liberty bond for $2,000,000,000 closed on Friday noon. The Cultivator goes to press before it can be learned as to how heavily it was oversubscribed. We feel safe in making the statement that it was oversubscribed.

It took some time for the American people to wake up to the fact that liberty bonds were to be preferred to Prussian bonds, or, as one slogan puts it, "bonds or bondage," but when the awakening did come a whirlwind finish was given to the campaign. And the best of it is that the subscriptions have come very largely from those whose earnings are not large. True, many large financial institutions have announced large purchases, but we believe that as a rule these are for the purpose of passing on to others in small amounts. This gives the greatest satisfaction to every well wisher of the country, and for patriotic and for economic reasons. It will be good for the country, it will be better for the individual.

A very few insisted to the last that it was a movement for the capitalist, not the poor man. As one expressed it, "Let the big capitalists buy," but to him reply was given that this is not the land of the big capitalist but of the true American. Another refused to buy a bond because the administration at Washington was not to his liking. Would he be willing to concede that this country of ours belongs to any administration? This is the work of the people and to preserve the liberties of the people. The majority rules or our nation ceases to be one ruled by a free people.

We should not forget that France paid to Germany after the little scrap of 1871 an indemnity of $1,000,000,000, and that this indemnity loan was liquidated only a very short time before the present war broke out.

Those who have subscribed have the satisfaction of doing at least a bit of service in advancing the cause of liberty in this world of ours, and from a selfish standpoint have made an investment in a nation which has the best credit of any nation on earth.

Agricultural Notes

Chile produced 20,000,000 pounds of wool last year.

The United States government is considering restricting sale and export of mares.

California last year harvested 9700 acres of potatoes; this year 19,400 acres are planted.

Alaskan farmers have entered into a cooperative exchange system with merchants so that market is assured.

Export of agricultural machinery from France has been prohibited by the government. The order went into effect May 27.

Keep pigs instead of chickens is the government's advice to Englishmen. The argument is that the cost of feeding is much less.

The food controller of Great Britain has since May 17 requisitioned all supplies of beans and peas and all shipments arriving.

The 1915 olive crop of California is estimated to have produced 1,000,000 gallons of oil and 1,800,000 gallons of packed olives.

The war and navy departments have authorized contracts for purchase of 3,450,000 pairs of shoes, deliveries to be completed in eight months.

Because of shortage of shipping facilities South African fruit growers are confronted with a problem in the disposal of their surplus of grapes, apples, pears, etc.

On the Shoshone project in Wyoming there were 3000 acres of unentered public land for which the government contracts to furnish water and seed for one-third of the crop.

In spite of big demand in the United States and Europe for camphor the trade from South China is practically dead. This is because all this business was in the hands of German traders.

The railroad war board recommends discouraging of conventions which stimulate passenger travel until the railroads are more nearly able to handle the freight business that is being offered.

The China Commerce Club, to promote commerce between China and the United States by intensive study of the problems involved, has been formed with headquarters at San Francisco.

Italy has been unable to ship citrus fruits to Denmark, Norway or Sweden the past year and has been forced to dispose of the quantity usually sent to those countries to Egypt, Greece and other Mediterranean markets.

Fruit exports from the United States during 1915 were valued at $34,229,906. The values of the principal fruits exported were: Apples (dried, green, or ripe), $11,358,124; apricots, dried, $2,241,061; oranges, $3,851,013; prunes, $3,274,197; and raisins and other dried grapes $1,718,547.

Agricultural News Notes of the Pacific Coast

Northern California

Yolo County reports an acreage of 131,885 planted to barley.

Experiments are being made with cotton planting in Yolo County.

P. H. Green of Willows last week shipped 200 head of cattle to Denver.

Napa County's prunes and pears are showing up a 100 per cent crop.

The Ehmann Olive Company is making plans to double its plant at Oroville.

A number of canners in Sutter County have contracted for cherries at $145 per ton.

Holstein breeders held a meeting at Chico Tuesday night during the big sale at Vina.

Report of the Glenn County farm adviser shows the hay crop to be 20 per cent above the usual output.

Five thousand acres of rice in Glenn County have been signed up by owners in the Pacific Rice Growers' Association.

Continued cool weather has delayed ripening of fruit in Solano County so that shipments are going out rather slowly.

Lake County has planted heavily to Bartlett pears this year, over 40,000 trees being put in. Prunes are the next heaviest.

A new raisin plant is to be built at Marysville by the California Raisin Company. The dryer will handle about 60 tons of green grapes a day.

Leroy B. Smith, who has been agricultural instructor for the past two years in the Placer Union high school, has been appointed farm adviser of Fresno County.

A half brother to the grand champion steer at the Chicago International has been sold by the university farm to J. H. Bunting of the Mission San Jose for $1000.

Over 6000 head of sheep have just been unloaded at Montague, Siskiyou County, by the Western Sheep Company. They were sent to grazing fields south of Montague.

A campaign to abolish dehorning of cattle has been started by the state humane association. The prevention of the horn growth by application of caustic potash is recommended by the society.

Dairymen about Folsom, Sacramento County, have started their stock to the mountains for summer pasture. The cattle are driven to Roseville or Rocklin and there shipped to Truckee or other points in the mountains.

Farm Adviser Amundsen of Placer County announces local farm bureau meetings at Long Valley June 16, Loomis 18, Bowman 20, Mt. Vernon 23, Roseville 25, Sheridan 26, Colfax 27, Butcher Ranch 28 and Forest Hill 28.

The University of California is giving special war emergency courses at Berkeley. These will close June 23, before the start of the summer session. There will be aviation courses, courses in first aid, making of hospital garments, surgical dressings, etc.

The prize for the heaviest hog at the Butte County Fair went to H. P. Slocum & Sons of Glenn County, and to Hayden Smith of Woodland, joint owners of Uneeda Wonder, a Duroc-Jersey boar recently imported from the East. The animal weighed 700 pounds.

Central California

June 9 was Farmers' Day at Lindsay.

A large grain crop is being harvested around Modesto.

Shipment of the 1917 Valencia crop has commenced in the Lindsay district.

The 1916 raisin crop has been taken off the market by the Associated.

A big navel crop is reported setting in the Terra Bella district of Tulare County.

The Tidewater Southern Railway is now laying track between Clark and Ortega on the Stockton division.

The California Associated Olive Growers' Association is planning to establish an olive mill at Lindsay.

Ceres began shipments of peaches on June 4, when a quantity was sent to Seattle and San Francisco markets.

Water was turned into the east end of the Terra Bella irrigation project on May 30 and put to immediate use by orchardists.

The executive committee of the Stanislaus County farm bureau is acting as an employment agency to supply labor to farmers.

A committee of five has been appointed by dairymen of the San Joaquin Valley to work out plans for a permanent association.

The Prune and Apricot Growers' Association has established itself in headquarters at San Antonio and Market Streets, San Jose.

The newly organized Deer Creek Citrus Association of Tulare County has elected Frank Wheeler president, Fred H. Gerdes secretary.

The San Joaquin County farm bureau announces local meetings at Lockeford June 11, Linden 13, Bellota 14, Manteca 15, Escalon 18, Ripon 21.

The Satterwhite pure milk bill has been signed by Governor Stephens. It extends regulation and inspection to butter, ice cream and other milk products.

Honors for the highest butter fat test of April in the Tulare County Cow Testing Association were held by Lenoretta, a Holstein-Friesian owned by W. J. Higdon.

Grape growers and packers met in conference at Fresno Saturday, June 2, and took preliminary steps toward the formation of a grape protective association.

Fresno County expects to have a new farm adviser appointed by July 1. The chamber of commerce has been so notified by B. H. Crocheron, state leader of the division of agricultural extension.

A temporary organization of the San Joaquin Valley Dairymen's Association was perfected May 25 at Fresno. Practically every county in the valley was represented. It is proposed to make this a unit of the state organization.

The Northern Tulare County Citrus Association has purchased orange packing machinery and leased a packing house for use for three years. Packing began June 1.

Earlier reports of serious damage to the peach crop of Tulare County are now reported to be much exaggerated, the crop in most sections being as heavy as last year.

Southern California

The first carload of cantaloupes left Brawley for New York on June 4.

A labor survey is being taken in the Hemet Valley, growers and laborers both signing up.

The Charter Oak Association returned last season $91,000 to growers of navel oranges.

Dr. B. J. Cady, in charge of hog cholera work in California, has been stationed in Imperial Valley.

Santa Ana has secured establishment of a woolen mill which it is expected will begin work this month.

The Riverside County farm bureau has headquarters on Ninth Street between Main and Orange, Riverside.

A citrus by-products laboratory has been established by the United States bureau of chemistry in Los Angeles.

Woodland, Riverside County, is to open a municipal market where vacant lot cultivators may display their wares.

Plans are being made for the Eighth National Orange Show to be held at San Bernardino February 20-28, 1918.

Suits have been filed against three members by the Poultry Producers of Southern California for selling eggs outside the association.

The Moorpark Enterprise reports the apricot crop of that district of Ventura County as much better than it was earlier thought possible.

The state commission of immigration and housing reports receipt of many requests from farmers for aid in installing model labor camps.

The city council of Riverside has appointed a vacant lot adviser whose duties will be to aid in getting vacant lots in the city under cultivation.

Brawley is now sending out carload shipments of cantaloupes. The shipments are much later this year than usual on account of the cold weather.

Geo. W. Shaw, appraiser for the farm loan bank, is in the Imperial Valley to inspect properties approved by the various farm loan associations.

Prices to be paid by the sugar beet factories will range, it is stated, from $4.50 to $11 a ton, according to grade of beets and retail price received for the sugar.

The Imperial County farm bureau announces local meetings at Calipatria June 11, Westmoreland 13, Magnolia 15, Seeley 18, McCabe 20, Mt. Signal 22, Eastside 25, South Fern 27, La Verne 28.

Orchard heater tests were made at Pomona last Tuesday, Wednesday and Thursday nights. Effort is being made to secure a heater which will give the maximum amount of heat with the minimum amount of smudge.

At the recent meeting of the California Avocado Growers' Association the following directors were elected: H. J. Webber, F. O. Popenoe, Charles D. Adams, T. U. Barber, William H. Sallmon, W. L. Hardin, B. H. Sharpless, Thomas H. Shedden and E. E. Knight.

The government bureau of markets is again this year cooperating with the cantaloupe shippers in the Imperial Valley. E. D. Baker of the department, assisted by E. G. Roberts, has headquarters at Brawley, where he receives and quotes daily bulletins of crop conditions in the East.

The Coast

The Oregon State Grange held its annual meeting at Astoria June 12.

Wool prices in the Northwest are 100 per cent higher than last year.

Cove, Oregon, will hold its Cherry Fair on June 19. The crop is a large one.

The broccoli crop of Lane County, Oregon, is expected to reach 60,000 crates.

Yakima County, Washington, is planting 1600 acres to beans this spring.

The Washington State Grange met last week at Wenatchee in annual session.

J. C. Flaherty has been appointed county agriculturist of Yakima County, Washington.

A campaign is being made to secure planting of 10,000 acres of beans near Eugene, Oregon.

Farmers of Jefferson County, Oregon, are planting to the limit of wheat and potatoes.

Over 50 members have already signed up in a bull association on the Tieton Project, Washington.

Fruit inspectors report good prospects for a big crop of fruit on the Snake River farms in Washington.

The Fruit Growers' Association of Eugene, Oregon, is reporting very heavy demand for loganberries this year.

Fifty cents a pound is being paid for butter fat in Eastern Oregon because of shortage of hay and its high price.

Four hundred organized farm loan associations in the Spokane district of Washington have applied for loans aggregating $20,000,000.

The acreage of spring wheat will be greatly increased in Harney County, Oregon, most of the new land being of the dry farming type.

The department of agriculture of the state of Washington has sent an inspector to Los Angeles to inspect potatoes before shipment to his state.

The board of directors of the Skagit County, Washington, Fair Association has announced prizes for dairy and beef cattle for their fall show.

J. W. Clise of Redmond, Washington, reports shipment of a carload of 25 young Ayrshire bulls and a carload of heifers from his Willowmoor Ranch.

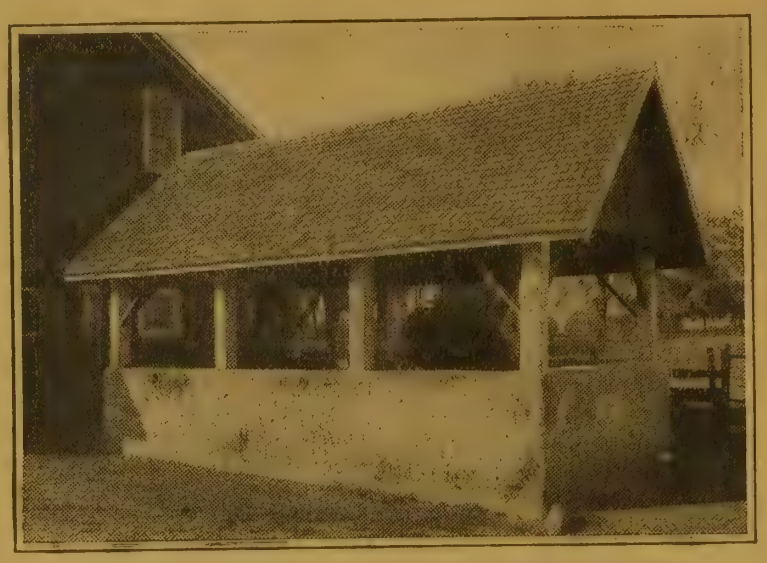
Polk County, Oregon, is planting the biggest bean acreage in its history. Practically all the lands formerly planted to hops are this year put in beans.

Older alfalfa fields in Gem County, Idaho, have been somewhat damaged by cold dry winter. A good many of these have been plowed up and put in spring wheat.

The Hood River Apple Growers' Association has elected C. W. McCullagh sales manager. He was previously sales manager for the Yakima Valley Fruit Growers.

The Fruit Growers' Association of Eugene, Oregon, has been awarded a single contract to supply $400,000 worth of canned turnips, carrots, cabbage, squash and green beans.

Pledges have been secured sufficient to guarantee a 50,000 ton output of sugar beets at Toppenish, Washington. This will assure establishment of a sugar factory at that point.



A good type of concrete manure pit. The roof keeps out excessive moisture and screens may be attached to the posts to prevent the breeding of flies.

Get the Most Out of Your Acres

IT is the patriotic duty of every farmer this year and next to plant every acre possible to supply food for the world.

To get the biggest crops the fertility of the soil must be kept up. Barnyard manure must be depended upon to do it. But the manure must be properly stored. When piled on the ground manure loses a lot of its value by the draining away of the liquids. Rains wash it, or it frequently "fires" because of lack of moisture.

Build a Concrete Manure Pit

Manure will keep without loss of fertilizing value in a concrete manure pit. The liquid manure is saved. Nothing is wasted. The labor of handling is very much reduced.

Concrete is used for great reservoirs and tanks which must be moisture-proof. That's why it's best for similar farm uses.

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C. L. HUGHES, Sales Mgr., SACRAMENTO, CAL.
Col. Ben A. Rhoades, Auctioneer, Los Angeles

Chester Whites in the Sacramento Valley

Written for California Cultivator By C. B. Cunningham

IS the white hog more susceptible to climatic conditions than others? Speaking only from personal experience, I state that they are not.

In the spring of 1909 I bought my first Chesters, although I was advised that they would not do well in California, that they could not stand the heat, would sunburn, scald, blister, scab, get mangy and in fact possess all the ailments and bad features of swinedom, and have no redeeming qualities whatsoever. I looked into the Chester breed pretty thoroughly; what it was, had done and was doing; corresponded with many, read what I could get hold of on the subject and finally decided that if in the Middle Western states, where climatic conditions are so much worse than in California, hotter in summer, colder in winter, with cyclones, blizzards, sleet, snow and slush, they were such a pronounced success, they certainly would do as well in California and should do even better. My venture has been a success.

I find that the white color in summer is as cool on the pig as it is on the human. So that as far as standing the heat was concerned they could do so as well, if not better, than the other colors. Now about sunburn; all hogs will burn more or less if during the extreme heat of the day no shade is provided. Any breeder of swine knows, or should know, that ample shade is an absolute necessity during the hot summer days for all swine irrespective of breeds or color. Different individuals may have more resistance to certain things than other individuals of the same breed; all hogs however will get scabby if the lice and vermin are not kept off of them and they are allowed to run around in muck and have free access to manure piles, etc. The white hog will show this more readily than the darker hogs the same as white goods will show the "soiling" much sooner than the darker shades. This is, I feel, a good feature, for if anything is wrong it shows so plainly that one is able to correct it at its start, whereas if it had gone on farther its checking would be more troublesome. White hogs do not like lice very well; possibly the skin is more tender than of the darker breeds. However if the breeder is not going to keep his swine free of lice, he cannot make a success of any breed.

I can truthfully say that the old bugaboo of sunburn and scab that always used to greet you when you mentioned white hogs is not worth consideration. If you want to raise hogs you must take care of them, no matter what the breed or color. Warm dry quarters in winter and shade in summer, with the proper feed and care, and the color is a thing of the least consequence. The Chesters have a number of extra good features. They attain at least as great a size as any other breed, if not the greatest, have ample bone and a frame to take care of their immense size. You can get almost any weight or size if you feed for it. An even, quiet disposition in both boars and sows. The sows are good, gentle mothers, farrow and raise large uniform litters and give ample milk for their needs. The boars are able to transmit their good qualities and stamp their individuality on even their cross offspring. The Chester breed are known as easy feeders, do equally as well under grazing or confined feeding, make economical gains, can be fattened at any age, dress nice and clean and white, as a carcass make a fine showing in either the window or on the block, and dress out a high percentage, and the quality of the meat is extra fine. There are so many good qualities that can be mentioned that the best way to find them out is to raise them.

Preserve Sows for Breeding

A SOW is a good investment. This is true even in these strenuous times of high prices of food concentrates, say specialists of the United States department of agriculture. The quotations on these feeds are controlled to a considerable extent by the price at which meat animals sell. Hence concentrates usually command a high figure when hogs on the hoof at large packing centers sell at more than 16 cents per pound. However, record prices for swine as well as feed concentrates have been a great incentive to farmers to "cash in" all the hogs available. That many sows have been included is evident from the fact that on April 1 the correspondents of the bureau of crop estimates reported approximately three per cent fewer sows on the farms in the United States than a year before. Further, this is the first year that the supply has not increased since 1913.

At this time the marketing of a sow that can be or has been bred is fairly comparable to "killing the goose that laid the golden egg." Although the fecundity of swine is well appreciated by farmers, at times sows are sacrificed when a little forethought would cause them to be retained. Breeding sows multiply five or six times as rapidly as other meat animals. They have an average litter of five or six pigs and may be bred twice a year, although three times in two years accords more with current farm practice. The litters increase in size, on the average, until sows are five or six years old. However, a large proportion of the sows are sold after producing one or two litters and before they have reached the period of greatest usefulness. Occasionally sows are unsuitable for breeding because of their clumsiness, "high" condition, inactivity or barrenness, and these, of course, go to market when of proper weight, but the total sows of this class is a mere bagatelle.

In these days when labor is high and also scarce on many farms, the hog may afford a way out. Hogs utilize refuse and waste grains, damaged grains and garbage; garnering grain behind cattle or scattered grain in harvest fields; and utilizing slaughterhouse by-products, and dairy by-products. They are also largely self-feeders. The modern farm "cafeteria" gives a pig a chance to make a hog of himself more quickly than he can by the hand-fed route, and it has the added merit of being the cheapest way of producing pork. A sow when she is not developing a litter or nurs-

ing pigs, can in summer time be placed in a pasture and given very little grain. In winter, possibly the cheapest maintenance ration is a combination of grain and hay, such as corn, wheat, rye, or barley, and alfalfa, clover, cowpeas or soy bean hay. The grain should be limited to one or two pounds per hundred pounds live weight per day. Sows should be given all the hay they will clean up. Sows which show exceptionally run down condition from suckling their pigs should be separated from the herd and fed grain until they regain breeding condition. Where pastures are very luxuriant, it is possible to carry breeding sows on pasture alone, but the most palatable hay will not keep sows in good breeding condition if fed alone.

Breeding sows are at a premium and the demand for young stock is unprecedented. The hog buyers state in their reports that they are compelled to take anything that looks like a hog. The fluctuation in the number of hogs in the United States is subject largely to the fluctuations in the financial condition of the country. The high prices paid for hogs are a big inducement to farmers to market their hogs, and as stated before, the high prices of corn caused them to cut loose during the latter part of the year. The high prices paid for hogs and an increasing export trade are the two main factors which make the hog business especially attractive at the present time. Millions of farmers would purchase sows to farrow this coming spring if they could, but this is almost an impossibility. Those farmers who are fortunate enough to have retained their breeding sows will play an important role in placing spring pigs on the market. The spring gilts from these litters should not be sent to market for meat purposes, but should be retained or sold only for breeding purposes in order to augment the pig crop next year.

Meat by the Hog Route

THE meat supply of the country can be increased more quickly by the "hog route" than by any other. The country's need to augment its supply is great but prevailing high prices alone should be sufficient inducement to farmers to raise more hogs. The prospect of success never was brighter. The high prices ruling in all markets show that the demand for pork is in excess of the supply.

No branch of live stock farming is more productive of satisfactory results than the raising of well bred swine, if conducted with a reasonable care. Hogs fit into the modern scheme of farming on nearly every farm and are one of the most important animals to raise both for meat and for money. They require less labor, less equipment, and less capital, make greater gains per hundred pounds of concentrates fed, reproduce themselves faster and in greater numbers, and give a quicker "turn-over" of money than any other animal except poultry. Farmers of the South and West particularly have awakened to the merits of the hog and are rapidly increasing their output of pork and their bank accounts.

The hog has no rival as a consumer of by-products and numerous unmarketable materials which but for him might be wasted. Kitchen refuse, not only from farms but also from hotels and restaurants, when cooked before being used makes an excellent feed.

The value of skim milk as a hog feed is known on every farm though not always fully appreciated. In the neighborhood of many large dairies pork production is a very prominent and lucrative supplement to the dairy industry.

To prevent tuberculosis all milk and milk products should be cooked before being fed to hogs. To control hog cholera use sanitary precautions and anti-hog-cholera serum treatment.

Give your hogs every chance to become meat.

The hog is also a large factor in cheapening the production of beef. Hogs are placed in the cattle feed lots to utilize the corn and other feeds the cattle have failed to digest and which otherwise would be wasted. Hogs following steers in many cases have increased the profit per steer by from six to nine dollars. Hogs should not be allowed to follow dairy cattle unless the cattle are tuberculin tested. Disease, such as cholera, has been taking a smaller toll the past season than in recent years; more purebred and high grade hogs are available than ever before; prices of hogs are now past the 16-cent level; demand for pork for home consumption and for export is keen. All of which means that the farmer who does not raise hogs is losing a chance to increase the supply of pork and thus serve the country and at the same time expand a profitable phase of farming.—U. S. Department of Agriculture.

DAIRY HEIFER DON'TS

In rearing and developing dairy heifers—

Don't overfeed. Twice as many calves are stunted by overfeeding as by underfeeding.

Don't change suddenly from whole to skimmilk.

Don't keep calves in damp, dark, crowded, poorly ventilated barns.

Don't feed milk in dirty pails.

Don't be irregular as to time of feeding, temperature or amount of milk.

Don't feed too much alfalfa hay before the calf is three months old.

Don't let calves suck each other after drinking milk. They should be placed in stanchions and fed grain.

Don't make calf go without water because it has had milk.

Don't let calf drink foaming milk just from the separator.—H. H. Kildee, University Farm, Minnesota.

TO DISPLAY TO SHEEP MEN MANY TYPES OF LAMBS

A demonstration of market lambs, planned to be of special value to every sheep man in California, is arranged as a special feature of farmers' week, to be conducted by the University of California at the university farm at Davis from May 29, to June 1. There will be a display of the leading breeds of mutton sheep, lambs of the different breeds and classes, and lambs of various kinds all made ready for market.

CHEESEMAKERS' WEEK

"Cheesemakers' Week" at the university farm at Davis occurred May 28 to June 2, at which the making was taught of "California Jack Cheese" and "California Half-Skim Jack Cheese".

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The results of our first two years of official testing show our herd to average 10,172.28 Pounds of Milk and 507.97 Pounds of Fat. One half of these cows were heifers with first calf who averaged 8,670.24 Pounds of Milk and 436.01 Pounds of Fat (only 7 pounds under the average of all A.R. records). Our mature cows averaged 12,710.5 Pounds of Milk and 621.52 Pounds of Fat (120 pounds over the average of the mature cows of the breed).

A bull from these cows will increase the production of almost any herd.

Elliott-Brant Rancho, - Owensmouth, Cal.

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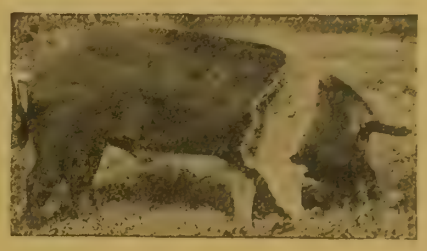
Prize Winning HAMPSHIRES

The farmer who wants a hog that puts on 200 lbs. of firm meat at six and a half months of age buys the Hampshire.



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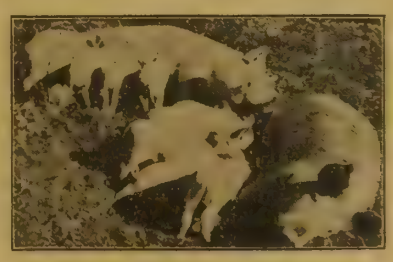

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Believes in Chester Whites

MRS. L. M. YORE of Placer County believes in the Chester Whites. She believes they are the "Aristocrats of Hogdom," and in an article in the White Breeders' Companion says:

California needs more hogs, and those of the quick-maturing type. The cry for some years past has been for "More Hogs—Better Hogs," and this is where the Chester White comes in to fill the bill.

Many are finding that California can grow corn, and corn-growing for feed on the cob, silage and fodder is fast coming into vogue. The state can grow all the feeds in abundance that the quick marketing of a hog demands. The Chester White is a good feeder, and in consequence of this can be brought into a finished condition at an early age, either as a packer's carcass, commission hog, or for the local butcher's block. For the home, he is par excellent, as the meat and lard are of the highest quality, and his hide is already white. The sausage made from the Chester White cannot be beaten as there is as distinct a delicious flavor to it, as there is to the different breeds of fowl, be they domestic or wild.

A Classy Chester White
Bonnie Belle, property of C. B. Cunningham.

In the young fruit orchard corn, dwarf milo, and sugar beets can be grown between the rows, equally beneficial to the growth of the young trees and the pocketbook of the grower, for they can be used to grow and fatten pigs at the same time, and the manure gained thereby in the meantime can be added as fertilizer. On a full-bearing fruit farm the Chester White makes wonderful gains upon the wastes, thus making his keep with the garbage from the house, and the only real cost is the grain to finish him, which is slight.

Hogs as an adjunct and side issue to the fruit farm have proven successful in a small degree with grades almost exclusively. Greater results can be attained by the use of a purebred sire of the right type, but the greatest success is assured with an entire herd of purebreds of whatever breed one prefers. I write from the basis of experience in my own county of Placer, which is great in its fruit-bearing orchards.

The Chester White is the diversified farmer's hog, thriving upon all soils and in all climates which are to be found in California, showing great prolificacy on the part of the sows of the breed, which bear large litters of husky pigs, being good mothers in the fullest sense of the term. The boars are so vigorous and prepotent that even when crossed with any other breed produce pigs that can be finished early and at any age and yield the quality of meat and lard that the market requires.

Either sex can be handled with safety by women or children because of their kindly disposition and adaptability to their surroundings. These characteristics are two prime factors in their favor, as no fat is fretted off by anger or any of the kindred emotions.

The local market of the state requires the light weight hog of the lard type for the butcher's block, and at this weight the bacon demand is met also. The Chester White again, through right feeding and breeding, meets this want, and therefore the long-bodied Chester is the best type to aim for, all other points being equalized. All the sows and boars farrowed cannot be sold for breeders, so choose this type when selecting a herd for serving the market in California.

The pig clubs are doing a glorious work. The boys and girls are proving to the older generation that hogs can be brought to a finished state in a scheduled time, and at a profit, although they buy every bit that goes to fatten the pigs in the contests, and at the high cost of feed prevailing during the past year. This campaign of education should open the eyes of the idea-bound man, who raises his pigs on pasture with very little else, and then when marketing them, their condition brings the lowest price, which also brings down the price for the other man who has fed correctly and therefore offers a better carcass.

California should and can raise all the hog meat which is needed for her home consumption, and some for export too. Combined with dairying, the Chester White can be brought into maturity or to the block stage in an incredibly short length of time and in prime condition. Alfalfa meal soaked in either buttermilk or skim-milk has been proven a growth and fat producer here on the coast, topping off with cracked corn or our staple, barley.

Efficient dairy cows must have efficient rations in order to produce a heavy flow of milk.

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1501-3-5 So. Main St., Los Angeles, Cal.

A Notable Sale—Proceeds to Go for Liberty Bonds

Written for California Cultivator By C. A. Briggs

TWO hundred and eighty-five head of registered Holstein-Friesian cattle, the entire dairy herd of the celebrated Stanford University Ranch at Vina, were sold at public auction on June 5, 6, 7, for a price of $57,000. Considering the fact that there was a large number of young bulls and calves, the average made was good and the University trustees are to be congratulated on the success of the sale. The bulls sold at low prices considering individuality and breeding, many of them going to head grade herds. This is very gratifying to members of the Holstein breeding fraternity as it spreads their doctrine of more and better cows and will add materially to the dairy wealth of the state.

The sale opened with addresses from H. M. Newhall, president of the board of trustees, and Vanderlynn Stow, a trustee and business manager of the board, and by M. H. Tichenor, sales manager. The first day's sale totaled $17,640 on 100 head, no large prices being obtained, but as much young stock went into the day's offering the average made was fairly satisfactory.

On the second day's sale of 100 head a total of $24,515 was secured. On this day the top notch animal was sold at a price of $1600. Mrs. H. V. Bridgford of Knightsen made the opening bid of $750. Bidding was rapid up to $1500 when Mrs. Bridgford secured the much desired animal with a final raise of $100. This splendid cow, Boweda, was born Oct. 30, 1910, and has a seven-days record of 31.91 pounds butter and 468 pounds milk, 30 days 123.55 pounds and 2180.60 pounds milk with an average per cent of fat of 4.53. She has averaged 72 pounds of milk for 30 days. She is a splendid individual and will make records in the show ring. Her sire is Sir Dorinda Jewell who has four tested daughters who have averaged 26.69 pounds of butter. Fourteen thousand eight hundred and forty-five dollars for 85 head on the third day concluded the sale.

This is the first three-day auction sale of purebred cattle in this state, and proves the enormous demand for stock of the right kind. Many buyers bought steadily from first to last. New men appeared each day and the deepest interest was manifested. Splendid cool quarters were provided by the management in open sheds carpeted with a thick covering of freshly mown alfalfa. This is an innovation and should be followed at all sales as it keeps down dust and makes the ground cool. An excellent lunch was served free to all each day and was appreciated by every one.

Geo. W. Wendt, herdsman, who knew every animal like his A B C's, was in the box and won golden opinions by his very evident honesty and desire to represent every animal as it actually was. Col. Ben Rhoades of Los Angeles and his son, Harold B. Rhoades, put the "blacks and whites" into the hands of buyers from the several states of Nevada, Oregon and Washington in record time. The Colonel sprung some "new ones."

Three students of the University of California, F. Croce, T. Krieger from the Argentine Republic and E. Susalta of Santiago, Chile, were present, the last named being a purchaser of several fine animals. The Davis farm was represented by the presence of Dean H. E. Van Norman, Prof. F. W. Woll and Prof. E. C. Voorhies. All parts of the state from Shasta to San Diego were represented, and evidence of the effective work done by Publicity Manager C. A. Farnsworth.

Among the buyers were Geo. A. Smith, Corcoran; Frank Hatch, Modesto; J. D. High, Modesto; Owen Duffy for Napa State Hospital; G. H. Upman; Mr. Atterbury, Crows Landing; Mrs. H. V. Bridgford, The Bridgford Co., Knightsen; D. A. Lindley, Sacramento; S. P. Garbutt, Princeton; M. P. Pillsbury, Chico; Baden Stock Farm, South San Francisco; Ambrose Estate, Nord; I. F. Van Lobensels, Durham; M. H. Daniels, Burlingame; C. C. Brode, Durham; Gottshall & Magruder, Ripon; M. H. Tichenor, Palo Alto; Geo. Jacobs, Gold Hill Oregon; Strang & Duel, Medford, Oregon; Kenneth Abbott, Milpitas; B. J. Bills, Orland; D. Wigit, Meridian; M. T. Machado, Gridley; Cayon & Manley; C. Surata, Santiago, Chili, South America; R. E. Field, Biggs; J. Loyer, M. H. Donaldson, Woodland; Frank Machado, Montague; W. H. Saylor, San Francisco; Jno. Nelo, Gridley; H. E. Cornwell, Modesto; C. R. Fester, Escalon; C. S. Mahle, Standish; W. D. Gore, Middleton; C. A. Kaiser, Biggs; Dr. W. Smith, Peters; M. E. Mead, Galt; W. H. Calhoun, Healdsburg; F. F. Martin, Reno, Nevada; J. Anderson, Palo Alto; H. J. Long, Mason, Nev.; Harry Smith, Chico Trinity Dredging Co.; Jas. Mills Orchard Co., Hamilton; Geo. P. Robinson, Sacramento; W. M. Newhall, San Francisco; S. M. Mealey, Gridley; Frank Helm, Fresno; C. Clark, Modesto; J. Benanti, Vina; F. R. Parker Chico; W. V. Bennett, Nord; C. A. Thayer, San Rafael.

Boweda, Top Notcher at the Vina Sale

A great Holstein purchased by the Bridgford Company. Mrs. H. V. Bridgford standing near cow.

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ARABIAN THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle stallion. These horses are mostly three-year-olds.

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HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

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Tulare Guernsey and Holstein Farm

Guernsey herd of A.R. cows headed by DAIRYMAID'S PRINCE 26352, whose sire is a son of Dairymaid of Pinehurst, A.R. record 17,285 pounds milk and 910 pounds butterfat in one year. His dam is POLLY'S BEAUTY, A.R. record 16,629 pounds milk and 774 pounds butterfat in one year as a 4-year-old.

Holstein herd of choicely bred females, many with good A.R.O. records, headed by PRINCE RIVERSIDE WALKER, whose sire is Prince Gelsche Walker, and whose dam is Aaggie Acme of Riverside, 808.82 pounds butter in one year, and she has a 3-year-old daughter that made 1095.1 pounds butter in one year.

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Out of a 32.76-pound 4-year-old. His sire is a son of Riverside Sadie De Kol Burke, 32.29 pounds butter in 7 days.

Herd officially tested for 7 and 30 days.

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When writing advertisers, mention the Cultivator.

ONION CULTURE

Continued from Page 659

over the soil and mix before planting, as they will yield potash in suitable form, this being one of the three principal chemicals required by all vegetables. A great many onions are grown from sets, and while the crop will mature earlier, the cost will be considerably greater. This condition has been specially noticeable this season of high prices, with sets now selling at 40 cents a pound.

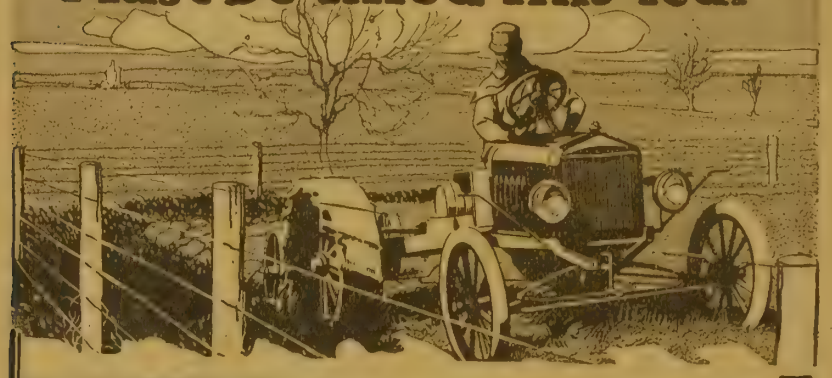
My method of culture is practically as follows. I select a certain piece of ground about this time as the location for next year's crop, cover this with several inches of stable manure, wet thoroughly for several days in succession and spade in when the earth is ready to work. Next I sow thickly buckwheat seed broadcast, the object being to increase the supply of humus which this growth will make when turned under later on. In about six weeks the buckwheat will bloom and go to seed, and after this falls it will come up again. Thus I secure a large growth from one planting of seed. By keeping the ground moist, specially during hot weather, by either sprinkling or irrigation, a heavy crop of succulent green may be secured. At the time of turning under I usually add the sweepings from my chicken yard, spreading this refuse over the buckwheat and spading it all in at one time. If this is again wet down and kept so for a short time, it should be in prime condition for planting. It should be remembered that the buckwheat will not stand very cold weather. I believe that it is necessary to turn under a large amount of green growth, as the supply of humus has to last for the seven or eight months the onions are on the land, owing to the impossibility of working the ground during that time. The loss of humus is all the more apparent on light soils, which burn out more readily. Next I sow the seeds thickly in drills, and after the shoots appear above the ground water and cultivate until the plants are the size of a lead pencil, at which time they are ready for transplanting. Cultivation after each irrigation, as well as keeping the bed free from weeds, is very essential. I now loosen the soil with trowel or fork and remove the plants, shaking off what little earth clings to the roots. Half of the roots and a third of the tops are now removed, and they are then ready to be reset. I keep the young seedlings covered with a wet sack after removal and before pruning, while I spade up the ground where they have been growing. The object in pruning the roots is to facilitate transplanting, while the trimming of the tops prevents excessive wilting. With a garden line stretched across the bed to mark the rows I reset the plants about one-half inch deep and five inches apart, making a hole with my finger and firming the soil about the roots. The rows are about 15 inches apart and on the level. If it is intended to cultivate between the rows with a horse the distance would of course have to be much greater. The bed should be thoroughly sprinkled or irrigated as soon as possible after the seedlings are set, and although some may appear to be wilted for a day or so they will come out all right. It is well to keep the ground fairly wet until the plants have taken hold.

The transplanting system is considered the best method of culture and is used by all large growers, as it frees the bed from weeds and establishes a proper distance between the plants, thus insuring a larger crop of more uniform size. According to the records of the Tennessee station a few years ago, an acre of transplanted onions yielded 823 bushels, as against 206 bushels from an acre not so treated, while the North Dakota station reported a yield four or five times greater.

When the tops begin to turn brown and wither is an indication of the ripening of the bulbs. They should then be pulled up and allowed to dry by placing several rows together. To guard against sunburn, to which the white varieties are the most susceptible, it is better to gather them into small piles, cover lightly with straw and leave for ten days or two weeks. They may be gently stirred several times during the drying process and then recovered. When thoroughly dry, the tops may be removed, and the onions stored or marketed. It should be borne in mind that the harvesting must be done in dry weather, and if the seed is sown at the right time, no difficulty will be experienced at maturity from this source. It sometimes happens that there may be at harvesting time a few plants whose tops are still green, but it has been proven that these will ripen along with the others. Should there be much rain at the time the onions are ripening, there is danger of rerooting with consequent injury to the bulbs. Properly cured onions, when poured from one box to another, should sound like blocks of wood, but care should be taken in handling the white varieties, which are very easily bruised. The white onions are tender and mild in flavor but not as good keepers as the darker kinds. The White Queen is an early onion, and for a late spring crop, the best kind is the Australian Brown, which does not grow quite so large. It has been reported that Australian Brown onions have been kept in prime condition for as long as a year under proper storage conditions.

For complete and reliable information on onion culture, address Hon. Secretary of Agriculture, Washington, D. C., asking for Farmers' Bulletins Nos. 39 and 354, which will be sent free, if copies are still available.

Every Acre-Every Fence Corner-Must Be Tilled This Year



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In the early days we heard a great deal about "thrift", today we hear the word "efficiency" used on every hand, in the factory, on the farm, on the ranch, even in our preparation for the great war before us everyone is talking about "efficiency". What is the difference?

Webster says—"Thrift is frugality; good husbandry; economical management in regard to property." "Efficiency" is something more than this—it is, says Webster—"The act of producing effects; a causing to be or exist." In other words "thrift" is the taking care of what you have, in the best possible manner; "efficiency" is the reaching out, the increasing of output, the "causing two blades of grass to grow where but one grew before".

As applied especially to the man who is raising crops, whether the owner of a large ranch or the small truck gardener, "thrift" is getting along with the implements you have, the careful planting and weeding; "efficiency" is studying your ground, your climate, the kind of seed to plant and over and above all it is the careful regulation of the moisture in the ground. You can't depend on the rainfall for this. What is the answer? Ask the man who raises the largest and best crops and he will tell you it is "IRRIGATION". It is the ability to pour a flood of fresh, cool water on the land when it is parched, when every leaf is crying for water. To do this you need pipe and there is but one pipe today that has stood every test and that pipe is—

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Valencias—Good, clean, thrifty, 2-year-old stock. These trees have never been neglected and are as good as the best. 45c each balled, dipped and loaded on truck at Glendora if taken in lots of 250 or more. C. A. Stoddard, Whittier, Cal.

Here Is Your Opportunity to Secure A1 citrus trees. We offer several thousand 2-year-old lemons; Eureka and Villa Franca, also Washington navels; also several hundred Valencias on sweet root. We call these good trees and we know whereof we speak. ALBERT JACKSON, Upland, Cal.

Eureka Lemon and Navel Orange Trees. Have large supply very fancy stock. No frosted trees. Best root system. Grown at San Dimas. Several hundred Marsh seedless grapefruit. Get our prices. Smith Citrus Nurseries, 320 Marsh-Strong Bldg. F2729, Main 3604, Los Angeles.

Citrus Trees—All leading varieties. Large line, Lisbon and Villa Franca Lemon and Washington Navel trees. All first class and clean. Special prices to dealers or in carload lots to growers. Randall Bros.' Nurseries Co., Whittier, Cal.

By Far the Lowest Priced means of reaching a buyer for what you have to sell is through classified advertisements in California Cultivator. The cost is only 3 cents per word per issue, with a minimum of 35 cents.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

For Sale Cheap—500 budded grapefruit, navels, Valencias and lemons. Make offer. Nursery at Rialto. H. B. Kelley, 1944 Milan Ave., So. Pasadena, or Rialto, Cal.

For Sale—Two-year sour seed bed stock, thrifty with good roots. Only 20,000. Price $20 and $25 f.o.b. Be quick if you expect to plant. C. W. Wilhite, Glendora, Cal. Phone 303.

For Sale—1000 Eureka lemon trees at 25c per tree. First class, free from scale; ¾-inch and up; must take them out this spring. Peter Arth, Redlands.

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Sweet Potato Plants—Full count, carefully packed. Address C. J. Frank, Ontario, Cal. Telephone 488Y.

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Plant a Few Acres of Dwarf Milo Maize for seed. Good seed requires about 2 pounds per acre. Choice pedigreed Dwarf Milo 10c per lb. Delivered your station. Fred M. Mahoney, Box 420, Tulare, Cal.

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Wanted—Man in each California county to represent established California company. Should have rig or auto to get around. Good pay and several weeks' work to right parties. Address J. H. Yetter, Sales Department, 810 Santa Marina Building, 112 Market St. San Francisco, Cal.

One of the Most perplexing problems to farmers and ranchers is that of help. A small liner ad in California Cultivator is the quickest and easiest means of securing farm help.

Wanted—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

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Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS".

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Chester Whites, the Billiken Brand—Bred sows and gilts. Every rancher should carry at least one good brood sow; are you going to help out our future meat supply? I have the following to offer, first class in every respect and priced low: 2 young tested sows to farrow in July; 6 spring gilts to farrow in September; 18 fall gilts to farrow in October. Weaned pigs, both sexes, to be delivered during the month of June. 4 young boars ready for service. Write for prices and circulars. C. B. Cunningham, Mills, Cal.

Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

Special Sale of weaned boar pigs of the famous Whitten Ranch Poland-Chinas. Get one and grow him out. He will put money-making qualities into your herd. Prices very low; satisfaction guaranteed. Send for free booklet, "Hogs for Profit". Packed with valuable information; tells how to become successful. Ranch in Tulare County, but address owner, R. H. Whitten, 610B Security Building, Los Angeles.

For Sale—Nice lot of young pure bred Poland-Chinas. Young boars ready for service. Nice lot of young gilts soon ready to breed. Weanlings of either sex. Sired by Joker, Iowa Wonder and Sunnydale's Chief. For prices and further information write Geo. A. Smith, Corcoran, Cal.

Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P.P.I.E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

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Rancho Rubio Durocs. Only a few September gilts left. One corking good fall boar by Orion Model, son of the last International grand champion. Place your orders now for weaned boar pigs. Best I ever raised. Elmer Lamb, Ceres, Cal.

Duroc-Jerseys—Seven choice males, three months old, from litter of eleven. Guaranteed breeders. $20 each with pedigree. W. M. Taylor, Rd. 1, San Bernardino, Cal.

Crawshaw's California Chinas are prolific and profitable. Weanlings $15.00, boars $25.00. Dr. J. A. Crawshaw, Hanford, Cal.

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One Large and two medium type boars, extra choice, 9 and 10 months old. W. Bernstein Ranch, L. C. Trewhitt, Mgr., Hanford, Cal.

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For Sale—From 1 to 70 extra fine, straight, well marked, light colored, registered Holstein heifers, from 8 to 20 months old. Those old enough are being bred to a first prize son of Prince Gelsche Walker, whose dam has a high yearly record. Some of these heifers are sired by bulls whose dams have from 35 to 37-pound records. They carry the very best blood of the breed and are good enough for any herd, anywhere. Prices to fit any pocketbook. Geo. A. Smith, Corcoran, Cal.

For Sale—Fine young three-year-old Holstein bull, registered, and five-year-old registered Holstein cow. Both in fine condition and have good pedigrees. Prices reasonable. Ben F. Thorpe, manager Canfield Ranches, Bonsall, Cal.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

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D. O. Lively Stock Farm, Inc., 215 Hobart Bldg., San Francisco. Breeders of Hereford cattle. A few choice heifers for sale. We buy and sell live stock on commission. Farm at Mayfield, Cal.

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D .E. Kelliher, importer and breeder of Hampshire sheep, Eugene, Cal., offers for sale a choice lot of Hampshire ram lambs, sired by Walnut Hall and Butterfield Rams, purchased at Salt Lake, August, 1916. Lambs ready for delivery after July 15th, 1917. Inspection and correspondence invited.

Butte City Shorthorns, Shropshires, Berkshires and Ponies. Stock of all ages for sale. Can supply one or a carload. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., Cal.

At Last the Perfect Silo—the Stay Round. No hoops, no bolts. No experiments. Any one can erect. Close price. Address D. O. Lively, 125 Hobart Bldg., San Francisco.

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Material guaranteed. It's 2nd hand after used few times, but not worn out.
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Let the wind do it. 8-ft., $25; 10-ft., $35; 12-ft., $55. Have three 16-ft. mills, $125 and $95, cost new $285.
TANKS—TANKS
New 1000-gal., $32.50; 2000, $44.00. Used tanks guaranteed; used 200-gal. redwood, $7.50, with covers, $9.50; fine galv. 500-gal. with cover, $22.50; 300-gal. wagon tank, $28; 1500-gal. galv. with cover, $22.50; 16,000, $175; swell heavy 20,000-gal. corrugated galv. tank with conical cover, $235; 10,000-gal. redwood, $75; new and used redwood and galvanized tanks, all sizes. See who's cheapest.
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Most all sizes—in good shape.
Centrifugal pumps, 2, 3, 4, 5-in., double runner; all size plunger pumps, $5 up; new pump jacks, $12.50; double-acting No. 3 Ames, $200, cost $660; Means double-acting deep well pump, $275; pumps 50 inches; Bulldozer jack $42; another large size $68; 9-h. Foos, $135. Many other first class engines very cheap.
Brass Cylinders, All Sizes.
Plunger rods, pipe, pipe fittings.
FINE BULL TRACTOR.
Fine, practically new, small Bull tractor, $295; pulls two 14-in. mouldboard plows. Why buy horses when you can get a tractor at this price? Two 14-in. mouldboard plows, $45; 3-gang disc tractor plow, $55; alfalfa renovator, $25; tricycle riding plow, $15. Many other bargains. 24-disc, 4-horse harrow, $38; mowers; buck rake, $20; 4-h.p. boiler, $48; feed cutter, $8.50; I.H.C. auto truck, $125; bone grinders, $6.50 to $12.50; feed mill $16.50, bath tub, $5; tons pipe fittings, cement mixer, $25; sprayer $19.50; new discs, $1 each; SUNDRIES.
Wanted first class material. No junk wanted. Pioneers in our line. DEMMITT CO., Upstairs, 120 N. Main. Yards, 816 Yale, Los Angeles.

Several new and slightly used engines at a bargain. Best makes. 1 to 35 h.p. Arnott & Company, Wholesale Machinery and Implements, 112 South Los Angeles St., Los Angeles, Cal.

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For Sale—38 H.P. "Otto" gas engine in good shape, at a bargain. E. A. Hayes, El Monte, Cal. Phone 48 R.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit." It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

Young Man or young lady desiring to attend college can secure tuition and part or all of living expenses through easy, agreeable work during spare time at home, for established California company. State which college you prefer to attend. Address J. H. Yetter, 115½ N. Broadway, Los Angeles.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

FARM LANDS FOR SALE

160 Acres, nearly level, part damp land, first water right from stream; main country road through land, all fenced and cross fenced, ½ hog tight, 7-room house, large barn, family orchard, daily mail, near school and church, good neighborhood, fine climate, in Mariposa County, $4000 cash, no trades. 320 acres adjoining, all fenced and cross fenced, large house, barn, orchard, lots of good springs, 280 acres of plow land, partly cleared, $6500, half cash, balance on time. No trades. W. W. Baldy, Raymond, Madera County, Cal.

Railroads Lose Lands—2,300,000 acres in fertile Oregon forfeited to government by Southern Pacific railroad. Will be opened to homesteading. Write quick for free information—send no money. F. A. Anderson, Povey Building, Portland, Ore.

State, Government and Indian Lands. Bargains overlooked. Free New Blue Booklet. Joseph Clark, Sacramento.

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For Sale—175 to 250 colonies Italian bees with extra equipment; in eight-frame hives; can remain in present location if desired. Geo. A. Sill, Watsonville, Cal.

POULTRY

Roofden Ranch Chicks are well hatched from first class utility breeding stock; money making egg producers our aim, and the prices are right. 7 to 14c depending on breed, month, quantity (dozen to thousands). White, Buff, Brown Leghorns, Black Minorcas, Rhode Island Reds, Barred Rocks. For Dollars and Sense. Send card for circular. Roofden Poultry Ranch and Hatchery, Campbell Cal.

Baby Chicks from my carefully selected, thoroughbred flock of S. C. White Leghorns, June and July delivery at $9 per 100, $85 per 1000. A strong, thoroughbred chick at a reasonable price. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Poultry Wanted We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

Free—How to Mate and Breed Rhode Island Reds. Just what you want to know, but could not get correct information. Send stamp. Trap-nested stock, both combs, big dark velvety red strain for sale. Ava Poultry Yards, Ava, Mo.

200-290-Egg Early Maturing Winter Laying White Leghorns, White Wyandottes, Rocks, Reds, Anconas, JUNE SALE. Eggs 60 per cent off. Few pens all breeds, half price. 8-week chicks. C. Beeson, Pasadena, Cal.

Model Poultry Farm, White Leghorn specialists. Baby chix and hatching eggs from heavy laying stock, bred by us for thirteen years. Our prices are right. W. C. Smith, Prop., Corning, Cal.

Baby Chicks—White Minorcas and Golden Buff Leghorn. Two popular breeds. Cockerels for sale. Sandridge Hatchery, Kerman, Cal.

"Eastman's Bred-to-Lay" Barred Plymouth Rocks. Chicks, eggs, cockerels. We Hoganize and trapnest. Fairmead Poultry Farm, Fairmead, Cal.

Baby Chicks—White Leghorns, Brown Leghorns, Reds, Barred Rocks, Black Minorcas, Anconas. Prices on application. Orland Hatchery, Orland, Glenn Co., Cal.

Baby Chix — White Leghorns, White Rocks, "quackless" White Muscovy ducklings. White Star Hatchery, Kerman, Cal.

For Sale—Rhode Island Red Baby Chicks from our carefully selected matings. $12.00 per hundred. Williams Poultry Place, 236 No. Gage, Los Angeles.

EGG PRESERVING

EGG PRESERVER, NEW PATENTED PROCESS, given the highest endorsement from 30 GOVERNMENT EXPERIMENT STATIONS, covering tests of 10 different preservatives. 75c prepaid, absolutely guaranteed to keep 600 eggs perfectly fresh 10 months. Double quantity $1.40. J. C. HENDERSON, BOX 476, SAN FRANCISCO.

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Money to Loan—On improved farms, city property or for building loans, also on cattle or cotton crops. C. G. Paul, 206 North Glendale Ave., Tropico, Cal.

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Catalogues — Good Printing. Specialists in preparing nursery, seed, poultry and live stock catalogues and all kinds of commercial printing. For prices and information address WOLFER PRINTING CO., 115 No. Broadway, Los Angeles.

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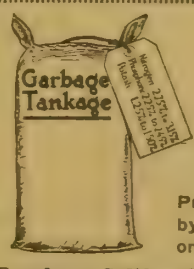
Raise Rabbits For Us—We sell you foundation stock and buy back what you raise, paying $1.75 and $2.00 each for them. Send 25c for our proposition, our book on rabbit culture and our supply catalog. Gilmore's Rabbit Farm, Dept. C, Santa Barbara, Cal. (The rabbit farm of international reputation.)

AGRICULTURAL IMPLEMENTS

Large Assortment slightly used and agents' sample plows, harrows, cultivators, wagons. Call and see them before buying. Save 50 per cent on some. Four floors. Largest stock. Arnott & Company, Ranchers' Supply House, 112 to 118 South Los Angeles St., Los Angeles.



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100,000 ft. new and second-hand pipe and casing.
Pipe—½, ¾, 1, 1½, 2, 2½, 3, 3½, 4, 4½, 5, 6, 7, 8, 9, 10, 11, 12, 15-inch.
Casing—3, 3¼, 3½, 4, 4¼, 4½, 5, 5½, 6, 8, 10, 11, 12, 14-inch; 500 ft. 6⅝-inch, 20-lb. ten thread.
Riveted pipe—4, 6, 8, 10, 12, 14, 16, 18-inch.
All above pipe and casing is practically as good as new, with good threads and couplings on each joint. We also carry valves and fittings, pumps, engines, boilers and rail. See our stock and get prices before buying elsewhere.
26,000 feet 1½-inch black pipe in first-class condition; new threads and couplings on each joint.
96 joints of 16-inch No. 10 gauge stovepipe casing, new, $2.25 per foot.

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Get a can of Ghirardelli's Ground Chocolate from your grocer. Make a cup of chocolate—a tablespoonful's enough—or use it in baking or desserts—and you'll realize immediately why more than a million homes prefer

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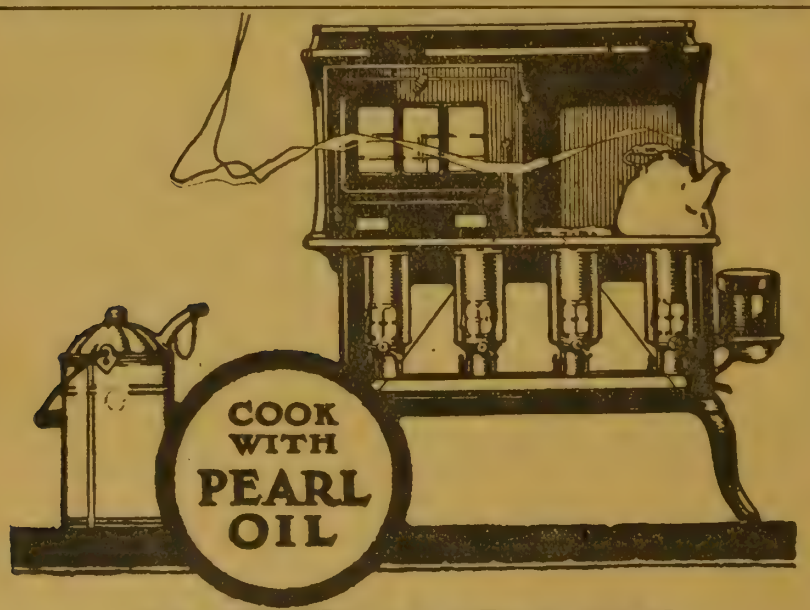

ECONOMY

An oil cook-stove is cheaper to buy than a wood or coal stove and it's much cheaper to operate. Meals in a jiffy, and a cool kitchen in summer.

All the convenience of gas—economical for all the year 'round cooking. Bakes, broils, roasts, toasts. Steady, evenly-distributed heat, the best for cooking.

The long blue chimneys prevent all smoke and smell. In 1, 2, 3 and 4 burner sizes, with or without ovens. Also cabinet models. Ask your dealer today.

NEW PERFECTION OIL COOK-STOVE

STANDARD OIL COMPANY
(California)

Extra parts are always available without delay for standard advertised machinery. This class always found in the California Cultivator.

Household Department

A TREE IN BLOOM

By William Nauns Ricks

Today I saw a tree in bloom,
And from my heart there passed the gloom,
Of earth born clouds and dull gray days,
And in their place rose songs of praise.

"The Firm Foundation" which was laid,
When men in darkness walked afraid,
And hymns of light through which I see
The now—and future hopes for me.

I saw how far its roots were spread
To serve the branches overhead,
And saw the tender feelers creep
To depths where hidden waters sleep.

I saw them touch the deepest place
Where God has planted his rich grace,
And through their winding courses bring
These living colors of the spring.

I saw a tree in bloom today
And in its presence bowed to pray,
That He would teach me how to find
The flowers of truth through ways that wind.

STRAWBERRIES—RAW AND OTHERWISE

Written for California Cultivator
By Mrs. A. Stainton, Los Angeles

NO garden can afford to be without the strawberry. Of all the fruits which can be grown in the garden, the strawberry offers greatest inducements because of ease of growing, delicious quality, long season and quick bearing. Strawberries crushed and well sugared are in a way preserved and will keep much longer than without the sugar, so that it is economy to care for them the moment they come from the market, whether they are to be eaten whole with sugar and cream or preserved. If they are spread out on plates and platters so that each stands by itself they will keep much better than when weighted down in the crowded box where one decayed berry will affect its neighbors. The acids of the strawberry are a splendid tonic for bilious people, but there are some people who cannot eat raw strawberries without experiencing great discomfort. It is claimed that if a little cayenne pepper is added to them it does not unpleasantly detract from their flavor and will help overcome difficulties in digesting them.

Of the ways of putting up strawberries perhaps the jam is the most generally acceptable but the preserve the most generally useful since it can be used for many of the things for which the fresh berry is used.

Sun Preserved Strawberries

Pound for pound is the rule, and the fruit and sugar are put together in layers. Place the dishes in the sun for two or three days, the fruit two or three inches deep and the dishes covered with window glass. This process makes the fruit plump and firm. Lift every berry carefully with a fork and put in a small tumbler. Add a pint of strained fresh juice and a pound of sugar to the liquor from the dishes, boil until the mixture jellies, pour it over the fruit and seal.

Strawberry Jelly

Wash, hull and mash the berries and drain them over night in a jelly bag. To each five pints of juice add one pint of currant juice and use a pound of sugar to each pint of juice. Bring the juice quickly to a boil, boil, for 15 minutes, add the sugar, stir until the sugar is dissolved, boil for five minutes. Put a little in a saucer and stand on ice. If it forms a jelly-like crust it is done. If not, boil longer. When done put into glasses, cool and cover.

Strawberry Pie

Two boxes strawberries crushed slightly, add one cup sugar and stiffly beaten whites of three eggs. Turn in crust that has been baked and brown in oven.

Scalloped Strawberries

Two boxes strawberries and a pint of cream are required. Whip the cream, wash and hull the berries, place a layer of the fruit in a deep glass dish, add a sprinkling of powdered sugar and cover with the whipped cream. Continue thus to make layers until all are used, heaping cream on top. Set on ice to chill thoroughly.

Strawberries English Way

Arrange with hulls on around a little pyramid of powdered sugar in individual dessert plates. To eat, pick them up by the stem, dip them in the sugar and bite off the berry.

Iced Strawberries

Add a cup of sugar to stiffly beaten white of one egg. Fold hulls of berries close to the stems, dip in icing and dry on a platter.

Strawberry Ice Cream

Mash two boxes of berries, add a cup of sugar and stand aside for an hour. Scald a pint of cream, add a cup of sugar, stir till sugar is dissolved and cool quickly. When cold add another pint of uncooked cream and freeze. Stir the berries until the sugar is dissolved and add them to the frozen cream. Put on the freezer lid and turn slowly till mixture is quite hard. Repack, cover and stand aside for two hours or longer. Serve with hot chocolate sauce.

Strawberry Dumplings

Biscuit dough cut into rounds about four inches in diameter. Put two berries into each round, pick up the dough and roll the dumpling in the hand until you cannot see an opening. Place them in a greased baking dish. Brush them with milk, dust with granulated sugar and bake in quick oven. Serve with a pitcher of thick cream and dish of crushed and sweetened berries or strawberry butter.

Strawberry Shortcake

Bake ordinary layer cake in shallow pan and when cold cut into squares. Whip a pint of cream. Put a square of the cake in the serving plate, cover with a generous layer of cream, fill thickly with berries, and dust with powdered sugar. Another layer of cake, cream and berries and the cake is complete. Serve with cocoanut cream or a boiled custard.

Strawberry Cocktails

Slice large ripe berries, cover with orange juice and stand on ice. Serve in stem glasses. Add a teaspoon of sugar and a little shaved ice to each portion.

Strawberry Griddle Cakes

One box strawberries, 1½ pints flour, one teaspoon salt, one tablespoon brown sugar, two teaspoons baking powder, two eggs and one pint of milk. Sift together flour, salt, sugar and baking powder. Add beaten eggs, milk and berries and mix into a batter. Have the griddle hot enough to form a crust as soon as batter touches it in order to confine juice of berries. Turn quickly in order to form a crust on under side. Turn once more on each side to complete baking.

WORTH TRYING

The small boy stood at the garden gate and howled and howled and howled.

A passing old lady paused beside him.

"What's the matter, little man?" she asked in a kindly voice.

"O-o-oh!" wailed the youngster. "Pa and ma won't take me to the pictures tonight!"

"But don't make such a noise!" said the dame admonishingly. "Do they ever take you when you cry like that?"

"S-sometimes they do, an'—an' sometimes they d-don't!" bellowed the boy. "But it ain't no trouble to yell!"—Answers.

OF COURSE NOT

As a train was getting up steam to leave a certain station it suddenly parted in the middle. Of course, the communication cord broke, and one end of it struck an old woman, who was standing on the platform, in the face.

"Goodness me!" she gasped in astonishment. "What was that?"

"The train has broken in two, madam," said a man who stood near her.

"And I should think so!" said the old woman, indignantly, as she eyed the broken cord. "Did you really think that a piece of string like that could hold a train together?"—Answers.

The Cultivator Patterns

8385—Ladies' Blouse. Cut in sizes 36 to 42 inches bust measure. The blouse is to be slipped on over the head.

8387—Boys' Norfolk Suit. Cut in sizes 2, 4 and 6 years. The suit consists of a box-plaited jacket and straight trousers.

8363—Ladies' House Dress. Cut in sizes 36 to 44 inches bust measure. The dress has a plain waist and a three-gored skirt.

7537—Ladies' Waist. Cut in sizes 34 to 42 inches bust measure. Linen, madras or Crepe de Chine can be used for this waist.

8375—Girls' Dress. Cut in sizes 6 to 14 years. The dress has a separate bolero and a one-piece straight, gathered skirt.

8395—Ladies' Coat. Cut in sizes 36 to 42 inches bust measure. The coat may be made in the 36-inch or 48-inch length.

8386—Ladies' Skirt. Cut in sizes 24 to 32 inches waist measure. The skirt is cut in four gores and the front and back are in panel effect.

PRICE OF ANY OF THE ABOVE PATTERNS 10 CENTS EACH.

HOW TO ORDER PATTERNS

Write your name and address plainly in full, give correct number and size of each pattern you want, and send ten cents in coin or (1 or 2c) stamps for each number. In order to furnish our readers with the very latest New York City styles, all pattern orders are filled in New York City. Therefore, we promise to deliver all patterns ordered within two weeks; we guarantee safe delivery of all patterns. Address

Pattern Department

California Cultivator

Los Angeles

HOUSEHOLD QUERIES

Caper Sauce

Kindly advise through the columns of your paper method of preparing caper sauce.—Subscriber, Acampo.

Pack the flower buds in bottles and cover with vinegar. They are used as flavoring for sauces and vinegar.

Hominy

Please give recipe for making hominy. I have difficulty in getting mine to peel properly.—Subscriber, Strathmore.

Recipes for making hominy were given in the Cultivator of December 30, 1916. By referring to your file of Cultivators a satisfactory recipe will be found. Copy is mailed to inquirer.

Tomato Paste

What is tomato paste? I see frequent references to it's being imported from Italy and would like to know how it can be made.—Subscriber, Los Angeles.

To make tomato paste put ripe, sound tomatoes in an earthen or agate kettle, and cook slowly until skin cracks and peels off. Then put in a hair sieve over a large bowl; the first very thin liquid that runs from them should be thrown away. Press juice and pulp through sieve, and put in preserving kettle; to each pound of fruit add one teaspoon of mixed spices; and salt.

Use only a little salt as the fruit is boiled down considerably and it is apt to be too salty. If needed, more salt can be added after it is cooked thick. Cook slowly until it is quite thick, then put in wide-mouthed bottles. Stand the bottles in a kettle containing water enough to come half way up their sides, and boil as you would canned fruit; then remove from kettle, let cool and seal, using paraffin over the corks. Less spice may be used if liked. Some cooks use a little onion or garlic and bay leaf as flavoring. This paste, being concentrated, is very convenient to use in cooking, and it may be kept in any wide-mouthed bottles one has.

AN APPRECIATION

"A Subscriber, Riverside," has read with much interest economies practiced by the thrifty housewives who are readers of this paper. Most of those mentioned in these articles have been in practice in my home for years. Were all the housewives of this country as thrifty as these, Herbert Hoover would have to change his business.

Preserving Citron

Please tell me how to preserve citron.—Subscriber, Goleta.

Complete directions are given in article on Page 660 of this issue.

Irish potatoes and most other vegetables and fruits tend to make the body tissues and fluids alkaline, so correcting the tendency of meat, eggs, fish, and similar foods to create acid conditions. Since the body performs its work best when it is neutral or slightly alkaline, this function of fruits and vegetables is important, especially to the hearty meat eater.

It isn't "shiftless" to have a magazine or paper in the kitchen to read while doing some kinds of work. Many bits of news or good articles may be gotten hold of in odd moments when only one hand and really no eyes are required for some task, or while waiting for something to boil or brown when you do not quite dare leave it and go to some other part of the house.

Coulter's

Dual Removal and June Sale

A sale in which is offered ONLY dependable, first-class merchandise from our own high grade, carefully selected stocks of dry goods.

In anticipation of our moving to Seventh and Olive Streets, on or about October 1st, we are desirous of closing out many lines of goods, and lowering stocks in other lines; the result being bargains of the good old-fashioned sort in every part of the store.

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See daily Los Angeles papers for details of this comprehensive sale.

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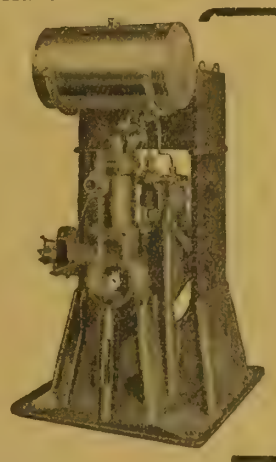

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Blackhead, the Scourge of Turkeydom

Written for California Cultivator By Jean A. Koethen

NINETY-FIVE per cent of all the young turkeys that die, die of blackhead. This statement is made by the Rhode Island experiment station, our leading authority on this disease, and cannot be disregarded. We used to attribute these numerous and tragic deaths to a mysterious kind of "liver trouble," but it is absolutely clear that "liver trouble" is blackhead and nothing else. When a young turkey begins to mope, stands by itself or lags behind the others, eats little or nothing, seems thin and weak and just generally "played out," we may as well say "blackhead" first as last. There is almost always diarrhoea, sometimes more, sometimes less. In poults over two months old this symptom is more pronounced than in younger birds, and if it can be controlled the bird may be saved, but that rarely happens. Once attacked by blackhead a poult is as good as dead.

The term "blackhead" is itself a misnomer. Most poults' head do not turn black. They are sometimes pale, sometimes dark. In birds that have "shot the red" the change of color is more noticeable than in younger ones. The disease is most common in poults from six or seven weeks to three months of age, but is often seen in half grown birds. A turkey of this age does not droop as suddenly or die as quickly as a younger one would, but may be seen day by day getting a little thinner, a little paler about the head, eating at times and then again standing back while the rest eat. Finally it becomes so weak that the others pick on it, and then death speedily ensues.

I said we might as well conclude, when such symptoms appear, that the disease is blackhead, but the fact is that while these symptoms are characteristic of blackhead one cannot be absolutely certain of his diagnosis without a post mortem examination of the liver and ceca or "blind pouches" of the intestine.

Post mortem examinations by the unskilled seldom give much light on the cause of death, but in the case of turkeys it is worth while to cut a dead bird open in order to be entirely satisfied. Deprived of technical phraseology it may be said that spots of any sort on the liver of the dead bird or an unnatural condition of the little "blind pouches" indicate blackhead and nothing else. Drooping wings and loss of appetite might result from infestation by lice and mites; the spotted liver means but one thing.

Now, this unhygienic condition of the intestinal tract comes from overfeeding. In birds that are fed as they should be the intestinal tract is clean and healthy. Overfeeding brings on indigestion, and indigestion produces inflammation. The parasites develop in the inflamed membranes, and the condition described above ensues.

Once satisfied that blackhead is present in the flock, what are we to do about it? There is but one answer, "Get rid of the cause." This will not save the sick turkeys, but it may save the rest of the flock. In a previous article I outlined the Rhode Island method of feeding young turkeys. So far this is the best answer to the question, but it may be that next year there will be a better one. Let us keep very clearly in mind the fact that blackhead is the result of captivity in birds that have not become thoroughly domesticated. This is the key to the solution of the problem. The nearer we can approach, in our method of caring for turkeys, their natural environment and diet, the better is our chance of success. The wild bird eats bugs and seeds, nibbles at weeds and grasses, and is at it all day. Whether we have in Southern California any range that contains sufficient animal food to make artificial feeding unnecessary, is a question that has not been answered. Probably a big alfalfa ranch most nearly fills these conditions. I have been told that on the alfalfa fields of Imperial Valley the turkeys "grow like pigs." If this is true the solution of the blackhead problem is in sight. But the difficulty we still have to contend with is the diet of young turkeys the first few weeks before they are able to forage for their food.

SAVE THE FLOCKS

Poultrymen of Southern California are meeting this week and discussing with Prof. Dougherty of the state university practical poultry keeping. Next week, June 19, 20 and 21, meetings will be held in the high school auditorium of Pomona. At that time there will be discussions on housing and yarding, feeding, vital facts in incubating, successful brooding, principles of breeding, selecting and culling.

It is a time when poultry people should consider every possible economy and every possible means leading toward greater efficiency, for only by best of management can poultry or eggs be produced with feed at present prices. Some are discouraged and will doubtless quit the game. But with the world crying for food the poultry people should not fail to keep their end up and produce more and better. Cornele G. Ross of the Pomona committee urges the attendance of every poultryman of Southern California and suggests that everyone should bring notebook and pencil and make record of the many valuable points which will surely be brought out in the discussion at the Pomona meeting.

The luncheon and afternoon sessions of the third day will be held in Ganesha Park. The Pomona committee is providing coffee and will furnish tables and chairs. Ganesha is one of the most beautiful little parks in all California and the noonday luncheon by the running brook will be a most pleasurable event.

PROTECT SITTING HENS FROM MITES AND LICE

Great care should be taken to keep nests occupied by sitting hens free from mites. It is hard to work effectively against the mites when many hens are brooding. Oil in the form of crude petroleum sprays—the treatment recommended by specialists in the United States department of agriculture—used freely about the house at that time, may soil the eggs and prevent successful hatching. Infested quarters, therefore, should be treated thoroughly before hens are set, so as to start them in nests which are absolutely clean. Beneath the straw of the nest a layer of lime and sulphur will tend to prevent mite breeding, and the entire nest may be dusted occasionally with pyrethrum. Broken eggs and the straw soiled by them should be removed promptly, as they tend to attract mites.

Medicated nest eggs, said to control poultry lice, are on the market. These consist largely of napthalene. While this material will destroy lice when applied generally to the fowl, it is injurious to the hen's eggs as well as to the bird. If used in quantity, or if the medicated eggs are allowed to remain for some time beneath a hen, she may die as a result. Sodium fluorid powder, dusted on the fowl, or dissolved in water and used as a dip, is the best remedy for lice.

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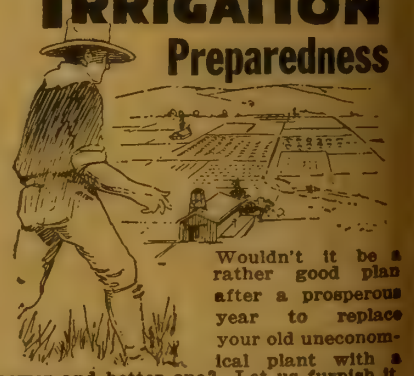

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To keep thoroughly posted subscribers should read every advertisement in the California Cultivator columns.

Los Angeles Market

LOS ANGELES, June 12, 1917.

BUTTER

Wholesale prices:

Rcts. wk. ending June 12, 385,720 lbs.

California extra creamery 38
Prime first 36

Extr. Cry. Exch. past wk.

June	6	7	8	9	11	12
'17	38	38	38	38	38	38

CHEESE

Brokers' prices:

California fresh, lb. .....24@25
Oregon Longhorn 28
Tillamook Trip. 27

EGGS

Exchange quotations:

Rcts. wk. ending June 12, 200,713 cs.

Fresh extras 32½
Case count 31½
Pullet 30½

Fresh Ranch Exch. past wk.

June	6	7	8	9	11	12
'17	.....34½	34	32	32	32½	33

POULTRY

We quote from growers:

Broilers .....20@24
Fryers 25
Hens—Leghorns 13-15; Heavy Col'd..20
Roasters 25
Ducklings, lb. 18
Squabs, doz. .....3.00@4.00
Roosters, old 10
Turkeys .....21@24

LIVE STOCK

We quote cwt. f.o.b. L. A.

Cattle—
Beef steers, av. 1000 to 1100 lbs.....9.00
Heifers, good 7.00
Cows, good .....6.50@7.00
Fair .....6.00@6.50
HOGS—
Av. 125 lbs. 12.50
Av. 150 lbs. 13.50
Av. 175-200 lbs. .....14.00@14.50
Rough, docked 20 lbs.; piggy sows, 40 lbs., stags, 40 per cent.
Prime wethers .....9.50@10.00
Ewes .....9.00@9.50
Lambs 13.00
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:

Northern 5.00
Oregon 5.00
Russets 5.00
New, lug .....1.25@1.40

ONIONS

Wholesale selling price:

Crystal Wax, cr. .....1.25@1.35
Bermuda, cr. .....1.25@1.35
Garlic, lb. 10

VEGETABLES

Wholesale prices:

Arichokes, doz. .....50@75
Asparagus, lb. .....10@11
Beans—Wax, 6½@7; string .....6@6½
Limas 22½
Beans—Wax, String .....6@6½
Ky. Wonder .....6½@7
Beets, doz. bunches 40
Cabbage, lb. 1½
Carrots, doz. 40
Chicory, doz. .....40@50
Cauliflower, doz. 1.00
Celery, doz. 1.50
Corn, lug 1.50
Cucumbers, Hothouse, doz.....75@1.25
Outdoor, lug 90
Eggplant, lb. 20
Horseradish, rt. lb. 15
Lettuce, doz. 25
Leeks, doz. 30
Mint 40
Onions, green, doz. 25
Okra 22½
Oyster Plant, doz. 45
Peas, lb., Telephone .....5½@6
Peppers, Chili, lb., 25; Bell .....30@40
Parsnips, doz. 45
Parsley 20
Radishes, doz. 17½
Rhubarb—Crimson Winter 75
Strawberry 1.00
Giant 1.35
Romaine, doz. 45
Spinach, doz. 17½
Squash, Summer, cr. 1.00
Turnips, doz. 40
Tomatoes, cr. .....1.90@2.00

FRUITS

Wholesale prices:

Apples—W. W. Pearmain 2.75
Newtown Pippin, Yellow 2.75
Avocados, doz. .....6.00@10.00
Apricots, cr. .....1.80@2.00
Bananas, lb. .....5¼@5½
Cantaloupes—
Standard 5.50
Pony 4.50
Diamond 3.50
Cherries, lb. .....11@12
Bings, lb. 14
Figs, bx. 1.25
Loganberries, bskt. .....6@7
Loquats, lb. 7½
Peaches, cr. 1.75
Blackberries, basket .....7@8
Raspberries, basket .....5@6
Gooseberries, lb. .....8½@9
Strawberries, basket .....5@6
Pineapples, lb. 8

CITRUS

Lemons .....2.25@2.85
Juice 1.25
Grapefruit .....2.50@3.50
Limes, basket 1.00
Valencias .....2.50@3.10
Navels .....2.50@2.75
Tangerines, lug 1.50

HONEY

Wholesale prices:

Extr. White 11; W.W. 12½
Comb., case. W. 3.75; W.W. case....4.00
Beeswax, lb. 32

NUTS

Peanuts, raw 11
Pine Nuts 20
Pecans 19

BEANS

Wholesale Prices:

Lady Washington 17.50
Limas 17.00
Pinks 12.50
Manchurian Reds 12.00
Baby Mex. 8.50
Garbanzos .....9.00@10.00
Small White 17.50
Blackeyes 12.00
Tepary 12.00
Lentils 18.00

HAY

We quote ton f.o.b. L. A. to producers:

Barley .....17.00@19.00
Alfalfa .....13.00@16.00
Straw .....10.00@12.00

GRAIN AND FEEDSTUFFS

Wholesale cwt. f.o.b. L. A.

Alfalfa Meal, 100 lbs. 1.65
Alfalfa Molasses, 100 lbs. 1.75
Barley, Rolled 2.50
Barley, Recleaned Whole 2.55
Barley, Hulled 3.00
Beet Pulp 1.80
Bran, heavy 2.25
Blood Meal 4.60
Bone, Green .....2.65@2.75
Bone, Dry .....2.85@2.95
Charcoal, 50-lb. sk. .....2.55@2.65
Clam Shell .....70@80
Cocoanut Meal 2.05
Cottonseed Meal 2.50
Corn, Yellow 3.70
Corn, White 3.80
Corn, Cracked 3.75
Corn, Egyptian 3.70
Corn, Feed Meal, 100 lbs.....3.80
Grit Granite .....65@75
Hemp .....5.50@5.60
Milo Maize 3.70
Middlings 2.95
Oat Chop 2.10
Oats, White 2.70
Oats, Rolled, White 2.75
Oats, Hulled 4.60
Oyster Shell .....1.25@1.35
Oilcake Meal 3.30
Rye 4.65
Sunflower Seed .....4.10@4.20
Soya Bean Meal .....3.30@3.40
Scratch Feed .....3.90@4.00
Wheat, No. 1 .....4.30@4.35
Wheat, Cracked, No. 1.....4.70

San Francisco Markets

SAN FRANCISCO, June 11, 1917.

BUTTER

Dairy Exchange quotations, lb.:

Rcts. wk. ending June 11, 699,800 lbs.

Fresh extras 37
Prime firsts 36½

Extr. Cr'y. Prod. Exch. past wk.

June	5	6	7	8	9	11
'17	....	36½	37	37	37½	37
'16	....	25½	26	26	26	..

CHEESE

Dairy Exchange quotations:

Cal. Flats ...21@22 Y. Am.....23@23½

EGGS

Rcts. wk. ending June 11, 16,823 cs.

Dairy Exchange quotations:

Fresh extras 31
Firsts 32½
Select Pullets 29
Firsts 28

Fresh Extr. Prod. Evch.. past wk.

June	5	6	7	8	9	11
'17	....	..	32½	31	31	31
'16	....	..	25	25	25	31

POULTRY

We quote from producers, lb.

Hens, large 24@25; Leghorns .....15@17
Small Colored .....20@21
Fryers, lb. .....33@35
Broilers, large 26@27; small .....19@22
Roosters, old 13@14; young .....33@35
Squabs, doz. .....2.50@3.50
Ducks .....16@18
Geese .....19@20
Belgian Hares, live 14@15; dr. .....17@18

LIVE STOCK

Prices gross weight:

Cattle:

The following prices are for grass fed stock. Hay fed bring ½ to ¾c more.

Steers, lb., 7@9, cows and heifers, 4@7¼; calves, 7@9½.

Sheep:

Wethers, 11; shorn, 1½@2c less; ewes, 10; lamb, lb., 12@12½.

Hogs:

Hard grain fed, wt. 100 to 150 lbs., 12¾@13c; 150 to 300 lbs., 15¼@15½; 300 to 400 lbs., 14¾@15.

POTATOES

Wholesale selling prices at wharf:

Burbanks, old, cwt.....3.25@3.50
New, lb. .....3@3½

ONIONS

Wholesale selling price on wharf:

New crop.

Crystal Wax and Bermuda, cr...1.75@2.00
New Red and Silverskin, sk.....1.00@1.50
New Green, bx. .....50@85
Australian Yellow, cwt. .....2.50@3.00
Garlic, lb. .....1@3

VEGETABLES

Wholesale selling price:

Asparagus, Fy. Wh. lb.....6@7
Green ..... 2.00@2.50
Artichokes, doz. large 40
Small .....10@25
Beans, String, lb., 6@8; Wax.....7@8
Ky. Wonder, lb. .....8@9
Celery, cr. .....2.75@3.25
Corn, Green, doz. .....30@60
Brentwood ..40@50; Southern ..20@25
Cucumbers, bx. .....75@1.00
Okra .....10@15
Peas, sack .....2.00@2.50
Peppers, Bell, 25; Chili .....15@20
Rhubarb, bx. .....1.25@1.75
Squash, Summer, cr. .....65@85
Italian, bx. .....50@60
Tomatoes—
Merced .....1.75@2.00
Southern .....1.75@2.00

FRESH FRUIT

Wholesale selling price:

Apples—Newtown Pippins .....2.50@3.00
New, Green .....75@1.00
Apricots, crate .....1.25@1.75
Bananas, bunch .....1.25@1.75
Cantaloupes—
Standard .....4.00@5.00
Pony .....3.50@4.00
Special .....1.25@1.75
Cherries—
Black Tartarian, dr. .....1.00@1.25
Royal Anne, dr. .....1.25@1.50
Black, lb. .....7@10
White, lb. .....5@7
Figs, blk. bx. $1.25@1.75; wh. 1.25@1.75
Currants, dr. .....75@1.00
Peaches, cr. .....1.25@1.75
Strawberries—
Longworths, chest .....7.00@8.00
Large varieties .....5.00@6.50
Plums, cr. .....1.50@1.75
Blackberries, cr. .....75@1.25
Gooseberries, lb. .....6@9
Loganberries, chest .....6.00@8.00
Raspberries, chest .....8.00@10.00
Watermelons, lb. .....5@6

CITRUS FRUIT

Wholesale selling price:

Lemons .....1.75@3.50
Lemonettes .....1.25@2.25
Limes, Mex., cs. .....4.50@5.50
Grapefruit .....1.75@3.00
Navels, bx. .....2.25@3.00
Valencias .....2.65@3.00
Tangerines, half orange box....1.75@2.00

DRIED FRUITS

Wholesale quotations:

PRUNES—Bulk basis, 30s to 40s, 9¼c; 40s to 50s, 9½c; 50s to 60s, 9¾c; from 60s to 70s and 70s to 80s, 9¾c; 80s to 90s and 90s to 100s, 10c.

Other fruits, 50-lb. boxes:

	Standard.	Choice	Extra Choice	Fncy.
Pears	7½c	8½c	9½c	12¾c
Apples	... 11	c	11½c	12 c

BEANS

Jobbers' prices, cwt. recleaned:

Limas .....15.75@16.25
Bayous .....11.25@11.50
Garbanzos .....6.50@7.00
Small White .....16.00@16.25
Mexican Red .....11.25@11.75
Large White .....15.75@16.00
Pinks .....11.50@12.00
Black Eyes .....9.25@9.75
Red Kidneys .....13.00@14.00

NUTS

Peanuts, Jap, 7@7½; Eastern 7½
Pecans .....19@20
Pine Nuts .....15@17

HONEY

Jobbers' prices:

Comb, lb., W.W., 13@15; A., 8@10c; Lt. A. .....11@12
Ex. Fy. W. lb.....13c; Lt. A.....11
Beeswax, lb. 38

RICE

Price to growers:

Cal. Rough cwt. .....3.25@3.50
Lower Grades .....2.50@3.25

HAY

Under date of June 9 Scott, Magner & Miller say:

Arrivals past week 828 tons. Consignments have consisted of old crop as none of the new is yet moving into our markets. The demand has been remarkably light in this city and Oakland. Harvesting is in full operation and in some sections hay is baled and ready for market. Alfalfa continues to be in good demand. There is no second cutting in the market as yet. There has been no straw arriving and probably will not be until later on when new straw is ready to bale. We quote today wholesale prices in carload lots as appear from dealers' transfers upon the hay market. For prices to consumers charges of cartage, commission and handling expenses must be added according to conditions.

Wheat, Fy., lt. bales.....29.00@30.00
Wheat or Wh. and Oat, No. 1.27.00@28.00
Wheat or Wh. and Oat, No. 2.25.50@26.50
Oats, Choice Tame .....29.00@30.00
Other Tame .....24.50@26.00
Barley .....25.00@27.00
Alfalfa, first cutting.....14.00@15.50
Stock Hay, new .....10.00@12.00
No. 1 Barley Straw, Baled.....1.00@1.10

GRAIN

Grain Exchange prices, ctl.

Wheat—No. Bluestem .....4.55@4.60
Corn, California Yellow .....3.25@3.50
Corn, Eastern Yellow .....3.25@3.30
Corn, Egyptian White .....2.25@2.60
Oats, White Feed .....2.60@2.70
Barley, Feed, old 2.10-2.25; new 2.07½-2.10

FEEDSTUFFS

Wholesale prices per ton:

Bran .....39.00@40.00
Cornmeal .....71.00@72.00
Cracked Corn .....71.00@72.00
Cocoanut Meal .....35.00@36.00
Middlings .....50.00@51.00
Alfalfa Meal, carlots .....33.00@35.00
Shorts .....43.00@44.00
Rolled Barley .....45.00@46.00

SEEDS

Prices in round lots, lb.:

Millet, recleaned .....3¼@4
Alfalfa .....20@21
Flax .....5@6

Citrus Fruit Market

LOS ANGELES, June 13, 1917.

The naval season closes with long prices and keen demand is cleaning up all of the seedlings, sweets and other end-of-season offerings. There are still going forward 125 to almost 300 cars daily. The outlook for Valencias indicates exceptionally long prices the season through.

Lemons are now coming more freely from Mediterranean sections and the cool weather generally prevalent prevents prices usually obtained at this season.

Shipments

Shipments of oranges from Southern California since November 1, 1916, 28,740 cars, lemons 5083, total 33,823; to same date last season, oranges 23,283, lemons 4264, total 27,647. From Central California to date this season, oranges 4273, lemons 154, total 4427; to same date last year, oranges 5386, lemons 146, total 5532. From Northern California to date this season, oranges 845 cars; to same date last season, oranges 619, lemons 1.

FROM THE AUCTION

June 11

New York: 41 oranges, 4 lem. Nav., $1.75@3.85, nearly all sales running above $3.00. Val., $3.55@3.80; sweets, $2.80@3.35; lem., $4.15@4.65.

Boston: 23 cars. Nav., $2.25@4.00; lem., $2.70@4.20.

Pittsburg: 20 cars. Nav., $2.15@3.95; Val., $3.20@3.70; lem., $3.15@3.45.

St. Louis: 10 cars. Nav., $2.05@2.70; lem., $3.15.

Cleveland: 12 cars. Nav., $2.75@3.65.

June 12

New York: 30 oranges, 3 lem. Nav., $2.40@3.80; Val., $3.65@4.05; lem., $3.35@4.60.

Boston: 16 cars. Higher. Nav., $2.70@4.15; sweets, $2.80@3.40; lem., $3.50@4.30; Val., $3.55.

VETERINARY QUERIES

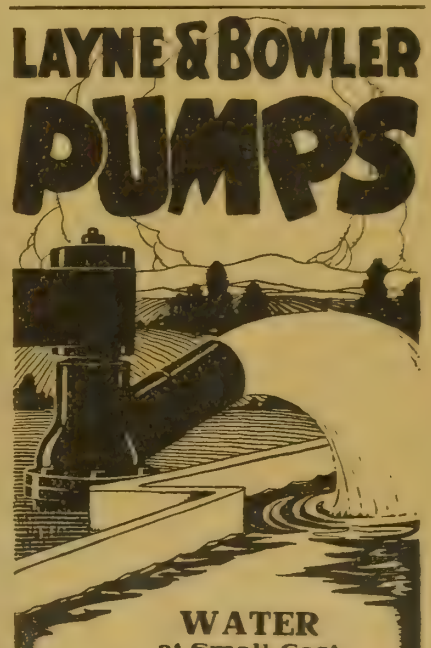
Continued from Page 665

not disturb it. A physic of oil and aloin would probably be good for her. Try this: aloin one ounce, turpentine four ounces, powdered nux vomica one ounce and raw linseed oil enough to make two quarts. Mix and divide into four doses. Give one dose every other day. See that she has plenty of good water to drink and feed green stuff to keep the bowels loose.

Cankered Ear

Please tell me what to do for my dog eight months old. He has a running discharge from one ear that is very offensive, and he is constantly shaking the head as though it caused him pain.—Subscriber.

It may be canker which is due to a germ or it may be caused by ticks getting into the ear. Either is hard to cure but the only remedy that seems to do them any good is a few drops of kerosene in the ear once a day. Be sure it goes right into the tube that leads into the head. It will do no harm in either case.



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LAYNE & BOWLER PUMPS

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THE Summer months are coming when tubes are subjected to their greatest strain. Replace any tubes which will not stand up under that strain. Forestall inconvenience.

Don't chance ruining perfectly good casings with worn-out tubes. See to it NOW that your tube equipment is right and ready to meet all the conditions of Summer driving—have complete Fisk equipment.

Fisk Tubes have been of laminated construction ever since they were first built—that is, built up layer upon layer of pure rubber.

New Fisk Tubes bought NOW will give you better tire satisfaction and lower up-keep costs for the balance of the season.

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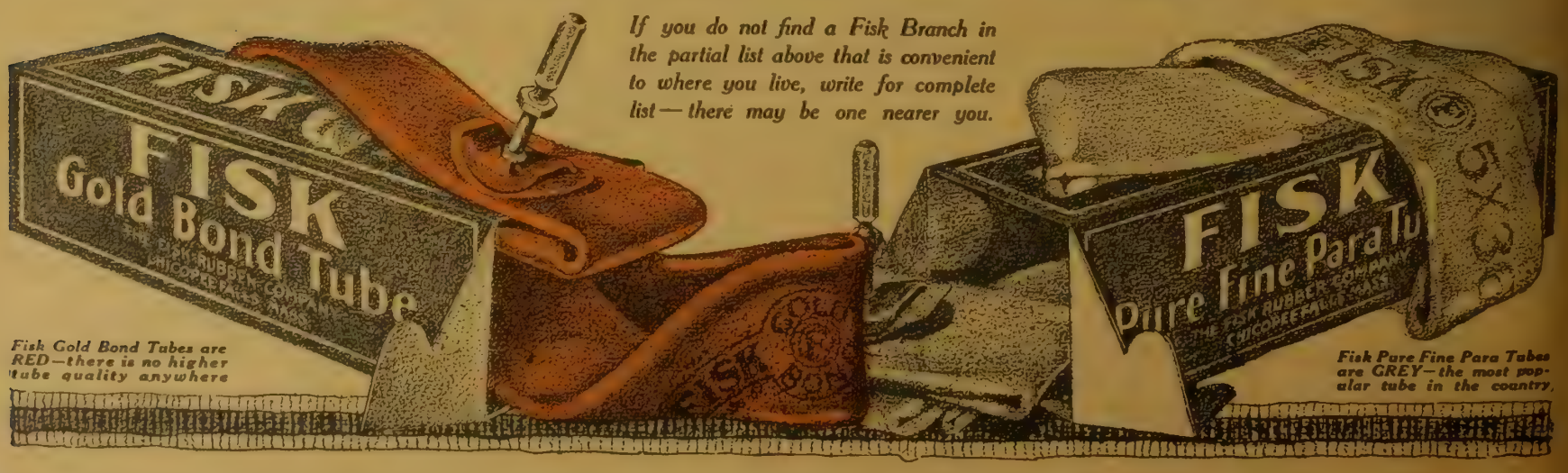
If you do not find a Fisk Branch in the partial list above that is convenient to where you live, write for complete list—there may be one nearer you.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CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

LOS ANGELES June 23, 1917 SAN FRANCISCO

We are going to GIVE AWAY

Home Steam Canners

Get one for yourself—the plan and work is easy and you can save $100 or more on your grocery bill.

California Cultivator is going to give away **Economy Home Canners,** one of the handiest, most economical and successful Home Steam Canning devices ever made. Anyone accustomed to cooking can put up fruit and vegetables rapidly and successfully with the Economy Home Steam Canner. Directions as to how long to steam and otherwise handle fruits and vegetables are sent with each canner. The work is easy and to secure one will only take a few minutes' effort among some of your friends.

Get a Canner Like This and Save Money on Your Grocery Bill.

The Economy Home Canner and Cooker is a scientifically made canning vat 24 inches long, 10 inches deep and 12 inches wide with steam tight cover made to hold 16 quart jars at a filling. It has two bottoms, one inside the other. The inside one is so made that the fruit jars set on it above one gallon of water. It is perforated.

This arrangement necessitates only a small amount of water and therefore minimum fire. The top or lid closes down inside a steam tight suction slot, making it possible with the canner and cooker to retain great steam heat, thoroughly cooking and sterilizing whatever is inside. Directions for putting up fruits and vegetables and how to get best results from using the Economy Home Canner and Cooker will be sent with each order filled. Any housewife accustomed to cooking can operate one of these canners successfully. It is quite possible for one person to can from 50 to 75 quarts of fruit or vegetables in one day after the fruit is prepared. When not in use as a canner it can be used as a steam cooker and it makes a valuable bread or cake box, lunch or picnic kit.

Owing to the high prices of canned foods and the shortage of tin cans, it behooves every housewife to put up as much foodstuffs as possible from California's great crops. If this is not done by individuals everywhere, rich and poor alike, hundreds of tons of foodstuffs will go to waste in California soon, when, a little later, high prices will be paid for similar eatables that are canned and when thousands of p e o p l e throughout the world are going hungry, some actually starving.

Pitch in and help conserve the Nation's food supply.

Here is our proposition to you—If you will send us only 10 yearly subscriptions (at least five of which are new ones), to California Cultivator at $1.00 each, or 5 for 2 years at $2.00 each (of which 3 are new), total $10.00 in subscriptions, we will send you one of these Economy Home Canners prepaid to your address. Part may be one-year and part two-year subscriptions, just so the amount is $10.00.

You can get these subscriptions in a few minutes to such a well known reliable paper as California Cultivator. Some find it a good plan to go in with four others, each paying $2.00 for a subscription and then the club owns the canner. They then get together, going from home to home, putting up each others' fruits or vegetables. This affords recreation and enjoyment and gets the work done. You won't know how easy it is until you try. You can soon get a club of 5 or 10 subscriptions.

OUR GUARANTEE—Anyone accepting this offer who is not entirely pleased with the canner may return it at once in good condition and the entire amount sent will be refunded. Some who have these canners say they have saved $100 on their year's grocery bill and wouldn't take $25 for their canner if they couldn't get another.

Address all orders to

CALIFORNIA CULTIVATOR
Dept. Home Canning Club
115-117 No. Broadway - LOS ANGELES

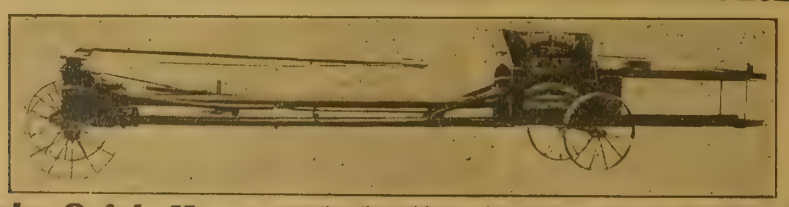

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Figure Your Estimates with Us

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Plumbing Goods Regular $22.50 wholesale. Vitreous China Toilets, 5 carloads at $19 each. You can't beat our low prices on plumbing materials.

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Lumber When it comes to lumber we've got our competitors beat four ways.

Free Beautiful white enamel and oak frames. We sell you the mirrors at low price and give you the frame.

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As an investment it is hard to beat—customers praise results from ours

Considering the low cost of

HAUSER'S ORGANIC FERTILIZERS

and the increased crops that are possible by using them, the fertilizers are one of the most profitable investments that can be made at present and prospective crop prices.

When you add Hauser's Organic Fertilizers to California soil you are depositing riches in a bank that you can draw on at will.

Results from using Hauser's Organic Fertilizers are as certain as from using water for irrigation.

We invite you to write us about your present and future fertilizer needs and to join our large number of pleased customers who praise our product after using it continuously for many years.

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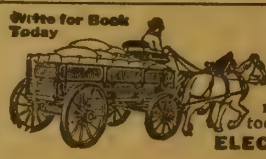

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California Cultivator

Vol. XLVIII No. 25 LOS ANGELES: June 23, 1917 One Dollar Yearly

Packers and Hog Producers Get Together

We Give Below from the Address of Mr. F. L. Washburn of the Western Meat Company, Made at the Last California Swine Breeders' Meeting, the Packers' Side of California Produced Meats. On the Quality of This Home Produced Meat a Great Concern Proposes to Make its Reputation for High Class Products

AT YOUR last meeting in Los Angeles, the subject assigned to us related to the comparative market prices of hogs at eastern points and in California, and no doubt you will be more interested in comments coming from us on market conditions and prospects than in anything else in connection with the production end of the business, which is yours and not ours.

The unprecedented advance in live hog values has been fully justified by the high prices of grain, the high cost of labor, etc., which, in turn, have justified high values of the most extensively used hog products, viz: hams, bacon and lard.

During the period of the advance, buying has been very heavy, both on the part of dealers and consumers. Apparently the wave of domestic buying seems to have run its course to some extent, and on the Pacific Coast it would not be at all surprising to see something in the way of a reaction set in, as the high prices seem to be lessening the volume of consumption.

In fact, the Chicago market of last Monday (this address was made before the Swine Breeders' Association on May 30) showed considerable decline, the average cost at Chicago being 15.35, with Missouri River markets on a proportionately low basis. The Western Meat Company is now paying 15½ cents at South San Francisco for hogs of 150 to 300 pounds range, with a premium of 15 cents per cwt. on the live weight for each one per cent of yield in excess of 77 per cent. However, we regret to say that the premiums we have paid, especially during the last 60 days, have been few and far between.

One of the discouraging features of the last few months has been the comparatively heavy movement out of California of small unfinished hogs and of surplus breeding stock to northern and eastern points.

These hogs, I dare say, have been purchased at anywhere from 8 cents to 10 cents per pound at California valley points, and those fortunate enough to be able to put these hogs into marketable condition will, without doubt, be amply rewarded; for the corn that will be fed to these hogs in the East is the highest priced corn on record and will cost more than barley in California. The exceedingly high price of grain, to say nothing at all of an acute scarcity, is doubtless responsible for this exodus of hogs out of California; but now that the price of barley has shown a decline, and the new California barley crop is about to become available, it would seem that our hog owners should do everything possible to keep their young stock as well as their brood sows within the state of California, as the gains from two cent barley, with the proper supplementary feeds, can hardly help but be profitable, especially on account of the wide difference in the prices per pound of light weight stock and of the well finished hog of good weight, viz: 175 to 300 pounds.

We therefore strongly recommend that all hog raisers who intend feeding stock for the market provide themselves with sufficient feed to really put a good finish on the stock which they expect to sell.

It has been said that there is no inducement to turn out good hogs in California, as the packers pay just as much for the poor hogs as they pay for the good ones. As far as the Western Meat Company is concerned, we believe that our premium system should largely overcome this objection, and most assuredly so in all cases where we can come into direct touch with the producer.

Perhaps some of you have seen the advertising copy which our company has been running, in which we openly state that our best grade of hams and bacon, the Mayrose brand, is produced from specially selected hogs, which are grown and finished in California.

Our general sales manager says that it took a lot of courage on our part to go before the public and frankly tell them that the grade of our hams and bacon which we had decided to make our top grade, is selected from choice California-grown and fed hogs, instead of from eastern hogs. It did indeed take courage to do this; but we had a lot of a certain kind of courage, and we still have it, viz: the courage of our firm conviction, that the California grain-fed hog makes every bit as good pork as his Eastern corn-fed brother.

Continued on Page 689

For years California breeders have been saying to packing house people, "Pay us the price of grain-hardened hogs and we will produce the hogs." In turn the packers have appealed to the producers to produce the hogs in quantity and they would pay the price. At the Los Angeles convention of the California Swine Breeders' Association a committee was appointed to see if a working basis could not be devised which would give to California producers the same treatment which Eastern producers get in the large centers. The committee was greeted most cordially by a like committee from the packers, and it was felt that a common ground had been found on which both could stand, and one which would be just to the producers. This has resulted unsatisfactorily to some producers, however there are many cases where a difference is made and the producer receives liberal treatment. As one friend of the buyers has suggested to us: "We must bear in mind that salesmanship and desire to buy at best possible figures are factors to be considered in all these details." We do believe there should be more encouragement given to the producer, especially at this time when the world needs his greatest effort.

We are glad to give from the packer's side an address by Mr. F. L. Washburn of the Western Meat Company, San Francisco, before the California Swine Breeders in convention at Davis. We violate one of our rules and admit into this article more or less of advertising, that is, the brand which Mr. Washburn's company has chosen is often referred to. We are induced to do this because of one feature referred to Mr. Washburn, his advertising of bacon and other products as only from California-produced hogs. The packers have insisted that these hogs have been spoken against so often that there is a deep seated prejudice in the minds of the consuming public. Mr. Washburn and his company propose to remove that prejudice and are adopting as their slogan "California Produced Ham and Bacon." Success to them in this, and we hope the producer will heed the appeal and give to the packer sufficient stock—grain hardened, high class products—to enable Pacific Coast packers to show Pacific Coast consumers that the Coast can produce the equal of any section in the world. This has been proved many times in respect to beef. The recent experiment of the University of California at the International Live Stock Exposition turned the eyes of the world to California possibilities. Now let our hog men and packers unite in extending this reputation.

Farm Crop Census in Arizona

M. E. Bemis Writes for Cultivator Readers of Crops and Bureau Activities and of the Work Being Done in Arizona

TAKING an agricultural survey of a farming section of approximately 300,000 acres of highly productive land, within less than a week's time is no small job, but with team work and the right sort of boosting a good deal may be accomplished.

It has been apparent for some time that the labor shortage in the Salt River Valley of Arizona would be a serious matter this year. Last season there was a lack of farm laborers which undoubtedly caused many fields of alfalfa to be pastured which would otherwise have been made into hay, and this shortage of labor was a serious factor which prevented the planting of a large crop of grain sorghums and corn last season. This season there is at least 40,000 acres of long staple Egyptian cotton as compared with less than 10,000 acres last season, and as this is a crop which requires a great amount of hand labor from planting to harvest it was evident that with the increasing scarcity of help throughout the country there would be a greater scarcity of labor this season. The Salt River Valley Egyptian Cotton Growers' Association has advertised considerably for laborers, and a considerable number have come, but there was an increasing uneasiness among the farmers over the situation, and more particularly as there was little certainty of the actual labor needs.

That the true situation might be presented to the state council of defense with a view to bringing in laborers from other sections of the country, at the time when labor would be most needed, it was necessary to make a quick survey.

To accomplish this as rapidly as possible the state council of defense, the county agricultural agent, and the farm bureau of the Phoenix chamber of commerce worked together to hold school house rallies at the school houses of the 26 school districts of the valley on the evening of May 30.

Blank forms were prepared showing not only the labor needs, but also the crops which are growing and the summer crops to be planted, the amount of seed, additional capital and machinery which would be needed to grow summer crops on the grain land.

Community leaders were appointed in each district where meetings were to be held to look after the meetings and to assist in getting the farmers to turn out. Speakers were chosen and sent to each meeting. Previous to the date of the meetings the speakers met several times for a dress rehearsal in order that the talks might be uniform with regard to presenting the seriousness of the food and crop shortage and the necessity of doing all that is possible to increase the crops, and also to impress the importance of obtaining the labor and other needs of the farmers before it would be possible to extend to them that help which it was apparent they would need, though no one could say to what extent.

Through the press and by notices sent by mail a great deal of publicity was given, and at nearly all meetings a larger attendance was reported than was expected. In some cases where the work could not be completed at the meeting local committees were appointed to collect the data and send in the blanks.

The mass of information collected and which is now nearly compiled will prove of more value than any one dared to hope. The labor chart shows the labor needs for each community and the number of men needed at different periods throughout the year, and there will also be available considerable data relating to the wages paid by different farmers and the number of hours that laborers work in the field.

The blanks show too that there is a considerable amount of grain land which for lack of labor, machinery, teams or money the owners cannot put into a summer crop. It is also shown that there are a considerable number of farmers who have some time and the necessary teams and tools, but no surplus land for a summer crop, who would be glad to plant one if the land is availible. To bring these people together, the man with more land than he can use, and the man who would use land if he could get it, will result in increasing the summer crop acreage by several thousand acres.

Supplementing this crop survey there is being prepared a map showing in colors the different crops now growing, their location and the acreage.

The men who sold you your fruit trees say:

"Your trees must be planted *right* if they are to thrive. Make the holes deep and wide and break up the subsoil. The best way to do this is by blasting."

Nearly every Western nurseryman uses and recommends blasting for tree-planting. "We know the value of such work," say Fancher Creek Nurseries, California. "We favor blasting," says Oregon Nursery Co. "Blasting is important," says Puyallup Nursery, Washington.

Blast with

GIANT FARM POWDERS

STUMPING — AGRICULTURAL

—which do their work cheaper and *better* than ordinary dynamites. These improved explosives—made in two brands, Eureka Stumping Powder and Giant Stumping Powder—are prepared especially for Pacific Coast *farm and orchard* work. They pulverize the soil several feet deep and wide, and place it in the best condition to insure the rapid growth of trees and crops.

Be careful to get the genuine, made by the company which originated all "giant powders." If your dealer has only ordinary dynamites, write us and we will see that you are supplied with the *real* Giant Powders.

Get Some of These Five Free Farm Books Get our valuable, illustrated books. They tell how to save money by using Giant Powders for Boulder Blasting, Stump Blasting and Ditching, how to grow bigger farm crops by blasting the subsoil and how to blast in new or old orchards. Mark in coupon the subjects that interest you, and the books will be sent free.

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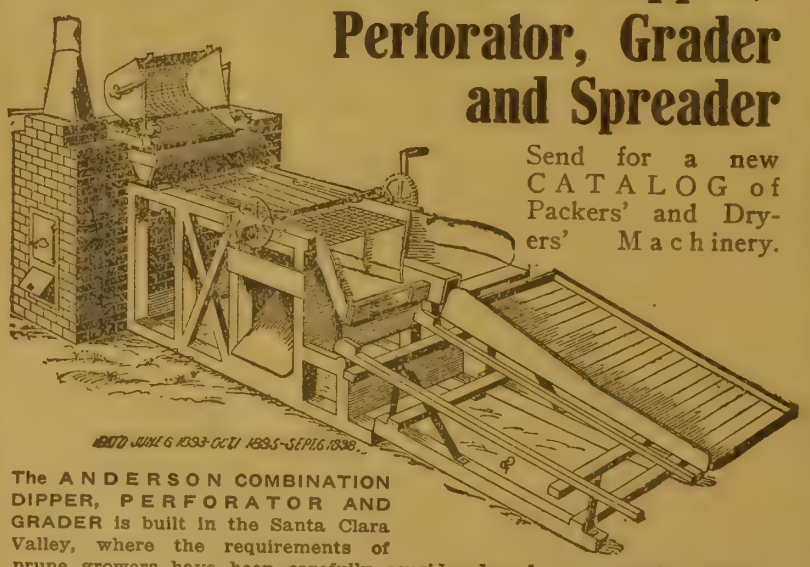


Send for a new CATALOG of Packers' and Dryers' Machinery.

The ANDERSON COMBINATION DIPPER, PERFORATOR AND GRADER is built in the Santa Clara Valley, where the requirements of prune growers have been carefully considered and every possible advantage incorporated into the machine. Can be furnished with or without rinse tank. Made in various sizes for hand or power.

SEND FOR 1917 CATALOG.

It illustrates and describes the entire Anderson-Barngrover line of Fruit Packers and Dryers' Machinery. A copy will be sent free to all who are interested. A postcard will bring it.

Anderson-Barngrover Manufacturing Co.

30 West Julian St. - SAN JOSE, CAL.

Extra parts are always available without delay for standard advertised machinery. This class always found in the California Cultivator.

Claremont Pomological

Written for California Cultivator

THE Claremont Pomological Club will hold its closing session for the year at Ganesha Park, Pomona, all day on June 30.

This is, we believe, the oldest farmers' club in the state and, we are safe in adding, the livest. It began exerting its influence years ago in the shaping of fertilizer legislation in this state and had a hand in the encouraging of many other legislative enactments which have been beneficial to agriculture. At the coming meeting there will be no effort at influencing legislation, but there will be discussion of legislation which has been enacted during the last session of the state legislature.

To that end Senators Joseph A. Rominger of Long Beach and E. R. Shepherd of Whittier will both be present and enter into the discussion. Ex-senator Cogswell will also make an address. He will touch upon the market question which presented such an acute situation during the recent session, that is, he will discuss to an extent at least Weinstock versus Brown, or the reverse—we are not certain which, and we do not think anybody else is as to which has the precedence.

Dr. H. J. Webber of the citrus station at Riverside will make an address on the problems of citrus culture. W. M. Mertz, also of the citrus experiment station, will talk on fertilizers, a vital question when fertilizers are selling at war prices.

Perhaps one of the most important features of the session will be a general discussion of the mealy bug situation. It is hoped that State Horticultural Commissioner Hecke will be present. If not, he will be represented by Deputy Commissioner Hoyt who is located in Los Angeles. This discussion will have somewhat to do with the expert having charge of the Southern California Insectary which is now being erected at Alhambra. Many of the citrus growers are hoping that Prof. Claussen of the United States department of agriculture may be secured to take charge of this station. Prof. Claussen has been making citrus and other mealy bugs his study for many years, and the mealy bug question in California is becoming a most perplexing one. The true citrus mealy bug was thought to offer sufficient problems to give plenty of exercise for the energy of citrus growers and citrus investigators. Now comes a mealy bug infesting some of the orchards in more inland sections, which is being studied, but as yet no particular determinations have been made.

All these matters will be discussed at Pomona. The program is so complete and the events so important that an entire day is to be given to these discussions. The forenoon session begins at 10 o'clock, luncheon at noon, addresses continuing in the afternoon. The committee in charge announces that some of the best speakers are scheduled for the forenoon session.

Stop Food Waste by Drying

THE fact that every important country of the world is facing an extremely serious shortage of food materials and that it is the peculiar task of the United States to meet the need by increasing her production of the great food crops is now recognized by every one. We are somewhat slower to realize the equally evident fact that increased production is no more important than the conservation of every pound of material which is produced. Upon this point Secretary of Agriculture D. F. Houston has said:

"Both for economical and patriotic reasons the American farmer should strive this year for the highest standard of efficiency in the production and conservation of food. But production accomplished by wasteful methods does not make for efficiency, and careful thought, therefore, should be given to the steps that need to be taken.... Some of the most conspicuous crop wastes occur with fruits and vegetables, of which in normal years larger quantities usually are grown than the producers can market profitably. Frequently these losses are due indirectly to disease and insect injury which lowers their market value without reducing their food value materially if they can be utilized promptly by drying, canning, or other preservative methods. Under existing conditions every practical step should be taken to protect these crops throughout the season and to utilize and preserve them as fully as possible when they have matured. To the extent that competent labor is available, either hired or in the family, fruits and vegetables which it is ordinarily inadvisable to attempt to conserve should be systematically saved for use by canning, drying, or preserving. . . . Because of the scarcity of tin plate and the high prices of tin cans, it may be necessary in household preservation of food, more extensively to pack fruit and vegetables in other containers. This situation may call for new methods of preserving or the improvement and extended use of old processes such as drying."

It is certain that the use of transportation facilities for other necessary purposes will make it impossible to market the usual volume of the higher grades of fruit and that the growers are therefore facing enormous losses unless other means for utilizing the material are provided. It is equally certain that the small number of canneries cannot handle any materially increased volume of these products, for the reason that the cost of containers will be prohibitive even if they are not actually unobtainable. The only practical method of meeting the situation is by providing means for drying the surplus and unmarketable material, both in the commercial orchards and in the small orchard and berry patch of the farm home.

The Washington experiment station has in press two bulletins by Dr. J. S. Caldwell on methods and equipment for the drying of fruits and vegetables. One of these publications, Popular Bulletin 112, is intended for the use of the non-commercial fruit grower whose orchard and garden produce an amount of fruit and vegetables in excess of the family needs. It gives directions for sun-drying, either in the open air or in a solar drier which hastens drying while pro-

tecting the fruit from dust and insects, tells how to build a cook stove evaporator with a capacity of 100 pounds of apples, berries, or other material at a time, out of a goods-box; and gives full directions, with illustrations and bills of material for the construction of two larger portable driers, with capacities of 300 to 2000 pounds of fruit at a time, to be set up over a stove or furnace in the orchard. All these driers are simple non-patented machines which can be built from the directions and figures given by any one who can use ordinary tools, from rough lumber and at a very trifling cost. Directions for the preparation of fruits and vegetables for drying, for the operation of the various driers, and for after-care of the various dried products are given.

The second bulletin describes the construction, equipment and operation of larger commercial plants with capacities of five to 20 tons of raw material per day.

It may be pointed out that blackberries, loganberries, raspberries, cherries, currants, peaches, apricots, apples, plums and prunes, potatoes, carrots, beets, parsnips, cabbage, rhubarb, lettuce, pumpkin, green corn, peas, or beans, and other vegetables and fruits if desired can be dried upon any one of the driers described in these publications. Materials so dried have one-sixth to one-eighth of the weight of the fresh material, retain all its food value, are equally palatable if properly prepared for the table, and are in strong demand for transportation to foreign countries or as supplies for our own army and navy. There will consequently be no difficulty in finding a ready market for every pound of properly dried fruits and vegetables which the state can produce.

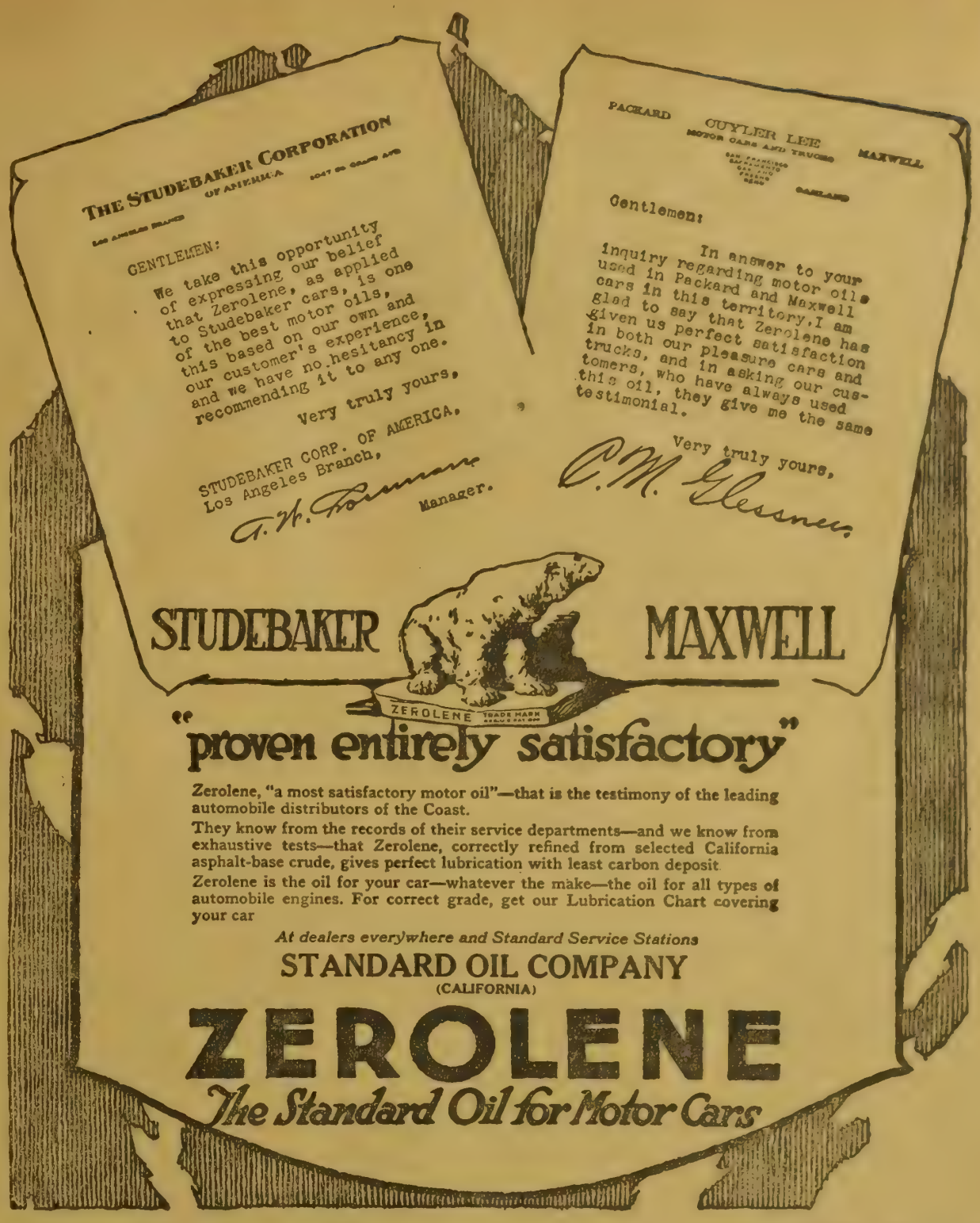
We are not certain, but think if request for Bulletin 112, with postage, is sent to State Experiment Station, Pullman, Washington, that California requests will be honored.

FRUIT JUICES FOR JELLY MAKING KEPT WITHOUT SUGAR

Fruit juices for use later in jelly making can be sterilized and bottled without sugar and made into jellies at the housewife's convenience. This enables her to do with fewer jelly glasses and to distribute her purchases of sugar for jelly making through the year. Moreover, with the bottled juice she can make a greater variety of jellies, as juices which will not jelly can be put up when the fruit is ripe and combined later with fruits that will, or fruit ripening at different seasons can be combined. For example, the juice of strawberries, cherries, or pineapple can be kept without sugar and later when apples are plentiful can be made into combination jelly.

To put up unsugared fruit juices for jelly making, proceed exactly as if jelly were to be made at the time. Cook the fruit until they are soft and strain out the juice through a flannel bag. Heat and pour while hot into bottles previously scalded. Fill the bottles full, leaving no air space between juice and cork or seal. Place the filled sealed bottles on their sides in water near the boiling point, and keep them in the bath for about 30 minutes. Make sure that the corked or sealed end is under the hot water. As soon as the bottles are cool, cover the cork with a paraffin seal. Thorough sterilization and sealing are absolutely essential to success.

To make jelly from the sterilized juice, test its jellying quality, add the proper amount of sugar, and proceed as in making jelly from freshly expressed juice.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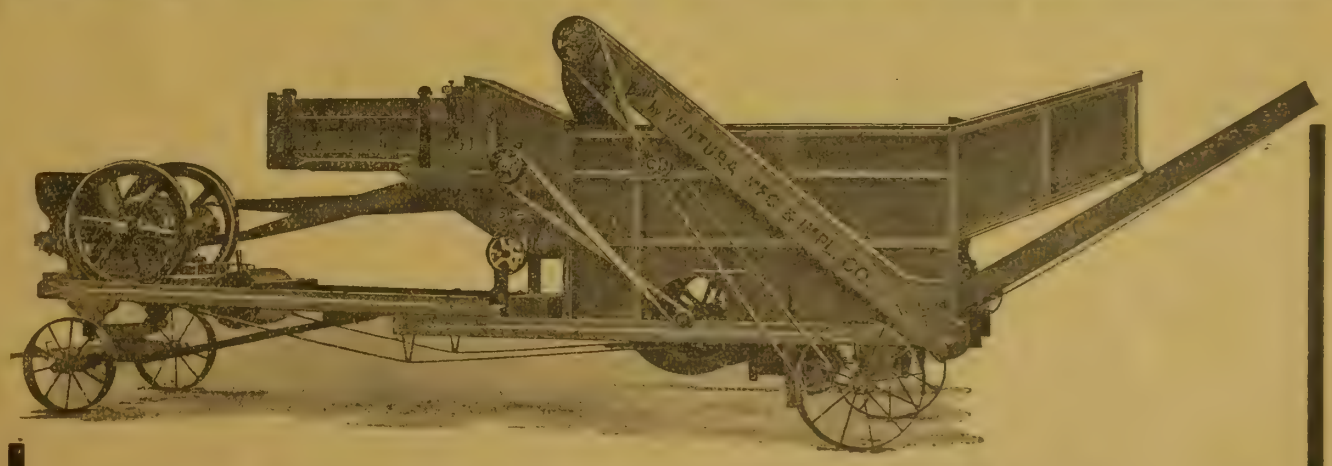
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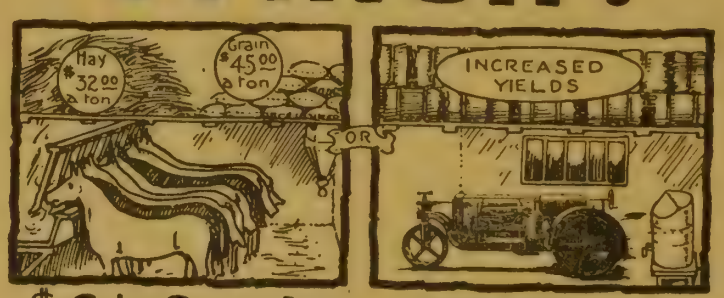

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California Cultivator

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Twenty Reasons for Pruning

By C. H. Heard, Assistant Horticulturist, University of Arkansas

1. To remove dead wood. Dead wood harbors disease.

2. To remove injured branches (or roots). These often serve as a place of entrance for disease.

3. To allow sunlight and air to get into the branches. Sunlight and air are necessary in developing well-colored fruit and also enable the foliage to dry out quickly and hinder the development of fungous diseases.

4. To insure better size and shape of fruit. Too much wood may cause the tree to bear more fruit than can properly be supplied with food. This will result in the fruit being undersized.

5. To insure better color of fruit. If the branches are too thick the fruit will not color as it should.

6. To give symmetry and balance to the tree. A well proportioned tree will be able to hold up a good load of fruit.

7. To rebuild and give more vigor to weak parts. By proper pruning the growth of any part can largely be controlled. Weak parts may be made to grow more vigorously.

8. To restore balance between the roots and stems and in the case of planting young trees. A very small part of the roots are transplanted. It is manifestly unwise to expect less than 25 per cent of the root system to support 100 per cent of the top, as is the case when tops of transplanted trees are unpruned.

9. To make bearing more regular. Pruning has rather the effect of thinning. If the tree is not allowed to overbear, it will tend to produce a more uniform crop each year.

10. To assist in controlling disease. Fire blight, various cankers and other diseases are controlled more or less effectively by pruning. Pruning and disinfection of wounds are the only remedies of any value in controlling the above diseases. Pruning also lessens the rotting of fruit on the trees.

11. To protect the tree from winds, sunscald and other mechanical injuries. Other things being equal, low-headed trees are less susceptible to sunscald. Trees should be heavier on the side from which the prevailing winds come. This is especially important in windy localities.

12. To avoid crotches and weak limbs. A number of these crotches are found in nature. Either remove one limb entirely or prune so that one will grow much faster than the other.

13 To facilitate cultivation. By removing lower limbs which interfere and by training limbs to grow more upright where desired, cultivation is made easier. This is not to be interpreted as a recommendation for removing all the lower limbs, because these are necessary.

14. To remove crossing, rubbing and crowding limbs. These allow places for disease to enter and are in the way when it comes to picking and prunning.

15. To prolong the life and bearing period of the tree by insuring plenty of new, bearing wood from time to time. This new wood is almost always more healthy and vigorous than the old.

16. To facilitate spraying. Not only does pruning allow the person doing the spraying to get into the tree better with the spray materials, but it lessens the amount of wood to be sprayed and at the same time keeps the bearing wood within reach of the spraying apparatus.

17. To facilitate subsequent pruning. It is relatively easy to prune a tree which has received good and regular pruning in the past. Not only will there be less work to do, but it will be easier to get at the parts to be removed.

18. To facilitate picking. This, to my mind, is one of the most important reasons of all. It is of prime importance to be able to get at the fruit easily and quickly. Picking fruit from unpruned trees with crowded branches is materially more expensive than picking from well pruned trees.

19. It corrects undesirabe habits of growth. Many varieties, if not properly trained, will form very undesirable trees. If the tree is particularly heavy on the north side, for instance, pruning will correct this.

20. To improve the general appearance and value of the orchard. Few orchards are successful where yearly attention is not paid to pruning. A properly pruned orchard adds materially to one's self-respect.

Perennials of Value

Written for California Cultivator By E. Braunton

ONE of the best known gardeners in the East, for years in charge of a large crew of plantsmen, gives the following perennials as the best for cut flowers and general garden value. All are grown in California and we give short notes on each. Please preserve list for future purchase and planting.

I have always advised Anemone Japonica for north sides of buildings and shaded positions. No flower does better under these conditions and none is lovelier. I consider it one of the best flowers we grow. Local dealers have them in several shades ranging from white to carmine and purple, with fine shades of pink and lavender-pink. The white ones and the pink Queen Charlotte are my favorites. Never plant them in the sun, give rich soil and steady water supply and the flower will be of the best.

Centaurea Montana is the one recommended by our garden friend, but I would include a half dozen species, for all are excellent and the range is great. The well known sweet sultans are among the best, but are annuals. C. Montana is known as Mountain bluet and is a splendid blue, but also has white and white varieties, and of late a yellow form with brown center has been introduced. The cornflower, blue bottle, or bachelor's button is another annual sort worthy of place in the best gardens. All will thrive in full sun and there are no poor ones.

Coreopsis grandiflora is another species given special mention, but who does not know and love C. lanceolata? Like the centaureas the coreopsis are both annual and perennial, and more than a dozen good species and a full score of varieties of high value are found in some large gardens. And

again we have flowers that revel in hot sunshine, and brightest colors are developed in hottest weather.

Chrysanthemum maximum is the species of which the Shasta daisy is a variety, and though said to be a hybrid originated in California, this is doubted by some of the best plant breeders. However, it is one of the best of all the family for California, and for ease of culture, the certainty of a fine crop and to stand our hottest weather it has no superior. This is another group containing many fine annuals and perennials from little single blossoms up to the giant window mops of color so familiar to all during the cool days of autumn. All the 'mum family will thrive in the sun, but some of the same ones will do well in the shade. All need strong food and plenty of water.

Delphiniums, the larkspurs, are to be had in California, in both annuals and perennials over a range of color including nearly everything but yellow, yet with blue shades strongly dominant. Species may be had for both shade and sun, and all will grow in shade. It is a safe rule to plant annuals in full sun and perennials in at least partial shade. The better sorts do best in cool spots except when grown for winter and early spring flowers. There are no very poor larkspurs. Yet in the annuals the cheaper grades of seeds are not satisfactory.

Gaillardia grandiflora is a garden name for G. Aristata and it has many showy varieties. While there are other species, both annual and perennial, the grandiflora type is the only one at all common. While they are rather coarse flowers in all ways they are so showy, so hardy, revel in hot weather even in poor dry soil, and so very tough withal that nearly all flower lovers feel they should give them place among flowers for the dual use of house and garden decoration. They bloom all the summer long if old blossoms are kept cut. If allowed to seed heavily they cannot also bear heavy flower crops.

Helianthus is the botanical name of all sunflowers, and the range in size and form is considerable, but they are ever sunflowers to all. Sunflowers are yellow almost invariably and cannot be altogether wooed away from this color, though some are lemon yellow or of light shades, though red ones and parti-colors are now becoming common. Yet even in these varieties individuals occasionally revert to yellow. Some of the so-called reds are really brown, a few approach black, and many are a wine-red. All sunflowers, whether annual or perennial, are sun lovers. The annual sorts are usually given the popular name, and the perennials are known as helianthus. Not all are in the large flower class.

Our Eastern authority includes peonies in his list (botanically paeonia), and we will swallow the bait whole and risk getting "called down", for the largest and loveliest peonies ever grown could hardly surpass some produced in and about Los Angeles but a few weeks ago. Now for the planting, for we can grow good peonies in California. The plants are gross feeders and root deeply. Therefore give good garden soil worked over not less than two feet deep with a liberal quantity of thoroughly rotted manure well mixed in. They do best in partial shade or where shaded from sun during the hotter and sunnier hours. Plant rather deeply; the eyes should be two or three inches below the surface. The surface should then be well mulched with strawy manure or straw, for the soil must be kept cool and moist. They may not bloom well the first year if clumps are small and weak, but after that they need no change of position or interference for 20 years. Do not let seed pods form, but cut off old blooms, for the plants are thereby weakened. California can grow good peonies in all sections of the state.

Physostegias, the fall dragon's head, is not popular in California, for it is found wild only in damp soils and along stream banks in the eastern part of the United States. They are valued there because of their late flowering, usually from August on, but they may be grown here under very favorable conditions, particularly the Texan variety. Still, we have too many good plants easily grown to seriously consider the exacting physostegia.

Pyrethrum hybridum is also named, but such names are recognized only in the trade though I presume seeds and plants may be bought as such. Properly they are varieties of chrysanthemum coccineum, and from this species we obtain buhach, the California insect powder, also grown in other countries for the source of insect powders. This species is so variable in color and form that half a thousand horticultural varieties have been listed. They are all of the easiest possible culture and thrive gloriously in all parts of Callifornia.

Scabiosa Caucasica is the best perennial species of scabious and has white and lavender varieties. All are good and should be liberally grown, but the scabious or mourning bride we know, sometimes called the pincushion flower, is S. atropurpurea and its varieties, the popular annuals common to all gardens. Again must we repeat and state there are no poor scabiosas.

Veronicas are last in the list, and nowhere in the Eastern states do they thrive as they do in California, for here we grow throughout the year the fine shrubby species native to New Zealand. Some 200 species are known, and I have sometimes thought there might be a thousand, or even but a single species with a thousand varieties, so many yet so slight are the variations of color and form in both flower and foliage as well as habit. Dr. L. H. Bailey upon his return from New Zealand two years ago, told me he was very much impressed with the value of veronicas for garden use in California and was inclined to think we do not properly appreciate them.

FIGHTING FROST

Pomona's test of frost fighting appliances, with the earth, the air above it and all that is therein, opposing was pulled off according to schedule. Of all the hot weather California ever had the hottest began with the firing up of the frost pots in Pomona.

We will hold general comment on the test which was somewhat complicated by weather conditions until next week's issue. At that time we hope to talk regarding frost protection from several different angles.

But in a word we may say that at Pomona there were dozens of different heaters, even dozens of different types of heaters. There were the old time heaters that refused to observe signs of "No smoking allowed." There were heaters with tall stacks, with short stacks, and with no stacks. There were heaters operated by steam jets, by the use of a dynamo. There were heaters using kerosene and different grades of distillate. There were no electrical heaters on the grounds.

We hope to have in hand the report of the committee consisting of Messrs. E. T. Sederholm, J. E. Adamson, O. H. Hottel, H. F. Norcross and Willis Jones.

The test was a bit complicated by conditions which had existed in Pomona. Many of the townspeople are protesting vigorously because of the nuisance of smoke and soot which cause serious damage, especially in a year like the last one when orchardists fired as many as 30 or even more nights during the season. The orchardists and many of the business people maintain that the saving of the citrus crop is worth to the community vastly more than any damage which has been wrought. However, both have entered into the search for the smokeless heater. If cost were not to be considered the smokeless heater is perfectly easy. To secure it within economic bounds was the occasion for the Pomona test.

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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly, on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Water-Frost Protection

Please advise if thoroughly wetting or soaking the foliage of an orange tree will be a protection against frost, and to what extent?—Subscriber, Lindsay.

We cannot see that there would be any advantage in drenching or soaking the tree top. If it afforded any protection whatever it would be most limited. A slight raising of the temperature has been noted by soaking the ground with water, which presumably is somewhat warmer than the atmosphere, preceding the cold. At a time of extreme low temperature which follows a drying north wind which saps the tree of moisture and vitality there is invariably greater injury to the fruit than when the same degree of cold follows a rainstorm. The lowered vitality and the lack of moisture permits of greater drying out of the fruit as a final result of the freezing. Where a single tree has been protected by a spray of water going over it during the night of freezing the fruit has been saved from serious injury but we have known of cases where the tree received greater injury because of breaking down from formation of ice over the branches.

Squash Bugs

I send bugs which are infesting squash and pumpkin vines. Please advise what they are and what will destroy them. Sprayed the vines with "Blackleaf 40" and they seemed to drink the poison as a duck drinks water. We then resorted to hand picking and caught half a bucket full. The vines are still alive with eggs.—Subscriber, Lindsay.

These are just the common squash bugs. They are very destructive, either as nymph or as adult bugs. About the only effective remedy is hand picking. As the subscriber suggests he has tried this and gathered them by quarts we presume it is getting irksome and it is unfortunate that the campaign was not started early in the spring when there was only a limited number. It would have "saved millions of lives." Spraying is impracticable on squash or pumpkin vines. That is, any spray which is strong enough to affect these particular bugs will also kill the vines. One may trap large numbers of them by placing boards or pieces of brick on the ground, under which they crawl and from which they may be gathered early in the morning. For especially choice plants in limited quantity some go so far as to cover with cages of gauze. To an extent repellants are good. Take gypsum or ashes and saturate with kerosene or turpentine and scatter around the plant. This is very repulsive to them and they will sometimes leave. All land near the plants should be cleared of weeds and rubbish and in addition plenty of fertilizer and water for the plants will help them to overcome attacks when the pest is not too serious. Hand picking of the eggs is also advisable.

Tomato Disease

What is affecting leaves of tomato plants which curl up? This complaint is general in this section. The ground is moist enough and the weather has been cool.—Subscriber, Soquel.

It is possible this is the summer blight or it may be the fall blight caused by the cool weather. If it is the fall blight spraying with weak Bordeaux 4:5:50 will save the plants. If it is summer blight nothing can save them for it has affected the tissue of the roots and the plant might stand in water and still be unable to take up a drop. It is impossible to grow tomatoes on lands affected with this summer blight or fusarium disease. In cases of this kind if subscribers will send portions of plant, both roots and top, we can be more accurate in our determinations. In this connection we may mention that a subscriber inquired regarding potatoes wilting and we suggested that from the description it was probably a blight. Examination, however, showed that every "blighted" hill had been undermined by a gopher and the entire system destroyed, so that long range diagnosis is not always correct.

Poisoning Rabbits

I note in the questions and answers columns of a recent issue reply to an inquirer regarding the jack rabbit pest. I have a similar problem to contend with and am considering the advisability of fencing or poisoning. Our local druggist quotes strychnine at $2.80 per ounce, and at this price it would be cheaper to fence. Would it be possible to obtain the strychnine at a more reasonable price and upon what kind of bait should it be used? Would arsenate of lead sprayed on young alfalfa at outer edge of field secure control? I wrote the University of California and they state there is absolutely no way to stop rabbits except by tight fencing, dogs, guns, etc. They further advise the "use of poison undesirable and not recommended." I have noticed that rabbits will eat alfalfa in preference to garden truck.—Subscriber, Lone Pine.

Wholesale druggists in Los Angeles can supply strychnine at $1.50 per ounce bottle or in quarter pound packages at $1.30 per ounce. This time of year poisoning should be comparatively easy through the use of fruits or succulents, or green alfalfa. The Brunswig Drug Company, 501 North Main Street, Los Angeles, has given us above prices.

Preserving Fence Posts

Would appreciate information as to best preservative for fence posts in light soil which ordinarily become rotten in three years.—Subscriber, Los Angeles.

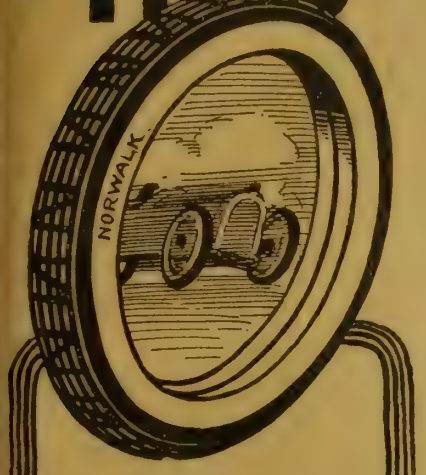
Creosote is probably the best preservative. To get best results it should be heated and the posts plunged in the hot liquid to a depth a few inches above that which they will be set in the soil. Linseed oil, tar and other preservatives are all good, and best results are obtained when these are applied hot.

Used Tin Cans

Please advise if it would be safe to use tin syrup cans and the cans in which Crisco and other shortening compounds are bought for canning fruit and vegetables, providing the cans are new and bright inside and they are properly sealed. Subscriber, Chula Vista.

If the tins are bright with no rust and are thoroughly sterilized and the tops securely sealed we can see no reason why such cans would not be satisfactory. However, this question is passed on to others and in the meantime would suggest the laying in of as liberal a supply as possible of glass or new tin cans. The prospects are much brighter than a few weeks ago for securing these.

NORWALK TIRES



These casings never falter. Every purchaser is protected with a guarantee against defects and a mileage guarantee ranging as high as 7500 miles. Few Norwalks give less than 10,000 miles of perfect service. Best for country roads. Write for price list and folder.

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16 California St. San Francisco, Cal.

The Peach Growers' Association will pay a seven per cent dividend on its first year's business.

Green Seed Potatoes

I have a field of volunteer potatoes on sandy loam soil where some very fine potatoes grew last year. These potatoes have not been hilled up and quite a number of them near the surface have turned green. Would these green looking potatoes be all right for seed this fall? They seem to be very well matured.—Subscriber, Yucaipa.

Yes, we think these potatoes would make good seed for fall planting. When fully ripened they should be placed on the ground in a cool place for planting for the fall crop a month or two later.

Sunflower Growing

Answering a request for information as to the growing of sunflower seed in this state Mr. Reichard writes:

"Regarding the growing of sunflowers in this state, would say they are much grown in the central valleys, also to some extent in the southern part of the state. They do better in sandy loam soils though they can be raised successfully in heavier soil. The variety grown here most is the common large flowering kind. If possible to get the Mammoth Russian stock seed it is best to plant this variety as there is a better market for it. The yield is from one to one and a half tons per acre. Average price received by the grower is two and a half to three cents per pound. It requires about three months to make a crop from seeding. Seed may be sown from the middle of April to the first of July. It requires about three pounds of seed to the acre." See also Mr. Gilmore's article in this issue.

Sulphuring Fruit

Please advise amount of sulphur, if any, is allowed in sulphuring fruit for drying. — Subscriber, San Diego County.

In 1907, 1908 the United States department of agriculture made certain regulations in effect that "no dried fruits should be marketed which when dried contained a greater percentage of sulphur dioxide produced by the fumes of burning sulphur than 350 milligrams per kilogram, or the equivalent of .0035 of 1 per cent." This ruling however, was afterward abrogated and the ruling now stands practically that dried fruit shall not contain an unreasonable amount of sulphur dioxide." What an unreasonable amount is no one seems to know but so long as the department handles the matter as at present there is no apparent trouble.

PACKERS AND HOG PRODUCERS

Continued from Page 683

Our slogan in connection with the Mayrose ham and bacon advertising, "Gives the California pig a chance," has been fairly well received by dealers and consumers, and we need hardly add here that we most assuredly look to you hog producers to be the backbone of our support in your own respective communities. For the success of Mayrose hams and bacon is primarily the hog raisers success, and he is the first man to receive whatever profits are to be made from the marketing of good California hogs under our brand.

Now, we hope, gentlemen, that you will not let us run short of stock which is suitable for Mayrose hams and bacon. If you do, the consequences would be very serious to us, and even more so to yourselves. In fact, you might some day find yourselves eating an eastern ham under the delusion that it was cut from a perfectly good California hog!

While we cannot tell an alfalfa finished hog until after he is dead, there is certainly no trouble whatever in doing so at that time; so that we will make it our business to see that no cuts from such inferior hogs steal their way into the selected stock which we consider of sufficiently high quality for our Mayrose brand. We look to the hog producers of California to help us to disabuse the minds of our own people of the old legend that California hams and bacon are inferior to those produced east of the Rocky Mountains. You can do this in no more effective way than by producing hogs which will yield the kind of pork that will prove to our California people, by the infallible test of the frying pan, that it is actually as good as the eastern product.

Eastern hams and bacon in large quantities, continue to reach the Pacific Coast; although we are glad to say that, with the increased business in hog products that has come to all of the Pacific Coast packers, there has been a marked reduction in the amount of hams and bacon, and especially of lard, coming here from eastern packing centers.

I realize that I am speaking to a large gathering of men who are perhaps more interested in the breeding of hogs than in the process of fattening and marketing them. But there is no doubt in my mind that you can do a great deal of good in promoting this movement for more and better hogs by advising your customers, the feeders, to try to market heavy and genuinely well-finished stock, thus helping to bring up the average quality of our pork products which will in turn enable us to make the desired headway against our eastern competitors.

It may be of interest to you to know that our hog receipts for the first four months of the current year exceeded those of the same period of last year by 14 per cent, and that our receipts include nothing but California-raised hogs, with the exception of a very few from western Nevada.

I have before me a report covering the condemned carcasses, and parts of carcasses, for the week ending May 19th at our abattoir at South San Francisco, and you will be surely interested in knowing that out of a total killing of 3144 hogs, 86 condemned, 37 of them for sterilization and 49 wholly condemned for inedible grease and fertilizer. This condemnation is only a small fraction less than three per cent. The condemnation of primal parts and organs of these same 3144 hogs was, of course, very much higher, there having been 731 heads condemned, 700 plucks, and a total of 2184 livers. During the same period, our losses in condemned cattle were only 2⅛ per cent, about evenly divided between sterilization and fertilizer tank. In our sheep killing for the same period, our losses by condemnation, were practically nil, being only two carcasses out of a killing of more than 5000 head. It is interesting to note that the percentages of hogs and cattle condemned for tuberculosis run very close together, it being generally conceded that tuberculosis in hogs is directly traceable to the heavy percentage of tubercular dairy stock.

Now that we are under obligations to supply our allies across the sea with such enormous quantities of provisions of all kinds, it is opportune to say that in no other way can the meat production of the country be increased as rapidly as by concentrating on the raising and the proper fattening of hogs. We, therefore, assure you that the raising of hogs, and particularly of good hogs, is just as patriotic and important an American duty as the production of food in any other form.

Since 1902

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Used with great economy on lifts of 50 to 700 feet, and for boosts 300 feet above the surface. Send for catalog 115.

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Now is the time to plant Tepary Beans
When in doubt, plant Tepary Beans
In any kind of soil plant Tepary Beans
If you cannot irrigate, plant Tepary Beans
If you would prove up a homestead, plant Tepary Beans
If you want quick results, plant Tepary Beans
If you want the early buyer, plant Tepary Beans
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Price 30c per lb., or $25 per 100 lbs., f.o.b. Los Angeles.
If you want a sure crop and big yield, inoculate the seed with Nitrogen bacteria at a cost of about $1.00 per acre; it is equal to $40.00 worth of fertilizer.

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Registered young bulls from best families. Some of serviceable age.

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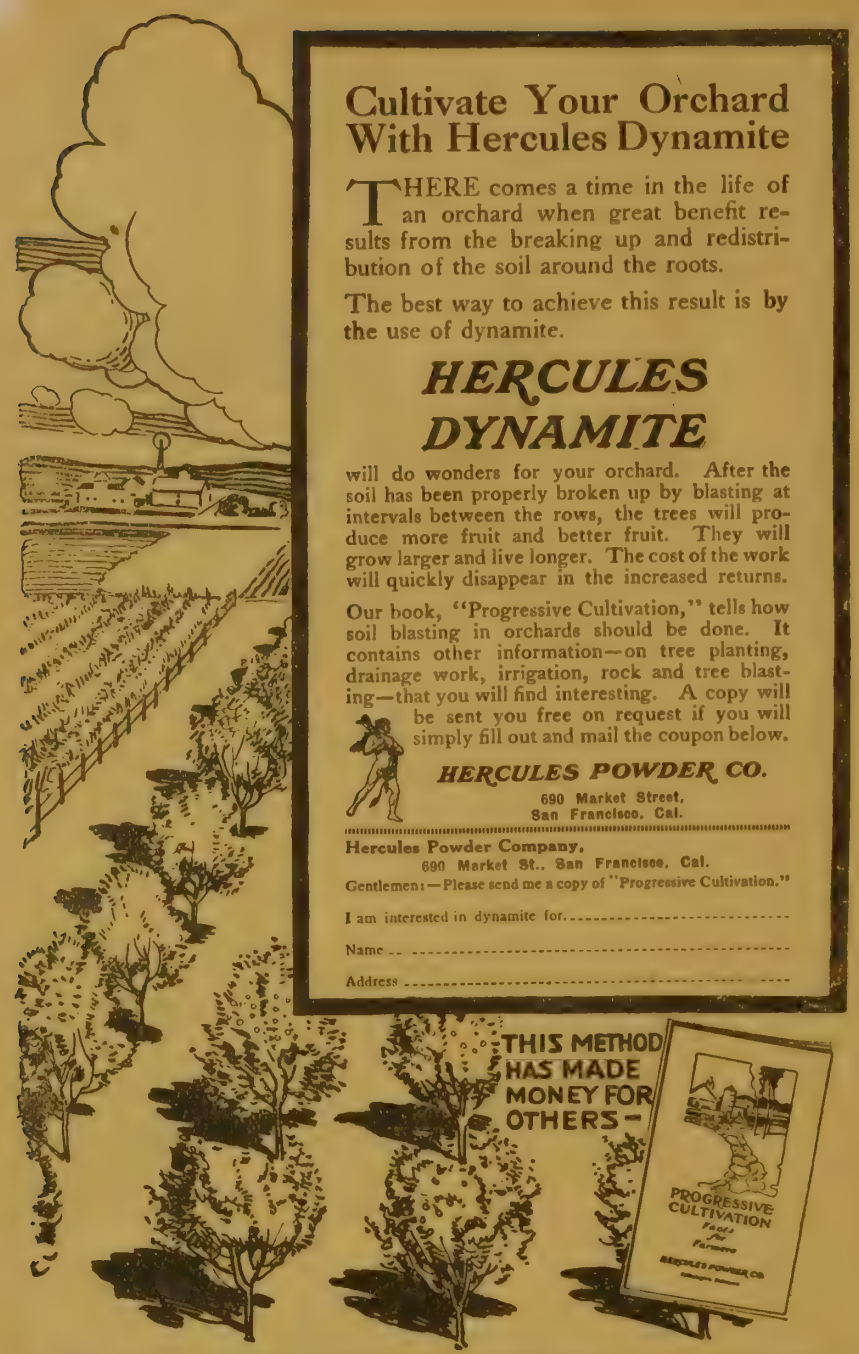

Cultivate Your Orchard With Hercules Dynamite

THERE comes a time in the life of an orchard when great benefit results from the breaking up and redistribution of the soil around the roots.

The best way to achieve this result is by the use of dynamite.

HERCULES DYNAMITE

will do wonders for your orchard. After the soil has been properly broken up by blasting at intervals between the rows, the trees will produce more fruit and better fruit. They will grow larger and live longer. The cost of the work will quickly disappear in the increased returns.

Our book, "Progressive Cultivation," tells how soil blasting in orchards should be done. It contains other information—on tree planting, drainage work, irrigation, rock and tree blasting—that you will find interesting. A copy will be sent you free on request if you will simply fill out and mail the coupon below.

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Gentlemen:—Please send me a copy of "Progressive Cultivation."
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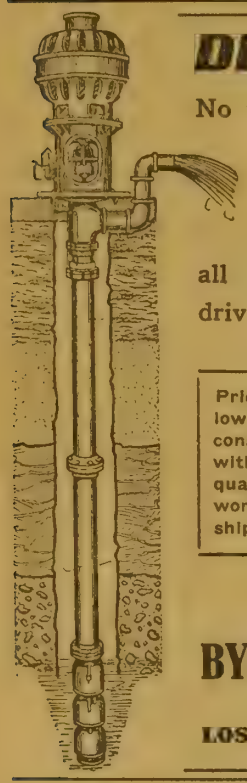

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A complete line of irrigating pumps of all descriptions, horizontal and vertical for belt drive or direct connection to electric motor.

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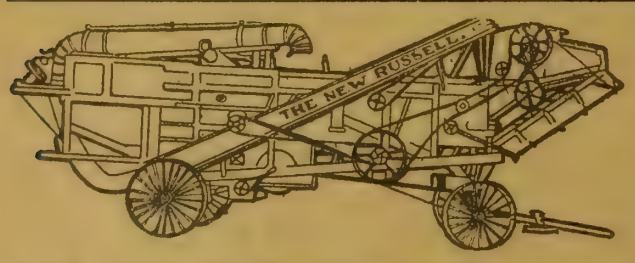

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Growing Sunflowers

Written for California Cultivator By Prof. John W. Gilmore

I HAVE your letter of recent date asking for information regarding sunflowers. At the present time sunflowers in California are grown principally in the vicinity of Manteca and Modesto, in San Joaquin and Stanislaus Counties. The soil upon which the sunflowers grow most productively is the sandy loam, ranging to light sand. There are a good many soil areas of this type in California, and I have in mind especially the San Fernando Valley. It seems to me that sunflowers might be a very good crop in that valley, and I have talked it to a number of men there. There is also a good deal of this soil in Merced and Fresno Counties, and the crop could be produced in those sections profitably. However, it may be that there is a limit to the amount that the market would absorb, but upon this I am not sufficiently informed to speak. In all instances the soil should have considerable depth, be fairly well supplied with organic matter, and be free from alkali. The sunflower likes a warm temperature during the growing season, but it does not stand winds well, which may be a detriment in the San Fernando Valley.

The land for sunflowers should be prepared early and kept in good condition until the time of planting, which, in the section mentioned above, occurs about the first of April. The rows should be about 40 inches apart, and the plants may stand from 10 to 12 inches apart in the row, or they may be planted in hills of three seeds at 30 inches apart. Cultivation should be given during the growing season, as the destruction of weeds, the requirements for moisture, and physical condition of the soil demand. As a general rule irrigation is not given this crop, but where moisture supply is entirely lacking the latter part of the season, the crop responds to irrigation.

The crop is usually ready for harvest in September, and this is accomplished by cutting the blossom disks from the stalks by hand and running them through an ordinary thresher run at a relatively slow speed. The yield ranges from 18 to 20 sacks per acre, each sack weighing 70 pounds, and the selling price ranges from two and a half to four cents per pound. It costs from $15 to $18 per acre to grow the crop. The principal market for sunflower seed is for poultry feed, although there are oil mills in the vicinity of Los Angeles that buy the seed when the market is suitable for the extraction of the oil.

Fair Postponed

The following resolution was unanimously adopted at a meeting of the board of directors of the District Fair Association, held at Exposition Park, Los Angeles, May 31st, 1917:

"Whereas, the board of directors and heads of committees appointed to administer the affairs of the district fair to be held in this city next October, have decided that these are times when the president and governor have a right to expect every man to choose and execute the biggest job he can handle, regardless of his preference; and

"Whereas, it may develop that the thought and effort of those who are in charge of the details of the fair preparations may be needed in other lines productive of more direct results; and

"Whereas, the fair grounds may be needed for military purposes and the $50,000 so magnanimously appropriated by the legislature for the support of the fair may be needed for other purposes in defense of the country; now therefore, be it

"Resolved, that the Los Angeles fair be postponed until a more propitious time."

Plainly the board of directors has been guided by patriotic motives, and a bigger and better fair will be held when all can unite.

We believe there was never greater need of the inspiration and information which such a fair could induce than there is this year, but there are limits to accomplishment, and Los Angeles has chosen the more direct method of service.

Yolo County Crop Census

Written for California Cultivator By C. A. Briggs

A census that is a census, that means something, has recently been completed under the direction of William Gould, Yolo County horticultural commissioner. Eight men with automobiles were employed for 10 days, every farm in the county was visited, all bearing acres were listed and condition of crops noted. The result is most gratifying. The county has 14,750 acres of fruit and nuts in bearing, 175,918 acres of grain including rice, 38,223 acres of vegetables, a total of 328,891 acres in crops. At a conservative estimate of the harvest, priced at present prices to the farmer, this year's county income will be $11,144,783. This report has been given to the state council of defense and is a model for any county in any state to follow.

Besides being very valuable in the present crisis, this accurate information is of great interest to any party wishing information of an exact nature regarding crop possibilities in this district. The report brought out the facts that there were in the county: Barley 131,885 acres; rice 21,593 acres; wheat 19,696 acres; beans 36,537 acres. This acreage producing heavy crops at present day prices means a large addition to the county's wealth and a splendid endorsement of its production possibilities.

PACKARD ADVANCED

Announcement is made that Walter E. Packard, for many years in charge of experiment station work in Imperial Valley, is to take up work in connection with the farm bureau and farm adviser work in Southern California. This work has been extended and is calling for some of the best effort on the part of the university.

Protect Your Crops

Against the ravages of fungous disease and insect pests with the
SPARK SULPHUR MACHINE

Thoroughly coats plants, bushes, trees and vines with the dry chemical—acknowledged by commercial growers and authorities on insecticides and fungicides to be the most effective method.

Send for free booklet just published. It contains the latest information on dry spraying and the SPARK SULPHUR MACHINE. **Ask for booklet "E".**

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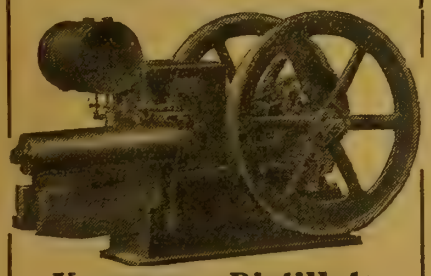
Oakland, California

WITTE IRRIGATING ENGINES



Kerosene - Distillate
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Pump your water with a WITTE. All you need is a centrifugal and my Special Model Kerosene-Distillate Engine. I can lay your engine down at least cost. Save the middleman's profit—Get your engine NOW, while prices are still low. Have reliable power for all your work. Made in standard sizes—2, 3, 4, 6, 8, 12, 16 and 22 H.P. Battery or magneto equipment. I am in a position to offer you the best prices and make immediate shipment. 90-Day Trial—5-Year Signed Guarantee. Largest exclusive engine factory in the world selling direct to user. Cash, Payments, Bank Deposit or No Money Down. Suit yourself as to terms. Don't make a deal until you have investigated my offer.—Ed. H. Witte, Pres.

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SELF-OILING WINDMILL
With INCLOSED MOTOR
Keeping OUT DUST and RAIN — Keeping IN OIL

Constantly Flooding Every Bearing With Oil, Makes It Pump In The Lightest Breeze And Prevents Wear

DOUBLE GEARS — Each Carrying Half the Load
Every feature desirable in a windmill in the AUTO-OILED AERMOTOR
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At the bottom of your letter to advertisers just say "California Cultivator" and prompt reply is assured.

and Mr. Packard's long experience in the Imperial Valley has fitted him for helping the advisers and farm bureau and the farmers.

We are not fully informed as to the work of the experiment station near El Centro but without question this work will be continued and in a way to develop new lessons for pioneers in desert farming. Mr. Crocheron will continue as superintendent of the work north of Tehachapi.

IF A FIRE BREAKS OUT

If a fire breaks out in your home use fire extinguishers, if you are provident enough to have them; but at least set everybody to work to smother out the flames with woolen blankets and rugs; to beat them out with wet brooms, and to throw on water or sand. Many a fire may be put out with little damage, if taken in time. Shut windows and doors to cut off the oxygen, and especially close skylights or windows on the upper boor, for an opening there makes an inviting flue. Get out of the upper stories as quickly as possible, for smoke and hot fumes collect there.

If forced to come through blazing halls and stairways, put a wet towel over your face, wrap head and body in something woolen, and if possible crawl along the floor.

Though you may never have a fire it is well to be provided for such an emergency. A couple of fire extinguishers in a handy place are the best protection, along with an occasional fire drill of the whole family, so each one may quickly know what to do. If you have a telephone it is well to have the numbers of the persons you would wish to call on for help posted over your phone, ready for this or any other emergency, for no one would have time to search for them in the book when need suddenly occurs.

Another wise precaution is to examine your insurance policies and see whether they permit the use of gasoline, etc.—The Farm Journal.

"BLAME IT ON THE TIRE"

He didn't pump it full enough, though
all the air is free;
He left it soft and spongy like and
scooted on with glee;
He skidded and he gridded and whopped through dust and mire,
And when it burst
He cursed and cursed,
And blamed it on the tire.

He drove it on the street car tracks
with confidence superb;
He scraped it on the lamp posts and
he scraped it on the curb;
He slammed it and he jammed it any
way he might desire,
And when it popped,
Right out he hopped,
And blamed it on the tire.

He cut it on some broken glass, but
said it didn't hurt;
He kept right on through sand and
mud, and filled the cut with dirt,
When up it blew
He blew up, too,
And blamed it on the tire.

He put on chains that ground and
chewed and gouged into the tread,
He knew his wheels were out of line,
"But what of that?" he said.
He whizzed along and sizzed along, he
picked up nails and wire,
And when it banged
His fist he whanged,
And blamed it on the tire.

Who is this man? Go ask the boys
who meet him every day.
Go ask the boys who have to hear
the things he has to say.
He bores in and he roars in with
words of angry fire,
Though he's to blame,
It's all the same—
He blames it on the tire.

—Wilbur D. Nesbit.

A Bigger Yield From the Same Field

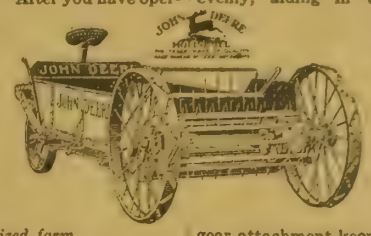
From any field that you have been manuring by the hand method you can get a bigger yield if you use the spreader method—and save much time and labor.

A good spreader tears up the manure into small particles and spreads it evenly. The manure goes farther. It can be worked well into the seed bed so that the plant roots get all of its valuable plant food. *Wasting manure is like wasting money—a good spreader makes every particle of manure count.* A Newton County, Ind., farmer testing the spreader and hand methods of applying manure on two ten-acre tracts found that the *spreader method gave 120 more bushels of corn, 140 more bushels of oats and 9 more tons of clover.*

The John Deere Spreader

The Spreader with the Beater On the Axle

has special capabilities for increasing your crop yields. Its exclusive features make it the ideal implement for the best method. Ask any owner of the John Deere Spreader about the way it increases crop yields and saves time and labor. After you have operated a John Deere Spreader of your own for a year, you will fully appreciate how much these gains really mean. *You'll find that the Spreader with the Beater on the Axle more than pays for itself in one year from the gains it gets on even a fair-sized farm.*



The beater on the axle construction *eliminates all chains, clutches and scores of other trouble-making parts. Does away with half the types of castings otherwise necessary. Does away with adjustments. Puts upkeep at minimum. Makes the John Deere Spreader exceptionally long-lived.*

Beater is all steel—practically indestructible—runs on roller bearings, aiding light draft. Beater teeth spirally arranged—tear up manure perfectly and distribute it evenly. Deliver manure close to the ground—wind does not affect spreading.

Revolving rake feeds manure to beater evenly, aiding in uniform distribution. Shock - absorbing spring relieves spreader and horses of sudden strains.

Spreader only hip-high to top—easy to load. Big drive wheels—light draft. Ball-bearing apron drive—apron travel frictionless. Simple gear attachment keeps weight of load from making apron race when spreading up hill.

Easy to operate—only two levers—one lever determines number of loads spread to the acre; the other starts and stops the spreading. It's so simple, a boy can operate it.

Wide-spread attachment for extra wide spreading.

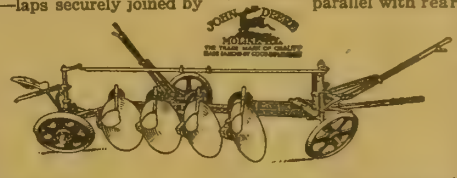
Write for booklet on the John Deere Spreader.

A Special Plow for California Orchards

Plowing conditions in California orchards demand special plow construction. A serviceable plow must stand the severe strains occasioned by the soil conditions and operate close to the orchard trees.

John Deere California Orchard Tractor Disc Plow

meets these conditions admirably. Heavy lap-beam frame—laps securely joined by heavy bolts — *no sagging — discs always in alignment.*



Discs best quality steel — *disc bearings oil-tight and dust-proof — scrapers made to stand severest strain.*

Double setting of discs permits use in very hard, dry ground as well as in loose, trashy soil.

Special "Z" land axle brings land wheel parallel with rear disc beam, permitting plowing close to trees.

Special adjustment on front furrow wheel, causing it to set inside line of front disc so that *plow will work close to trees* when soil is being thrown to them. Beam has special shape to permit working close to trees.

Write for free booklet on this plow.

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America must produce more food. Labor-saving implements will play an important part in increased crop production.

This book tells all about a full line of labor-saving farming implements. Tells how to adjust and operate many of them. A practica farm implement encyclopedia. Worth dollars. Illustrates and describes the following machines: Walking and Riding Plows, Tractor Plows, Disc Plows, Disc Harrows, Spring Tooth and Spike Tooth Harrows, Corn and Cotton Planters and Drills, Listers, Alfalfa and Beet Tools, Grain Drills and Seeders, Riding and Walking Cultivators, Lister Cultivators, Mowers, Side Rakes, Loaders, Sweep Rakes and Stackers, Hay Presses, Grain and Corn Binders, Corn Cutters, Stalk Cutters, Kaffir Headers, Manure Spreaders, Portable and Inside Cup Elevators, Corn Shellers, Wagons, Farm Trucks and Buggies. This big book will be sent *FREE* if you state the implements in which you are interested and ask for Package X-1110.

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Established 1888. Twenty-eighth Year

The California Cultivator

A Journal of Horticulture, Agriculture and Live Stock

Rural Californian, Established 1877
Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, June 23, 1917

OUR ADVERTISERS RELIABLE
We guarantee our subscribers against loss through dishonesty of any advertiser in the Cultivator. We do not attempt, however, to adjust trifling differences between subscribers and honest, responsible advertisers, nor will we pay the debts of honest bankrupts. Notice of complaint must be sent us within 30 days from date of the transaction, and the subscriber must have mentioned the Cultivator when writing the advertiser.

THIS WEEK'S COVER

Maud Muller with her rake and hay is depicted on the cover this week. Fortunately California is producing an immense quantity of hay for the raking this year. More opportunity for more Maud Mullers.

FRIENDSHIP FIESTA

This is the week when San Diego is holding its Friendship Fiesta and fraternizing with its neighbors across the border. Governor Cantu with some of his "best paid soldiers on earth" with the 29th infantry band from Mexicali is joining in the festival. School children from Mexicali and Tia Juana will be present and sing The Star Spangled Banner in English. It should be a most friendly occasion.

WAR TIME

Mr. Warren H. Wilson of the committee on Presbyterian church work writes the California Cultivator regarding work which he is appealing to pastors in small towns and country sections to undertake. Specifically he recommends three things:

"The organization of the Red Cross in some form in your community. The organization of societies for securing farm loans in order that farmers may buy machinery, seed and work animals. The organization of a supply of labor."

We hope most sincerely that Mr. Wilson's recommendation will be accepted by church workers. Here is a most practical and patriotic service which will strengthen any church organization for it will give such a hold upon the people as no other service would at this moment. Many most excellent people regard the work of the church as having to do only with purely spiritual needs, but sure it is that the pastor and church which will awake to this opportunity for service will gain in both practical and spiritual influence.

RED CROSS WEEK

This is Red Cross week. One hundred millions is asked of the American people. Every cent of this great sum will be used to lessen suffering and add to comforts of those who are at the front. More correct, perhaps, is the statement that the Red Cross lessens suffering wherever it exists.

Californians are asked to contribute several millions. They will do it.

LIBERTY LOAN

As predicted last week the liberty loan was oversubscribed and to the extent of nearly 50 per cent. California did her share and nobly.

It is stated that the purchase of this great quantity of bonds will mean practically no shifting of currency or of gold so far as California is concerned, for the purchase of supplies and other expenditures in this state will, within a very few months, be far in excess of the bonds purchased. In other words, a vast sum will be put into circulation which will mean much to producers and to manufacturers of the Pacific Coast.

The best feature of this magnificent response of the people of Americe is that it is an anwswer to enemies of the country who maintained that we were lukewarm in guarding and extending the liberties of the people.

Another convincing answer to critics was the 10,000,000 registration mark which was practically reached on June 5.

The country is now ready for action, and we trust it will be much swifter than has been shown in preparation methods.

TEN MILLION HOGS

We have heard some criticism of Prof. Jaffa's statement that if the grain used in the production of strong drinks and beer were turned into hogs it would mean 10,000,000 more hogs than the United States is now raising. The state board of health apparently deems the hint worthy of sending out in its regular news bulletin. If there were one or two hogs short of the full 10,000,000 the lesson is no less emphatic. Prof. Jaffa says:

"The total amount of grain used for the manufacture of alcohol is 2,183,775,852 pounds. About 500 pounds of grain, supplemented by pasture, is necessary to raise an eight months hog weighing about 200 pounds. If this were devoted to pork production it would satisfy the requirements of upwards of 4,000,000 hogs. If the cereals used for beer were similarly applied over 6,000,000 hogs could be raised. If the grains now used for the production of distilled spirits were used for human food, there would be rendered available about 800,000 tons of edible meal, the remainder—bran, etc.—being used for cattle, hog and poultry feeds. The corresponding estimated figure for the cereals now used for beer would be approximately 1,200,000 tons. In other words, if the total amount of grains now used in the manufacture of distilled spirits and beer were used as human food, there would be produced about 2,000,000 tons of edible meal. If this were all wheat flour, it would correspond to 3,000,000 tons of bread or 6,000,000,000 one pound loaves of bread—one loaf per capita per day for two months for the entire United States."

CONSERVE EGGS

It is estimated that 13 million dozen eggs spoil in cold storage every year simply because the shells have been slightly cracked somewhere between laying and the cold room, and a plea is made for more care in handling. Expressed in one way, five per cent of the eggs in cold storage spoil because of careless handling and five per cent is even better than liberty bonds draw. Let us be more careful.

HOT WEATHER

All California has been suffering from intense heat since Wednesday the 13th, but a section of Southern California received more than its share, according to all past records, for from San Luis Obispo south to midway between Los Angeles and San Diego an abnormal condition prevailed, giving, especially to coast points which are usually exempt from these extreme heat waves, a temperature unknown.

The maximum temperature for the week as appearing on Page 703 shows conditions at various stations of the state up to Saturday. The warmest section north of Techachapi up to that time was Fresno with 108 degrees, Red Bluff reported 104; Sacramento, 104. Over on the coast and coming down from San Luis Obispo: San Luis reported 110—this only a few miles from the coast; Los Angeles reported 100. This, as will be noted in the table below, was exceeded on the day following, Sunday, by five degrees. San Diego escaped, its maximum up to Saturday being 86. The heat at other Southern California points is shown by this table.

Date—	14th	15th	16th	17th
Pasadena	106	107	108	113
Pomona	110	112	112	117
Redlands	108	111	113	114
Riverside	112	114	118	117
Santa Barbara	92	105	105	115
San Bernardino	110	112	114	116
Los Angeles	100	99	97	105

Without question heat in San Luis Obispo, Santa Barbara and Ventura Counties was fearfully increased by the fires which destroyed thousands of acres of crops, dozens of homes and cost the lives of several people.

The crop loss from the high temperatures is probably greatest with lemons and walnuts. What the result will be to oranges is unknown except that it must cause the dropping of a vast quantity. Lemons seem to be cooked on the tree. This is true not only of the small half grown fruit but of fruit ready for the harvest. In some sections this loss will aggregate almost 100 per cent of the fruit now on the tree. With the long prices promised this loss will be a most serious one.

It is probable that four or five thousand tons of walnuts will be destroyed, or at least lowered in grade so as to be hardly worth harvesting. In other words, the walnut loss is now estimated at 35 per cent.

Some beans on dry farming lands, which were just appearing above the surface, will be entirely destroyed. Most garden and small truck crops, however, will be injured but little where sufficient irrigation has been given. Some sections report heavy loss on early tomatoes. The vines are probably not seriously injured. The loss is much greater than it would have been had not the entire season up to the very day of the intense heat been extremely cool; but few trees or plants were prepared for this sudden change.

Suffering of live stock was intense and some small animals, like rabbits in hutches and chickens, died by thousands.

The interior valleys where greater heat is usually expected escaped the intense heat given to the coast sections.

Agricultural Notes

The government on May 2 took over Italy's entire supply of wool for the 1917 clip.

An interstate cereal conference of federal and state workers was held in Kansas City, June 12-14.

The extraordinarily good rice crops of the Far East assure discontinuance of imports of wheat and wheat flour.

A very large cabbage crop is indicated in all states of the Union; peas also will be a universally heavy crop.

Medical camps for the training of doctors for army service have been established at Fort Riley, Kansas and Fort Benjamin Harrison, Indiana.

California's tomato crop on June 1 showed almost perfect condition against a three-quarters normal production condition on June 1 last year.

Eighty carloads of potatoes were shipped last winter into the United States from Moncton, New Brunswick, in October at $1.00 per bushel; in April at $2.00.

Large plantings of eucalyptus and acacia trees have been for some years made by the Italian government in North Africa in Tripoli and Cyrenaica. Orders are given for the planting of 50,000 more eucalyptus trees this year in Tripoli, mostly along the railways.

California is the largest grower of cantaloupes in the Union, the 1917 acreage being 17,300. Arkansas is second with 6900. Colorado last year was second. Arizona this year has 3400 acres planted. The crop is three weeks or more late this year owing to the cool weather.

Resolutions asking that immediate steps be taken to regulate grain prices were telegraphed to Washington by the Holstein-Friesian Association in convention at Worcester, Massachusetts, on June 8. A price from 15 to 18 cents a quart for milk before fall was predicted unless relief is secured.

Ostrich farmers of South Africa have fallen on hard times. Many schemes have been discussed for reviving the feather trade. It has been suggested that the government be asked to fix and maintain prices. Whether or no the government can influence Dame Fashion remains to be proved.

The United States department of agriculture says there is no simple test for distinguishing between edible and poisonous mushrooms; "the only safe mushrooms to eat are those gathered by a collector who knows exactly what he is doing." A new Farmers Bulletin, No. 796, describes and illustrates mushrooms.

The weather all through Europe up to April 20 was rainy and cold, when warmer days brought more encouragement to crop raisers. France, Great Britain, Italy and Switzerland on May 1 showed crop conditions below average. The whole southern hemisphere, whose wheat crop is now harvested, shows a three-quarter crop.

Brazil and Argentine together now take 80,000 barrels of American apples and 65,000 boxes of American pears each year, and the trade is growing steadily. In both Brazil and Argentina the American apple is supreme in the high class trade, and its sale is limited only by the number of people who are able to pay the rather high prices asked for it. The American pear is especially well liked in Brazil and Argentina.

Agricultural News Notes of the Pacific Coast

Northern California

Noyo, Mendocino County, will soon have a $10,000 salmon cannery completed.

Glenn County has signed up 5000 acres of rice in the Pacific Rice Growers' Association.

An agent of the French government has been in Butte Valley several weeks buying horses.

Napa County is harvesting a bigger crop of hay and grain than was taken off the fields last year.

Knights Landing expects to have a half million dollar barley crop. There are 9000 acres in barley in that district.

The Humboldt County Dairymen's Association will hold its annual picnic on July 29 at the Loleta picnic grounds.

Many farmers of Biggs, Butte County, are preparing to sow beans on their land as soon as the barley crop is harvested.

The rice crop of the district about Biggs, Butte County, is very promising. The mills are still running on last year's crop.

The California Associated Olive Growers' Association announces that the entire crop for the season 1917-1918 has been sold.

The Anderson-Cottonwood Valley of Shasta County will have a quarter of a million dollar fruit crop, according to estimates of several fruit growers.

The California Associated Olive Growers' Association is planning to erect a mill at Oroville, Butte County, and another at Lindsay in Tulare County.

Forest Supervisor Hammatt of the Shasta national forest reports that 1000 more cattle and 17,000 more sheep are grazing in the forest this year than last.

President Stephens announces that over 10,000 acres of rice have been signed up by the Pacific Rice Growers' Association. A campaign is being made to increase the membership.

Because of the cool weather Vacaville's fruit shipments are very much behind the usual record. On May 30 last year 93 carloads of fruits had been shipped. This year there were only 15.

At the Swine Breeders' meeting at Davis on May 30 all former officers of the California Swine Breeders' Association were continued in office. It was decided to hold a donation sale for the breed.

Experts from the state university are studying the grasshopper problem of the northern part of the Sacramento Valley. Hordes of half grown grasshoppers are said to be getting ready to make onslaught on the fields of the valley.

The Canners' League of California at a recent meeting in San Francisco pledged the output of the canneries of California to the United States government. Committees were named to make a survey of all the cannery products in the state.

The Hereford breeders at their recent meeting at Davis elected H. H. Gable of Esparto president, W. D. Duke of San Francisco vice president and Winfield Madden of Dixon secretary-treasurer. It is the intention to make this organization one unit of a Pacific Coast Association, to cover Washington, Oregon, Idaho, California and Nevada.

Central California

The General Grant park was opened June 1.

Valencia oranges are now being shipped to the Eastern markets.

The Peach Growers' Association has withdrawn quotations on practically all grades.

Two carloads of honey, valued at $10,000, were shipped last week from Lindsay to El Paso.

Missourians of Stanislaus County will hold their annual picnic June 23 at Graceada Park, Modesto.

The Merced Cow Testing Association has become merged with the farm bureau testing association.

The annual meeting of the board of trustees of the California Peach Growers' Association was held June 12.

The Merced County farm bureau plans the organization of a farm fire protective league to protect growing crops.

There is to be no protest from Fresno wine men and grape growers because of proposed tax increase on brandy.

Fifteen per cent additional payments are being made to creditors of the Tulare Cooperative Creamery Company.

Cattle shipments from the Porterville district for the spring of 1917 will total $500,000 in value, according to estimates of local cattlemen.

The campaign to secure a farm adviser for Tulare County has been closed. Seventeen counties in California now have farm advisers.

The Rancho Dos Rios, a 3500-acre tract at the junction of the Tuloumne and San Joaquin Rivers, has been purchased by a colony of Russians.

It is announced that sweet potato plants from Merced hotbeds are being exported to other parts of the state at the rate of 1,000,000 a week.

County Horticultural Commissioner Roullard of Fresno County urges vineyardists to spray immediately if they would control the grape leaf hopper.

June 1 and June 8 were designated as squirrel poisoning days throughout Tulare County. Poisoned barley was distributed free at nine different points in the county.

The chamber of commerce of Dinuba has rescinded its former action in recommending bringing of Asiatic labor to California to help in the harvesting of heavy crops.

The Central Stockmen's Association held a meeting at San Luis Obispo Saturday, June 2, at which Hubbard Hollister was elected secretary in place of W. S. Everets, resigned.

Several suits have been filed against the San Joaquin Light and Power Corporation by owners of grain fields who claim they were destroyed by fire caused by employes of the company.

More than 1500 ranchers, dairymen and poultrymen attended the picnic of the Dairymen's Cooperative Creamery Association and the Tulare Cooperative Poultry Association at Mooney Park, June 7.

The grain harvest is now under way in the San Joaquin Valley. It is estimated that 100,000 bags will be shipped out by water before the waters recede and make navigation impossible to the higher points.

Southern California

Fishing is now allowed in the San Fernando reservoir.

Imperial County has nearly 115,000 acres planted to alfalfa.

Imperial Valley this season shipped out 50 carloads of green peas.

Palo Verde hopes to get government aid in the building of a levee.

It is announced that a sorghum mill will be erected at Indio this fall.

Early parcel post shipments of figs were made in quantity from Thermal.

An onion grower of the Coachella Valley reports the sale of 5000 crates at $1.85.

Arlington's new cannery is busy on its first run. Sauerkraut is its first product.

Total vegetable shipments from Southern California for the past season were 7645 cars.

Heavy shipments of Valencia oranges are now being made from Southern California.

The cannery of the Hemet-San Jacinto Growers' Association is ready for the packing season.

The Mound Farmers' Club of Ventura County held a basket picnic at Foster Park June 21.

Coachella Valley's onion crop this year is estimated at $500,000. There will be about 700 carloads.

The Imperial Irrigation District has voted $2,500,000 bonds to cover two years' work in improving the system.

The Pomona Fruit Growers' Exchange expects its ninth pool of navels to bring at least two cents per pound.

California has over 17,000 acres planted to cantaloupes. Over 13,000 acres of these are in Imperial County.

A crop survey of Riverside County by the state council of defense shows a bean acreage of 50 per cent above normal.

A short course in poultry was conducted at Van Nuys the 13th, 14th and 15th by J. E. Dougherty of the University of California.

At the June 4 meeting of the Yucaipa Apple Growers' Association growers were informed of the workings of the Northwestern Fruit Exchange.

The walnut crop of Southern California has been cut down by the hot weather the past week. The prospects have been for an unusually heavy output.

The apricot crop of the Redlands district is estimated by the Review at 65 per cent of normal, with practically the entire crop contracted at $46 per ton.

A number of poultrymen of Arlington attended the last meeting of the San Bernardino County Poultry Association to talk organization and cooperation.

Serious forest fires have burned over large areas of the Santa Barbara national forest, taking many cultivated acres, as well as brush and timber lands.

Apricot growers of Ventura County are busy gathering their crops. Prices for apricot pits are 15 cents for a 50-pound box, 50 per cent more than was paid last year.

W. E. Packard has resigned as superintendent of the state university experiment station at Meloland and will take charge of farm adviser work in Southern California.

The Coast

Farmers of Chandler are considering a plan for enlarging the Eastern canal.

Kings County, Washington, will hold its fair at Renton September 14, 15 and 16.

The farms on the Arizona side of Needles are menaced by the floods of the Colorado.

In the crop survey of Arizona the district about Higley is shown to have 2278 irrigable acres.

A peppermint farm of 100 acres is being planted near Sifton in Clarke County, Washington.

Loganberries in some sections of Marion County, Oregon, were seriously damaged by cold weather.

The Stock Growers' Association of Cochise, Arizona, will hold its annual meeting at Douglas in September.

The Spokane branch of the federal farm loan bank has already approved loans for more than $1,300,000

The Vancouver cannery opened June 1 on spinach. This will be followed by gooseberries, then strawberries.

C. B. Kegley of Spokane was elected master of the Washington State Grange at the recent annual at Wenatchee.

At the recent annual session of the Washington State Grange at Wenatchee there were more than 800 representatives.

Indians on the Sacaton reservation of Arizona are threshing their wheat and barley and getting the ground ready for corn.

The Okanogan County Grange Fair will be held at Okanogan October 11-13. There will be an especially large exhibit of live stock.

There has been great activity in sales of range lands in the Yakima Valley of Washington, over 40,000 acres having been sold since the beginning of the year.

A highway will be built from Metcalf, Arizona, to the northern boundary of Greenlee County. Two hundred thousand dollars bonds have just been voted for this purpose.

J. W. Brewer, manager of the Dallas chamber of commerce, has been appointed to take charge of the food survey in Morrow, Gilliam, Sherman and Hood River Counties, Oregon.

Contracts have been awarded for the construction of immense storage reservoirs along the Deschutes River in Central Oregon, for the irrigation of 100,000 acres of land in Agency Plains.

Three federal agents are to be put into the Inland Empire to help in making the change to the bulk system of handling grain. The grain producing sections of Oregon, Washington and Idaho will be covered.

An agent of the United States bureau of markets has just completed a census of farm crops in the Salt River Valley of Arizona. He is now trying to interest farmers in forming cooperative marketing organization.

The Womans Club of Chandler, Arizona, has served notice on neglectful owners of stock that they will be prosecuted. Many cases have been found where horses and cows were tied up short and left in the blazing sun without water all day.

The DE LAVAL LINE

ACME FEED CUTTER and SILO FILLER

The Only Steel Frame Cylinder Cutter on the Market

The steel frame is strongly riveted. It can't warp as does the old style wooden frame. All bearings and shafts are held in rigid alignment at all times and vibration and wear reduced to a minimum.

BUILT FOR CAPACITY

The large throat of the Acme Feed Cutter, the Automatic Feeding Roller, and the improved design of the Traveling Feed Table gives the machine ENORMOUS CAPACITY and makes it very EASY TO FEED.

Knives are of special steel, ground on the inside, spiral in shape, and produce a uniform, perfectly cut silage that packs well in the silo.

BUILT IN SEVEN SIZES

The wide range of sizes makes it adaptable to all cutter requirements.

THE ECONOMY OF CUTTING DRY FEED

The coarse hay usually nosed out and wasted by stock will be entirely consumed as food if first run through an Acme Feed Cutter. You can actually make a saving of $3.00 to $5.00 per ton by this method.

ALFALFA MEAL

An attachment for making alfalfa meal from alfalfa hay can be fitted to the Acme Cutter and an excellent grade of meal produced at a cost of less than half the cost of baling.

IF YOU ARE INTERESTED IN ECONOMICAL STOCK FEEDING SEND FOR ACME CUTTER CATALOG and the DE LAVAL DAIRY HAND (which is a veritable gold mine of valuable dairy data). A postal will do.

DE LAVAL DAIRY SUPPLY CO.

61 Beale St., San Francisco, Cal.

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We are looking not only for men who may now or later invest in life insurance but for local representatives who may occasionally have a few hours to represent us.

Write us at 626 So. Spring street, Los Angeles, and we will become better acquainted.

THE MODERN METHOD of IRRIGATING ALFALFA

The indications are that all prices will continue to advance, and it will be cheaper to install your irrigation system now than it will be later on. Do not wait until next year to figure out what you would have made if you had acted now.

In spite of the high prices and shortage of all manufacturing materials, we have a full supply of all Irrigation Appliances on hand at convenient distributing points all over the Pacific Coast, and are prepared to make prompt deliveries throughout the season. Don't delay. Time is money. Write today.

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1226 East 28 Street Los Angeles, Cal.

"Originators of the Valve System of Irrigation"

Ration for a Young Boar

Written for California Cultivator By F. W. Woll

REPLYING to your request for information as to the proper growing ration for a young Berkshire boar at ten months, would say that good results may be secured by various methods of feeding, and the special method to be adopted will depend upon the available feeds. It may be stated in general that a boar should receive feeds that will develop a good strong constitution, and rations with a tendency to fatten should, therefore, be avoided. The best roughage that can be provided is good alfalfa pasture or cut green alfalfa, and in addition he should receive as much grain as he will clean up readily. A pound or two daily will be ample. This may be ground barley alone or a mixture of two or more standard hog feeds, like barley, oats, grain sorghum middlings, dried beet pulp, cocoanut meal, etc.

The following mixture will very likely be as cheap as any in these days of high feed prices: beet pulp, milo and cocoanut meal, mixed in the proportion of 2:2:1 by weight. Wheat middlings may be included in case either milo or beet pulp cannot be obtained or is more expensive than middlings.

There is no better single feed for growing hogs than wheat middlings. It contains a considerable proportion of protein and valuable mineral components, with only a small amount of fiber. Beet pulp, on the other hand, is rather high in fiber and low in ash materials. Cocoanut meal is valuable on account of its protein and fat contents, but is not particularly palatable to hogs, and on account of its laxative effect must be fed sparingly. All the feeds mentioned have approximately similar feeding value and the choice may be made, therefore, largely on the score of relative cost.

Pontiac Clothilde De Kol 2d 69991

The first cow to produce 37 lbs. butter in 7 days, 145 lbs. in 30 days, and 1271 lbs. in a year. Also the first cow to make over 30 lbs. butter in a week in three successive lactation periods. She sold for $2600 (at 13½ years of age) and a ten-months-old son sold for $6100. She is a three-quarters sister to King of the Pontiacs and is the dam of the splendidly bred bull, It, recently sold by Stevens Brothers to McAlister & Sons.

Report of San Joaquin County Cow Testing Association, May, 1917

By W. F. Elder, Tester

WITH the addition of several new members the San Joaquin County Cow Testing Association reports a very successful month. In order that future reports may equal or surpass the record of this month it is desirable that all members sign up for a year's work, thus assuring the permanent success of this department.

Following are the five leading herds in butterfat production for the past month, giving owner, number of cows, average pounds butterfat: Gotshall & Magruder, 17, 45.3; F. J. Kell, 18, 41.9; R. W. Fisher, 22, 35.9; E. M. Thorpe, 11, 35.5; O. Fowler, 26, 33.9.

Following are the five leading herds in milk production for the past month, giving owner, number of cows, average pounds milk: Gotshall & Magruder, 17, 1331; F. J. Kell, 18, 1156; E. M. Thorpe, 11, 1005; County Farm, 31, 963; O. Fowler, 26, 931.

The following cows produced 50 pounds or over of butterfat during the month, giving owner, name or number of animal, breed, pounds milk, test, pounds butterfat: Gotshall & Magruder, 13, H, 2120, 4.3, 92.1; Mrs. E. C. Clowes, 35, H, 1854, 4.4, 81.4; R. W. Fisher, 17, J, 1398, 5.3,74.1; F. J. Kell, 447, H, 2285, 2.9, 66.3; 101, H, 1810, 3.6, 65.2; N. H. Locke Co., 133, J, 1190, 5.4, 64.3; Gotshall & Magruder, 11, H, 1888, 3.3, 63; F. Fiori, Dinah, H, 1562, 4, 62.5; H. T. Bailey, 61, H, 1618, 3.7, 59.5;. Mrs. E. C. Clowes, 10, H, 1513, 3.9, 59; E. M. Thorpe, Colly, H, 1339, 4.4, 58.9; F. J. Kell, 16, H, 1218, 4.8, 58.5; 66, H, 1720, 3.3, 56.7; Gotshall & Magruder, 4, H, 1541, 3.6, 56.1; N. H. Locke Co., 118, J, 691, 8.0, 55.3; F. J. Kell, 65, H, 1445, 3.8, 54.9; R. W. Fisher, 12, ..., 1215, 4.5, 54.7; O. Fowler, Daddles, H, 1556, 3.5, 54.4; N. H. Locke Co., 394, J, 849, 6.4, 54.3; J. Fiori, Roanie, H, 1383, 3.9 54.1; F. J. Kell, 63, H, 1795, 3, 53.8; S. Gronner, 1509, H, 1324, 4.1, 53.8; Mrs. E. C. Clowes, 53, H, 1652, 3.2, 52.9; C. Holman, 1, PD, 1320, 4.0, 52.8; 30, H, 1423, 3.7, 52.7; Oak Grove Dairy, Kate, H, 1370, 3.9, 52.4; J. Fiori, Blue, H, 1228, 4.3, 52.4; R. W. Fisher, 25, ..., 1159, 4.5, 52.2; Gotshall & Magruder, H, 1345, 3.8, 51.5; County Farm, 67, H, 1838, 2.8, 51.4; N. H. Locke Co., 390, J, 949, 5.4, 51.2; H. T. Bailey, 44, H, 1646 3.1, 51; O. Fowler, Brindle, —, 1181, 4.3, 50.8; Mrs. E. C. Clowes, 112, H, 1265, 4, 50.6; Gotshall & Magruder, 2, H, 1897, 2.7, 50.2.

From California to Chile

Written for California Cultivator By C. A. Briggs

A. W. Morris and Son of Woodland have recently sold a fine young bull to Ramon Nieto of Santiago, Chile. A straight clean cut youngster of fine color and markings and royally bred, he will add to California's glory and the wealth of the Southland. His name, Segis Pontiac De Kol Burke 6th, tells of the lines of blood to which he traces. His sire, Segis Pontiac De Kol Burke, a four time grand champion, already has eight A. R. O. daughters, while the young fellow started his show record by capturing the first prize for calf at the California State Fair of 1916. His dam, Miss Blaney, has records of 27.60 pounds of butter in seven days, 1008 pounds butter in one year from 20,740 pound of milk averaging 3.09 per cent of butter fat. She has a 30.05 pound butter daughter with a yearly record of 1025 pounds of butter. The average record of his dam and sire's dam is 29.95 pounds butter for seven days and 1047 pounds butter for one year. The sale was made through Mr. E. Susaleta of Santiago who is at present taking a course in the state university. This sale puts another of the Morris bulls in good hands, as the purchaser, Mr. Nieto, is the largest breeder of Holstein cattle in Chile and one of the largest in the entire continent of South America.

Romneys at the University Farm

THE university farm has lately added to its flock six choice Romney ewes recently imported by Mr. S. H. Coffin of North Yakima, Washington. They arrived at the university farm on May 5 after being in quarantine in San Francisco two weeks. They were bred previous to importation and will lamb in August and September.

They were bred by the famous Romney breeder, Mr. E. Short of Pararangi Station, Feilding, New Zealand, and are yearlings past. They show good Romney character, are deep bodied, of good weight and carry a very desirable fleece.

The ram was bought at the P.P.I.E. being exhibited by the New Zealand government and was the first prize ram lamb. He was bred by Mr. William Perry of Masterton, New Zealand, and is a very active, robust ram of good bone and carrying a good fleece. At one year's growth he sheared 19.5 pounds. He weighs in breeding condition 275 pounds and will be three years old this fall.

The Romney is rather a new breed in the states. The principal breeders are in Oregon, Washington and California. The Miller & Lux Estate of San Francisco, John E. Marble & Co., of Los Angeles and the University of California are the only breeders of Romneys in this state.

The breed originated in a low lying tract of land or marsh in the county of Kent in Southeastern England and is known as the Romney Marsh although the American association has dropped the latter word. They were good grazers, rarely receiving any feed other than pasture throughout the year. The breed is noted for being very hardy and because of being raised on low ground is often referred to as being resistant to foot rot.

They are a long wool breed, producing a heavy fleece of wool six to eight inches long at 12 months. Rams weigh from 250 to 300 pounds and ewes from 175 to 225 pounds. They are hornless and have white faces and legs. The sheep readily adapt themselves to either range or farm conditions and are used a great deal in crossing with Merinos on the ranges in Australia.

Romneys

Ram and six ewes on University of California farm at Davis. The university farm has introduced some fine blooded stock, so far as possible representative of all breeds.

Don't Take a Chance with Sick Hogs

"Don't take a chance with a sick hog. Act quickly. Get a veterinarian or a trained man immediately. Don't wait a single hour when you suspect disease in your herd. Use the telephone or send to town at once. Only prompt action will stop hog cholera losses. Every hog saved will help win the war."

The time for argument about anti-hog-cholera serum is past, declare the specialists of the United States bureau of animal industry. Explicit figures are readily available which prove unmistakably that when administered in time by competent persons, hog cholera serum will keep well hogs from taking the disease for a period of three to six weeks. Not argument, but quick action is imperative to get serum and a trained operator to the farm to treat the hogs. Hogs will be saved and the nation's meat supply increased if every farmer

You need a new

DE LAVAL SEPARATOR NOW

1st If you are still using some gravity or setting process of creaming—

BECAUSE YOUR WASTE IS greatest and quality of product poorest in mid-summer when the milk supply is heaviest.

BECAUSE TIME IS OF GREATest value on the farm at this season and the time and labor saving of the good separator counts for most.

BECAUSE THE SKIM-MILK IS poorest without a separator in hot weather and often more harmful than helpful to calves.

BECAUSE THE WORK OF A New De Laval Cream Separator is as perfect and its product as superior with one kind of weather as with another.

2nd If you have a very old De Laval or an inferior separator of any kind—

BECAUSE THE LOSSES OF THE poor separator from incomplete skimming and the tainted product of the hard-to-clean and insanitary separator are the greatest at this season.

BECAUSE OF THE GREAT economy of time at this season in having a separator of ample capacity to do the work so much more quickly.

BECAUSE THE NEW DE LAVAL is so much simpler and more easily handled and cared for than any other, and you can not afford to waste time these busy days "fussing" with a machine that ought to have been thrown on the junk-pile long ago.

BECAUSE THE DE LAVAL SEPARator of today is just as superior to other separators as the best of other separators to gravity setting, and every feature of De Laval superiority counts for most during the hot summer months.

These are all facts every De Laval local agent is glad of the opportunity to prove to any prospective buyer. If you don't know the nearest De Laval agency simply write the nearest main office, as below.

DE LAVAL DAIRY SUPPLY CO.

LARGEST DAIRY SUPPLY HOUSE ON THE PACIFIC COAST.
Alpha Gasoline and Distillate Engines, Ideal Green Feed Silos, Acme Ensilage Cutters and Blowers, Irrigation Equipment, Centrifugal and Deep Well Pumps and Alpha Spraying Outfits. Send for special catalog.

61 BEALE STREET, SAN FRANCISCO
50,000 BRANCHES AND LOCAL AGENCIES THE WORLD OVER

Fine Young Jersey Bull

READY FOR SERVICE

A Dandy Individual of Excellent Breeding

SIRE—An imported, highly commended son of Golden Fern's Noble, the 1916 National Dairy Show Champion, who sold for $25,000, out of a daughter of Gamboges Knight.

DAM—A beautiful cow by a grandson of Golden Fern's Lad, out of a granddaughter of Golden Fern's Lad.

This bull is priced right for such breeding. Write for price and description.

J. E. Wherrell

1581 Sedgwick St. -:- RIVERSIDE, CAL.

WE MAKE LOANS

on beef breeds of cattle in amounts from $5000 up, and invite you to correspond with us.

Southwest Cattle Loan Company

JNO. L. KNORPP, Pres. and Gen. Mgr.

915 Citizens Nat. Bank Bldg. LOS ANGELES, CAL.

Shorthorns---Paicines Ranch Company

Offers for summer and fall delivery both registered and unregistered weanling bull and heifer calves. For prices and particulars apply to

David J. Stollery, 320 Sharon Bldg. San Francisco, Cal.

Shorthorn Cattle and Berkshire Hogs

Shorthorn herd headed by Count Glory 426982, grand champion at the California State Fair, 1916. Berkshire herd won Premier Exhibitor's banner at P. P. I. E.

513 Hearst Building San Francisco

CARRUTHERS FARMS Mayfield, Cal.

CUTTER'S
BLACKLEG PILLS
"California's Favorite" for nearly 20 years
For the Prevention of Blackleg in calves and young cattle

Their superiority is due to nearly 20 years of specializing in "Vaccines and Serums only."

Year in and Year Out they give better satisfaction than any other vaccine made, and the cost of a few cents per dose is cheap insurance against a disease that always takes the fattest and best.

Single Pills may be used for ordinary and range stock.

Double Pills should be used for pure bred and high grade stock.

Use any Injector, but Cutter's simplest and strongest.

Prices:
10 dose pkge. Single pills $1.00
50 dose pkge. Single pills 4.00
10 dose pkge. Double Pills 1.50
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Insist on Cutter's. If unobtainable, order direct.

Write for new booklet, "The Control of Blackleg." It tells about Anti-Blackleg Serum which cures Blackleg and may be used simultaneously with vaccine to combat outbreaks and safely protect valuable stock.

The Cutter Laboratory, Berkeley, Calif.

The Cutter Laboratory of Illinois, Chicago
Eastern Agent

Gertie's Son's Victor No. 123159
Dam, Victor's Lady Kate, (R.O.M.) of 537 lbs. Butter in 308 Days as a 4-year-old.
185 Registered Jerseys in my herd, including 18 Register of Merit Cows.
Blue Ribbon winners at 1916 Kings, Kern and Tulare County Fairs.
Invest in Jerseys and Start Right
Visitors Welcome Correspondence Solicited
A. A. Jenkins
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Berkshire Hogs—Milking Shorthorns
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CLEAN milk which always has a readier market at a higher price, cannot be produced in dirty, dark, unsanitary stables.

CARBOLA
The Disinfecting White Paint

will make your barns as white as snow and at the same time, without extra labor or time, rid them of lice and mites and other animal parasites and prevent the germs of glanders, contagious abortion, and other infectious diseases from getting a foothold. Carbola is a finely powdered, snow-white mineral pigment combined with a germicide

20 Times Stronger Than Carbolic Acid

and is ready to use as soon as mixed with cold water. Will not blister, flake or peel off. Has no disagreeable odor to taint milk. Use it in poultry houses, dairies, piggeries, cellars, etc. Endorsed by experiment stations, agricultural colleges and thousands of poultry, dairy and breeding farms.

10 lbs. (10 gals.), $1.00 and postage
20 lbs. (20 gals.), $2.00 delivered.
50 lbs. (50 gals.), $4.00 delivered.

Trial package, that covers 250 square feet, and descriptive booklet for 25c postpaid.

Get some from your dealer. If he has none send your order direct with his name.

Germain Seed & Plant Co.
Los Angeles, California

YOU CAN'T CUT OUT
A BOG SPAVIN, PUFF OR THOROUGH-PIN, BUT
ABSORBINE
TRADE MARK REG. U.S. PAT. OFF.
will clean them off permanently, and you work the horse same time. Does not blister or remove the hair. $2.00 per bottle, delivered. Will tell you more if you write. Book 4 M free.
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KENDALL'S SPAVIN TREATMENT
The old reliable remedy for curb, splint, bony growths, ringbone, spavin or other lameness. 40 years of remarkable results. $1 a bottle, 6 for $5. At all drug stores. Ask for Free Book, "Treatise on the Horse."
Dr. B. J. Kendall Co., Enosburg Falls, Vt.

SANDYACRE FARM, Home of
Marsh's Big Type Poland-China Hogs
"MODEL MAJOR" winner of three firsts and two Grand Championships is at the head of my herd of prize winning sows. My sows are the easy feeding, big litter kind that have quality. Now booking orders for June delivery of spring pigs. Satisfaction guaranteed or money refunded. H. I. MARSH, Modesto, Cal.

The Napa County farm bureau is making a labor survey of the county. School children are being listed.

will immediately upon sign of disease call in the nearest available expert to diagnose the complaint and administer whatever treatment is necessary.

Because a single outbreak of hog cholera on any farm is a matter of moment to the entire community, and because hog cholera infection is rapidly spread in many ways employ every possible measure to keep the disease out of herds. The department has issued a special hog cholera poster, "Stop Hog-Cholera Losses," which gives specific directions for avoiding infection by sanitary and self-quarantine measures; also directions for the isolation and treatment of cholera-infected hogs and directions for disinfection and restocking the hog lot. Farmers' Bulletin 834, soon to be published, contains the latest information at the command of the department of agriculture concerning hog cholera prevention and the immunization of hogs against the disease.

More Beef

The State Council of Defense for California has issued the following appeal to live stock breeders:

CALIFORNIA owes it to the nation to produce more beef, declares the committee on resources and food supplies of the California state council of defense.

But the ranges of the state are already stocked—they can carry no more cattle. Now Professor Gordon H. True of the University of California college of agriculture has pointed out a solution of the problem:

There must be no more two year-old steers on the range.

There must be more breeding cows on the range, instead of steers.

The selling by range cattlemen of all steers two years old means that they must be sold as feeders, and the valley farmer must buy and feed these steers for market.

Most stockmen have failed to grasp the fact, says Professor True, that it the strictest economy to feed steers for the greatest possible gain while they are young, since young cattle make cheaper gains than older stock. The first winter is the critical time. It is then the animal must be fed if he is to go to market at an early age. The grand champion calf, bred and fed at the university farm, which beat the whole world at the last International Livestock Exposition in Chicago, was only 13 months old, and weighed over 1100 pounds.

The day of the Texas Longhorn has passed. There is far more profit in animals of the improved beef breeds—Shorthorn, Hereford and Aberdeen Angus. These beef-bred cattle have deeper flesh and earlier maturity.

Good breeding pays. Good feeding pays. And this is how California can produce more beef and yet cut down the number of steers and increase the number of breeding cows on the ranges.

Gone to Chile

Segis Pontiac De Kol Burke 6th, sold by A. W. Morris & Sons, to be shipped to Ramon Nieto, Santiago, Chile. See Mr. Briggs' article on page 695.

PACIFIC NATIONAL DAIRY SHOW

Secretary F. A. Welch of the Pacific National Dairy Show announces dates of the Pacific National Dairy Show for 1917 as November 16 to 23, inclusive, at which time a general exhibit of dairy stock, dairy machinery, and dairy products in general will be displayed at Portland, Oregon. The directors of the organization are planning for a very large show and find that much interest is being taken in the Pacific Northwest in dairy stock breeding and general developments in connection therewith.

In five or ten years the practice of intensive dairying will wholly change a poor farm. It will yield an income each year that will permit of better fences, better farm buildings and improved conveniences about the house. Conservatively speaking, a 1000-pound dairy cow will produce from one-half to three-quarters of a ton of manure per month. If plenty of bedding is used this amount will be increased. If all the manure is properly conserved, if raw rock phosphate is used to reinforce the manure, a five to ten per cent increase in the crops every two or three years will not be uncommon.

"It's Not What They're Worth But It's What You Get"

You are invited to visit the home of the
STATE CHAMPION HEIFER

For Inspection and Sale
FIFTEEN HEAD OF THE CHOICEST OF THE BREED

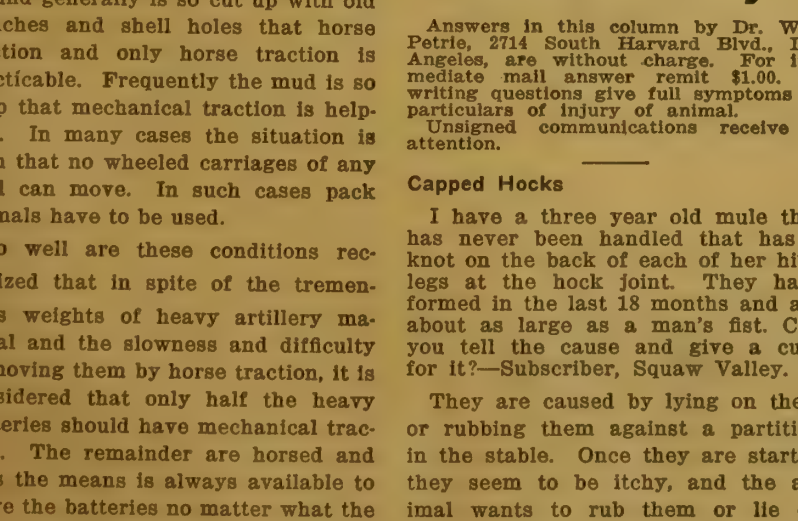
Write us for a descriptive booklet in reference to these fifteen remarkable males and females we are offering for sale.

Gotshall & Magruder
Breeders of Registered Holstein-Friesians
RIPON - - - CALIFORNIA

Horses are Indispensable in War

There seems to be a rapidly increasing opinion that the day of the horse in war has passed. The nearly three years of warfare in Europe has shown this to be an entirely erroneous idea. On the Eastern or Russian Roumanian front where there are few good roads, the horse has not only held his own for the mounted services such as cavalry and artillery, but also for supply purposes. Again and again the armies operating on this front have found the arrival of supplies and ammunition dependent upon the use of horse transport. Even on the Western front where the road system is probably the best in the world, mechanical traction has not been able to displace the horse. In general it might be said that the line between mechanical and horse traction on a battlefield is the extreme limit of the enemies artillery fire when any heavy action is going on. The horse is used on the battlefield and the mechanical traction in rear of it. Of course during calm periods mechanical traction is used along the rear part of the battlefield. There are various reasons for this division. Probably the main one is that batteries frequently must be placed and supplied in positions some distance from a road. Often the country to be traversed is so rough that a tractor cannot get over it. If the army is operating on conquered ground, this ground generally is so cut up with old trenches and shell holes that horse traction and only horse traction is practicable. Frequently the mud is so deep that mechanical traction is helpless. In many cases the situation is such that no wheeled carriages of any kind can move. In such cases pack animals have to be used.

So well are these conditions recognized that in spite of the tremendous weights of heavy artillery material and the slowness and difficulty of moving them by horse traction, it is considered that only half the heavy batteries should have mechanical traction. The remainder are horsed and thus the means is always available to move the batteries no matter what the difficulties. Therefore, in general it may be said that an army must still have animals for all its cavalry, the usefulness of which is far from disappearing; it must have horses for all its light field artillery, half its heavy field artillery, and all its regimental and divisional supply trains. Incidentally every regiment of infantry must have several hundred horses and mules. The more the question is examined, the more two facts stand out. The first is that certain work in modern warfare can only be done by horses. The second is that the number of horses needed for armies, which are counted by the millions, must be counted by the hundred thousands.



King of the Pontiacs 39037

The great King of the Pontiacs who has 202 A.R.O. daughters; 115 proven sons. At 13½ years of age sold for $10,500 at the Stevens Brothers dispersion sale, May 15, 16 and 17, 72 of his daughters selling at the same sale for $89,325, an average price of $1241 a head. "King" has 19 daughters that have made from 30 to 44 lbs. butter each in 7 days, and 113 other daughters with records of between 20 and 30 lbs. in 7 days.

FIELD NOTES
From the Live Stock Men

Recent Sales by the A. W. Morris Company include a bull to Raleigh Scott, Crescent City, King Spofford Mead sired by King Mead of Riverside out of Linden Spofford Promise De Kol who has a seven day record of 26.70 pounds and a yearly record of 840 pounds; a bull to J. A. Kinney, Litchfield, sire, Segis Pontiac De Kol Burke; a bull to Geo. E. Spencer, Blythe, sired by King Mead of Riverside out of Parthenea Agnes 2nd, an 800 pound dam. His full brother was sold recently for export to Hong Kong. Another bull went to W. H. Otterson of Glenn.

Superintendent Wm. Taylor of Santa Anita Rancho reports the sale and shipment of registered yearling Berkshire boar, Anoakia Duke No. 224835, to the Kamehameha School, Honolulu, Hawaii. This school has a very splendid herd of Berkshires and will use this boar to head the herd.

Veterinary

Answers in this column by Dr. Wm. Petrie, 2714 South Harvard Blvd., Los Angeles, are without charge. For immediate mail answer remit $1.00. In writing questions give full symptoms or particulars of injury of animal.

Unsigned communications receive no attention.

Capped Hocks

I have a three year old mule that has never been handled that has a knot on the back of each of her hind legs at the hock joint. They have formed in the last 18 months and are about as large as a man's fist. Can you tell the cause and give a cure for it?—Subscriber, Squaw Valley.

They are caused by lying on them or rubbing them against a partition in the stable. Once they are started they seem to be itchy, and the animal wants to rub them or lie on them, and thus keeps up the irritation and increases the swelling. They are hard to cure because the cause continues. If you could prevent the mule rubbing them or lying on them they could be reduced by applying an ointment made of tincture of iodine three ounces, iodine crystals one dram and lard oil to make six ounces. Apply once a day and rub in well.

Security Calf Food

Will Bring You $27.80 Estimated Profit on Each Calf

Same Principle as Baby Foods are Used

The Old Way		The New Way	
Cream Used in Six Weeks,	$16.80	Cream Saved in Six Weeks,	$16.80
Veal Calf Sells for	15.00	Veal Calf Sells for	15.00
Loss	1.80	Total	31.80
		Cost Security Food	4.00
		Profit	27.80

These are figures you can depend on and we absolutely guarantee you satisfaction or money refunded. Ask your dealer or write

SECURITY REMEDY CO., MINNEAPOLIS, MINN.

Santa Anita Rancho
Anoakia Breeding Farm

ARABIAN THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three-year-olds.

POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars. Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

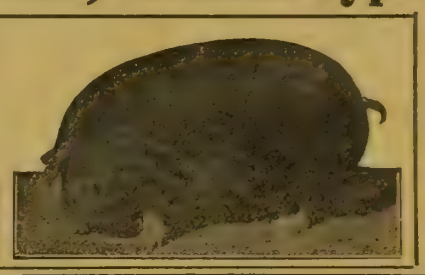
Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent Santa Anita, Cal.

Poland Chinas, Medium Type

Choice breeding stock, both sexes, from Panama-Pacific International Exposition prize winning strain. 12 firsts, Junior Champion and Reserve Grand Champion Boar. Junior and Senior and Grand Champion Sows, $2145 cash awards. Write to



M. Bassett
Hanford, Kings County, Cal.

EMPRESS LASS 218446
Grand Champion Washington, Oregon California and A. Y. P. Exposition

2.95 Pounds Butter Daily for 158 Days

has been produced by Empress Lass under dairy conditions. Still working. Her sons and grandsons are from big producers of show type. Prices right.

LOCKEFORD STOCK FARM
N. H. Locke Co., Props.
Breeders of Jersey Cattle and Chester White (O. I. C.) Swine.
LOCKEFORD, San Joaquin County, CAL.

Use Tuberculin Tested Sires in Your Herd

WE HAVE A NICE LOT OF SHORTHORN BULLS and HEIFERS THAT WILL SELL FAST WHEN THE SPRING FEED COMES. SELECT YOURS NOW FROM THE BRIGHTON FARM HERD.

H. L. & E. H. Murphy, Perkins, Cal.

Hauser's Digester Tankage

GIVES GREATEST VALUE FOR LEAST MONEY.
IT MAKES THEM FAT.

Hauser Packing Co. Los Angeles

Giving the Bees Room

MANY beekeepers make a serious mistake in failing to give their bees enough storage room on time. The addition of this room at just the right time for the storage of the season's crop of honey requires good judgment and an intimate knowledge of the nectar resources of the particular locality and season. It is exceedingly important during the few weeks of heavier flow that the progress of the work in the supers be watched closely and additional room be given as rapidly as the bees can use it.

The usual procedure by the inexperienced beekeeper is to put on a super of 25 to 50 pounds' capacity during early spring and give the subject no further thought until late summer or autumn. If the super is found to be full of honey at that time, it is removed and probably an empty one put in its place. In many cases this empty super is given long after there is any possibility of any further storage of honey during the season and if comb honey is being produced the sections and foundation are ruined for further use by being on the hives during a time when no honey is being stored.

During a poor season a single super for each colony may furnish an abundance of room for the storage of the entire crop of honey but, during a good season, if additional supers are not given as needed, the major portion of the crop is lost to the beekeeper simply from lack of storage space.

With such a good honey flow several supers may be completely filled with honey before any of it is ripened and sealed and the hive may have therefore as many as five or six supers at one time. Under such conditions, if the bees are compelled to ripen and seal the honey in the first super before a second one is given, most of the possible honey crop is lost to the beekeeper, the bees being compelled either to swarm or to loaf during the height of the storing season. Such an abundant honey flow does not by any means occur every year but when it does occur, the beekeeper should be prepared to take full advantage of the opportunity.

Bees need so little attention during the greater portion of the year that it is difficult for the inexperienced beekeeper to realize that for the best results almost daily attention is needed during the few days or weeks known among beekeepers as the honey flow.

STATE FAIR

September 8 is the opening day of the 1917 state fair at Sacramento. As heretofore the Native Sons and Daughters of the Golden West will be the prime movers in many of the features which will be pulled off during the fair. The directors announce that a program surpassing previous efforts is being arranged. One of these features will be a historical pageant of California life and a musical contest in which it is estimated that at least 50 bands will enter. The fair will be held for a week and a day.

NOW IS THE TIME TO ORDER PIPE FOR YOUR

IRRIGATING

DO IT NOW BEFORE THE PRICES GO HIGHER

INSIST ON HAVING

REMCO REDWOOD PIPE

BECAUSE—

1st: Remco Redwood Pipe is made by a reliable firm, is guaranteed, and the guaranty is good.

2nd: They have specialized in pipe building for over a quarter of a century and "Remco" pipe is the result of this scientific development of the pipe situation.

3rd: They use nothing but clear, air-dried redwood in the construction of their pipe, therefore pipe so made will outlast any other pipe with the exception of cast iron.

Manufactured by

Redwood Manufacturers Company

Also Makers of "Remco" Tanks and Silos

Write Today for Free Catalog

Main Office: 1604 Hobart Building - San Francisco, Cal.

Factory: Pittsburg, Contra Costa County, Cal.

BEAN THRESHERS THE TWO STANDARDS

Built Especially for California Conditions

THE FARQUHAR VIBRATOR SEPARATOR

Guaranteed by "The House of ARNOTT"

Ask The Grower Who Owns One

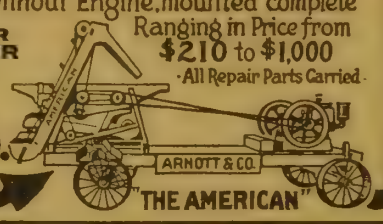
Write for Folder, Specifications, Prices Etc.

Past the Experimental Stage

Eleven different models, with or without Engine, mounted complete

Ranging in Price from $210 to $1,000

All Repair Parts Carried



"THE AMERICAN"

QUALITY ARNOTT GUARANTEED

ARNOTT & CO.

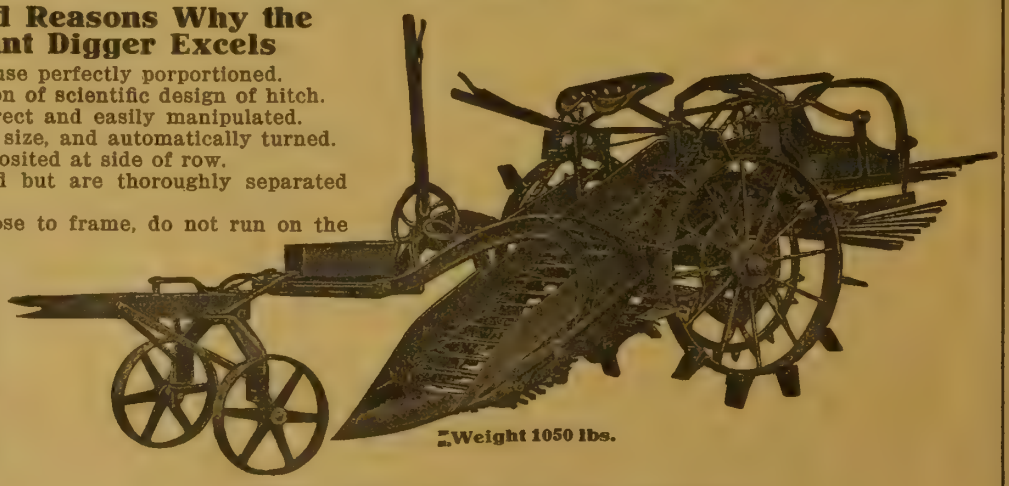
BEAN THRESHER HEADQUARTERS

112-118 So. Los Angeles St Los Angeles

The Little Giant Potato Harvester

A Few Good Reasons Why the Little Giant Digger Excels

Great Strength because perfectly porportioned.
Light Draft, by reason of scientific design of hitch.
Leverage System direct and easily manipulated.
Truck Wheels, large size, and automatically turned.
Vines and Trash deposited at side of row.
Potatoes not bruised but are thoroughly separated from soil.
Main Wheels set close to frame, do not run on the next row.
Chain Driven, no gears to wear out.
Light Enough for Two Horses and strong enough for four horses.
Elevator Web Capacity sufficient for heaviest rows, being 22 inches wide and 6 feet long.
Main Sides of Frame are moulded in one piece to secure a rigid frame.



Weight 1050 lbs.

Write Today for Information and Prices

DIXON & GRISWOLD, 146-148 No. Los Angeles Street Los Angeles, Cal.

Legal Queries

Louis B. Stanton, attorney, 243 Wilcox Building, Los Angeles, will answer legal queries in this department.

Immediate mail replies cannot be given except where fee to Mr. Stanton is paid. When replies are wished in Cultivator address query to 115½ N. Broadway, Los Angeles.

Partnership Funds

A and B started a partnership with a few hundred dollars with which they purchased a farm. A took charge of farm. B sent money to pay hired help as his share. A surreptitiously acquired a piece of real estate and started paying for it in installments from cash proceeds of the ranch. A claimed he was given the land, but the installment receipts showed that he bought it. This was ten years ago; since then it has become valuable. Partners have separated with ranch holdings but still own real estate together. Is there any redress and if so what are the proceedings? — Subscriber.

B could without question upon the facts enforce his partnership interest in the property purchased by A, as an agent or partner can take no such advantage of funds entrusted to his hands. The fact that ten years have elapsed since the discovery would seem to indicate that B was not sure of his case. While in case of fraud the statute of limitations is three years from the time of the discovery, it may be that this does not apply. It is a case which you should take to an attorney in your vicinity who can make a detailed investigation of the facts.

Agreement

Is the following agreement sufficient to give wife full ownership of property and is it legal? "(Dated) This is to certify that I have given and signed over to my wife all the property real estate and personal property and I herewith assign all to (name of wife) from the above date from now on and forever.—(Signed)".

The instrument might be good as an holographic will, if entirely written, signed, and dated in the handwriting of the husband, but as it is not testamentary in character there is doubt in that respect. It is insufficient as a deed to any real property as it does not describe the property nor is it acknowledged; it is insufficient as a bill of sale of personal property as it does not describe the property. It could undoubtedly be enforced against the husband and the property intended secured under an action brought for the purpose.

Avoiding Probate

Could I have a deed drawn up on my real estate and personal property so that if I or my wife should die first the property would revert to the other without any cost of probate court? I have children. How is the Torrens deed?—Subscriber.

In order to procure property to be held under joint tenancy with right of survivorship in a case such as the above it is necessary to deed the property to a third person, both husband and wife joining in the deed; the third person then deeds said property to the husband and wife as joint tenants with right of survivorship. Upon the death of either of the joint tenants the survivor has vested in him the whole of the property right. In order to establish the chain of title of record it is necessary to establish the death of the deceased joint tenant by appropriate proceedings in the probate court, which have heretofore been described. The same results are obtained by filing a homestead upon the property in the declaration of which both husband and wife join. That method is simpler, less expensive, surer, and affords complete protection not only to the survivor, but to the children of the marriage as well. Conveyances under the Torrens title act do not greatly differ in their effect from such as have heretofore been employed; it is rather a different method of registration of titles than passage of title, although there is some difference. Wills and administration of estates have been established through a long period of time as the best method of handling the estates of deceased persons; variations from the established rule have frequently led to expensive litigation entailing much family bitterness.

Classified Liners

The direct selling method from producer to consumer, and a clearing house for over 31,000 readers, weekly.
Liner rates: Single insertions 3s per word;
yearly contracts 2½c per word. 35c per issue minimum charge.

TREES

For Sale—7000 Eureka lemons, 500 Washington Navel orange trees, budded from selected buds, on sour root in May, 1915. Very healthy, clean and uniform. Will caliper around one inch. No better trees anywhere. Price 15c per tree in the ground at San Dimas. W. B. Richards, 935 N. Park Ave., Pomona. Phone Pomona 6302.

Valencias—Good, clean, thrifty, 2-year-old stock. These trees have never been neglected and are as good as the best. 45c each balled, dipped and loaded on truck at Glendora if taken in lots of 250 or more. C. A. Stoddard, Whittier, Cal.

Here Is Your Opportunity to Secure A1 citrus trees. We offer several thousand 2-year-old lemons; Eureka and Villa Franca, also Washington navels; also several hundred Valencias on sweet root. We call these good trees and we know whereof we speak. ALBERT JACKSON, Upland, Cal.

Eureka Lemon and Navel Orange Trees. Have large supply very fancy stock. No frosted trees. Best root system. Grown at San Dimas. Several hundred Marsh seedless grapefruit. Get our prices. Smith Citrus Nurseries, 320 Marsh-Strong Bldg. F2729, Main 3604, Los Angeles.

Citrus Trees—All leading varieties. Large line, Lisbon and Villa Franca Lemon and Washington Navel trees. All first class and clean. Special prices to dealers or in carload lots to growers. Randall Bros.' Nurseries Co., Whittier, Cal.

For Sale—15,000 "Sweet Root" Valencia orange trees, choice yearling high buds, very thrifty stock raised from seeds of largest seedling orange trees in California. E. W. Pyne, 4 miles N. E. Olive, Orange County. Phone Placentia, 23J3.

By Far the Lowest Priced means of reaching a buyer for what you have to sell is through classified advertisements in California Cultivator. The cost is only 3 cents per word per issue, with a minimum of 35 cents.

For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

For Sale—Two-year sour seed bed stock, thrifty with good roots. Only 20,000. Price $20 and $25 f.o.b. Be quick if you expect to plant. C. W. Wilhite, Glendora, Cal. Phone 303.

For Sale—1000 Eureka lemon trees at 25c per tree. First class, free from scale; ¾-inch and up; must take them out this spring. Peter Arth, Redlands.

Citrus Trees—All kinds, any quantity. Butler's Morning Side Nursery, Lamanda Park, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Quality Trees—Prune trees 10c each. Cash Nurseries, Sebastopol, Cal.

For Sale—1-year-old Sour Florida Seed bed stock. A. R. Klemm, Azusa, Cal.

SEEDS AND PLANTS

Giant Winter Rhubarb—Last chance to get extra fine subdivisions at special low prices; offer expires June 30. $673.70 from ⅝-acre first season. Grand prize San Diego Exposition. Booklet free. W. A. LEE, Covina, Cal.

Six Sacks Sudan Grass Seed—Absolutely pure. For quick sale 40 cents per pound. Imperial Valley Seed House, El Centro.

For Sale—Yellow sweet potato plants, $2.00 per thousand, f.o.b. Santa Ana. Cal., R. D. No. 3, Box No. 8, S. D. Teel.

Sudan Grass Seed—100 per cent pure, state analysis 40c lb. Kelly's Nursery, El Centro.

WANTED

Wanted—Man in each California county to represent established California company. Should have rig or auto to get around. Good pay and several weeks' work to right parties. Address J. H. Yetter, Sales Department, 810 Santa Marina Building, 112 Market St. San Francisco, Cal.

Accountant-Auditor. One who understands all classes of accounts, particularly fitted for nursery, farm or orchard accounting. Family three small children. If you want a worker, a "result getter", a man who can handle your "job" address J, care Cultivator.

One of the Most perplexing problems to farmers and ranchers is that of help. A small liner ad in California Cultivator is the quickest and easiest means of securing farm help.

Wanted—To hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

HORTICULTURAL PRINTING

Catalogues — Good Printing. Specialists in preparing nursery, seed, poultry and live stock catalogues and all kinds of commercial printing. For prices and information address WOLFER PRINTING CO., 115 No. Broadway, Los Angeles.

RABBITS

Raise Rabbits For Us—We sell you foundation stock and buy back what you raise, paying $1.75 and $2.00 each for them. Send 25c for our proposition, our book on rabbit culture and our supply catalog. Gilmore's Rabbit Farm, Dept. C, Santa Barbara, Cal. (The rabbit farm of international reputation.)

MONEY TO LOAN

Money to Loan—On improved farms, city property or for building loans, also on cattle or cotton crops. C. G. Paul, 206 North Glendale Ave., Tropico, Cal.

HOGS

Chester Whites, the Billiken Brand—Bred sows and gilts. Every rancher should carry at least one good brood sow; are you going to help out our future meat supply? I have the following to offer, first class in every respect and priced low: 2 young tested sows to farrow in July; 6 spring gilts to farrow in September; 18 fall gilts to farrow in October. Weaned pigs, both sexes, to be delivered during the month of June; 4 young boars ready for service. Write for prices and circulars. C. B. Cunningham, Mills, Cal.

Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

Special Sale of weaned boar pigs of the famous Whitten Ranch Poland-Chinas. Get one and grow him out. He will put money-making qualities into your herd. Prices very low; satisfaction guaranteed. Send for free booklet, "Hogs for Profit". Packed with valuable information; tells how to become successful. Ranch in Tulare County, but address owner, R. H. Whitten, 610B Security Building, Los Angeles.

Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P.P.I.E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

Superba, World's Grand Champion Poland-China boar and one of the greatest sires of the breed. Spring boars ready for service, also few sows bred to this noted sire, reasonably cheap. Rough's Greenfields, Arlington Sta., Riverside, Cal.

Rancho Rubio Durocs. Only a few September gilts left. One corking good fall boar by Orion Model, son of the last International grand champion. Place your orders now for weaned boar pigs. Best I ever raised. Elmer Lamb, Ceres, Cal.

Large Type Poland-Chinas. Have ready for shipment three spring yearling boars, three fall pigs, spring pigs both sexes. Sired by Glenn Chief, a 1000-lb. boar, and out of prize winning sows. Cremer-Erikson & Co., Orland.

Duroc-Jerseys—Seven choice males, three months old, from litter of eleven. Guaranteed breeders. $20 each with pedigree. W. M. Taylor, Rd. 1, San Bernardino, Cal.

Cholera Immune Duroc-Jerseys. Big type. Weaned boars and gilts from 500 to 700-pound sows. Prize winning stock. Derryfield Farm, I.O.O.F. Temple, Sacramento.

Crawshaw's California Chinas are prolific and profitable. Weanlings $15.00, boars $25.00. Dr. J. A. Crawshaw, Hanford, Cal.

Poland-China Swine Recorded. Stock for sale at all times. We please you or refund your money. W. A. Young, Lodi, Cal.

Most Money In Duroc-Jerseys. Bred sows and weanlings, either sex all the time. Delta Farm and Live Stock Co., Colton, Cal.

Choice Boar Pigs for Sale. Sired by Superba 220620, champion Poland boar at San Francisco. Prices right. C. R. Hanna, Riverside, Cal.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, Cal.

Duroc-Jerseys—Sows and boars sired by Educator Col, by Educator, by Ohio Chief. Peters, Lamson & Walker, Devore, San Bernardino County, Cal.

Normandy Farms herd of Berkshires are now to be found at A-1 Ranch. Write for catalogue. Arlington M. Smith, Visalia, Cal.

One Large and two medium type boars, extra choice, 9 and 10 months old. W. Bernstein Ranch, L. C. Trewhitt, Mgr., Hanford, Cal.

Carruthers' Farm Berkshire Hogs. Our herd won Premier Exhibitor prize at the P. P. I. E. Exposition. Mayfield, Cal.

Berkshires—Two hundred pounds at six months. Ray C. Hannan, Corning, Cal.

Poland-Chinas—A few good breeding boars. S. F. Williams, Orland, Cal.

Big Type Durocs—Quick maturing, easy keeping. F. M. Johnson, Napa, Cal.

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Registered Shorthorns—Milk and beef strains. Bulls and heifers for sale from record dams and sires, direct from the East. Catalog mailed free. Harrison, London Ranch, Glen Ellen, Cal.

D. O. Lively Stock Farm, Inc., 215 Hobart Bldg., San Francisco. Breeders of Hereford cattle. A few choice heifers for sale. We buy and sell live stock on commission. Farm at Mayfield, Cal.

Venadera Jerseys, the herd with official yearly records. Calves of both sexes for sale. Guy H. Miller, Route 1, Modesto, Cal.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale.

LUMBER

AAA—Lumber, New and Second-Hand; rough, $10 M; finished, $15 •A•R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St., San Francisco, Cal.

LIVE STOCK

D. E. Kelliher, importer and breeder of Hampshire sheep, Eugene, Cal., offers for sale a choice lot of Hampshire ram lambs, sired by Walnut Hall and Butterfield Rams, purchased at Salt Lake, August, 1916. Lambs ready for delivery after July 15th, 1917. Inspection and correspondence invited.

Butte City Shorthorns, Shropshires, Berkshires and Ponies. Stock of all ages for sale. Can supply one or a carload. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., Cal.

At Last the Perfect Silo—the Stay Round. No hoops, no bolts. No experiments. Any one can erect. Close price. Address D. O. Lively, 125 Hobart Bldg., San Francisco.

Registered Shires — Blackhawk Stock Ranch. Importers and Breeders. Easton & Ward, Burlingame, Cal.

MACHINERY

WHY BUY NEW? SAVE HALF.
Material guaranteed. It's 2nd hand after used few times, but not worn out.
WINDMILLS.
Let the wind do it. 8-ft., $25; 10-ft., $35; 12-ft., $55. Have three 16-ft. mills, $125 and $95, cost new $285.
TANKS—TANKS
New 1000-gal., $32.50; 2000, $44.00. Used tanks guaranteed; used 200-gal. redwood, $7.50; 950-gal. wagon tank, $75; 1500-gal. galv. with cover, $22.50; 16,000, $175; swell heavy 20,000-gal. galv. tank with cover, $235; 10,000-gal. redwood, $75. New, used galvanized tanks, superior to redwood, for desert use, cheaper freight. 50-gal. tanks to 2000 go in car door, freight rate example, 2000 galv. weight 290 lbs.; 2000 redwood, 1080 lbs. If you prefer redwood we can save you half on them. See who's cheapest.
ENGINES. PUMPS. PIPE.
Centrifugal pumps, plunger pumps, $5 up; new pump jacks, $12.50; double-acting Ames, $200, cost $660; Means double-acting deep well pump, $275; pumps 50 inches; Bulldozer jack, $42; another large size $68; deep well double-acting Addison pump complete, pumps 40 inches, has countershaft and geared down to run with motor; double 24-in. stroke, 85 ft. 10-in. pipe, double rods, 9x78-in. heavy brass cylinder; cost over $1500. Yes, we nearly found it or we couldn't sell for $475 on cars. This is snap if you mean business and are ready to buy now. 9-h. Foos, $135. Many other first class engines very cheap.
Brass Cylinders, All Sizes.
Plunger rods, pipe, pipe fittings.
Two gang 14-in. plows, $45; 3-gang disc tractor plow, $55; alfalfa renovator, $25; tricycle riding plow, $15. 24-disc, 4-horse harrow, $38; mowers; buck rake, $20; feed cutter, $8.50; bone grinders, $6.50 to $12.50; feed mill $16.50, bath tub, $5; cement mixer, $25; sprayer $19.50; new discs, $1 each; SUNDRIES.
Wanted first class material. Pioneers in our line. DEMMITT CO., Upstairs 120 N. Main. Yards 816 Yale, Los Angeles.

Several new and slightly used engines at a bargain. Best makes. 1 to 35 h.p. Arnott & Company, Wholesale Machinery and Implements, 112 South Los Angeles St., Los Angeles, Cal.

For Sale—10 h.p. Fairbanks Morse engine and No. 4 Byron Jackson pump. In A1 condition; price very reasonable. L. Bayha, McFarland, Cal.

FARM LANDS FOR SALE

160 Acres, nearly level, part damp land, first water right from stream; main country road through land, all fenced and cross fenced, ½ hog tight, 7-room house, large barn, family orchard, daily mail, near school and church, good neighborhood, fine climate, in Mariposa County, $4000 cash, no trades. 320 acres adjoining, all fenced and cross fenced, large house, barn, orchard, lots of good springs, 280 acres of plow land, partly cleared, $6500, half cash, balance on time. No trades. W. W. Baldy, Raymond, Madera County, Cal.

For Sale or Lease—1000 acres bean land, $75 per acre; on Santa Fe R. R. within 6 miles of ocean, near new government cantonment and within 100 miles of Los Angeles. Might divide or lease to responsible parties for beans. Plenty of water. Address for appointment, Owner, 1236 Citizens Bank Building, Los Angeles.

280 Acres Level Land, Porterville district; railroad two miles; 100 inches water. Orange, olive, peach orchards adjacent. Prolific bean land. One crop can pay for property. Price $90 per acre; will divide. Adjoining land $175. Frank Thornburg, 533 Union Oil Building, Los Angeles.

Railroads Lose Lands—2,300,000 acres in fertile Oregon forfeited to government by Southern Pacific railroad. Will be opened to homesteading. Write quick for free information—send no money. F. A. Anderson, Povey Building, Portland, Ore.

For Sale or Exchange—120 acres apple land, 40 in full bearing; 5000 cords wood on place. 5000 feet elevation, in San Bernardino mountains. Want alfalfa lands. Box 177, San Bernardino, Cal.

For Sale—80-acre dairy, 44 alfalfa, 10 barley, 35 cows, young stock, team, tools, building; ½ mile to school; good location. J. A. Butler, Route F, Fresno.

State, Government and Indian Lands. Bargains overlooked. Free New Blue Booklet. Joseph Clark, Sacramento.

FOR LEASE

For Lease—2500 acres good grain land in Merced County, close to railroad; will lease to responsible tenant for share of crops or cash. Address C. H. Evans, 536 Title Insurance Bldg., Los Angeles.

PATENT ATTORNEYS

Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS".

BEE SUPPLIES

For Sale—175 to 250 colonies Italian bees with extra equipment; in eight-frame hives; can remain in present location if desired. Geo. A. Sill, Watsonville, Cal.

POULTRY

Baby Chicks from my carefully selected, thoroughbred flock of S. C. White Leghorns, June and July delivery at $9 per 100, $85 per 1000. A strong, thoroughbred chick at a reasonable price. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

200-290-Egg Early Maturing Winter Laying White Leghorns, White Wyandottes, Rocks, Reds, Anconas. JUNE SALE. Eggs 60 per cent off. Few pens all breeds, half price. 8-week chicks. C. Beeson, Pasadena, Cal.

Model Poultry Farm, White Leghorn specialists. Baby chix and hatching eggs from heavy laying stock, bred by us for thirteen years. Our prices are right. W. C. Smith, Prop., Corning, Cal.

Baby Chicks—White Minorcas and Golden Buff Leghorn. Two popular breeds. Cockerels for sale. Sandridge Hatchery, Kerman, Cal.

Baby Chix — White Leghorns, White Rocks, "quackless" White Muscovy ducklings. White Star Hatchery, Kerman, Cal.

"Eastman's Bred-to-Lay" Barred Plymouth Rocks. Fairmead Poultry Farm, Fairmead, Cal.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit." It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

For Sale—Pianos and Players. Several good used pianos—WEBER, EMERSON, SCHUBERT, DECKER, ELLINGTON, etc., and others, all in good condition, at prices ranging from $115, $135, $187 up to $215. New pianos for $228. New players from $395 up. Delivery free. Write today for complete list. Save agent's commission. Prompt service guaranteed. BARNES MUSIC COMPANY, 181 South Broadway, Los Angeles.

If You Have Transportation and irrigation problems or surveying, consult J. H. Knapp, Civil Engineer, 220 I. W. Hellman Bldg., Los Angeles. F7810. 25 years' experience in West.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

AGRICULTURAL IMPLEMENTS

Large Assortment slightly used and agents' sample plows, harrows, cultivators, wagons. Call and see them before buying. Save 50 per cent on some. Four floors. Largest stock. Arnott & Company, Ranchers' Supply House, 112 to 118 South Los Angeles St., Los Angeles.

For Sale—Deering header and 2 beds with nets. Beds cost over $100 each, the present cost, header $400. Will take $250 for outfit. 1 6 and 1 8-foot Piano Binder, $200 for both. 1 I.H.C. power hay press. Only baled 50 tons hay. A snap. Soper Bros., Chino, Cal.

For Sale — Haines-Houser Harvester. Complete with cradle, 22-foot cut; in first class condition; sell cheap for cash. Address C. H. Evans, 536 Title Insurance Bldg., Los Angeles.

DOGS

If You Raise or Handle Cattle, Sheep or turkeys, you need a DOG. Our Collies are the best. Pups just weaned for sale. Address John G. Mee, Breeder of Bronze Turkeys and Embden Geese. St. Helena, Cal.

Collie Dog Bargains—3 registered bitches and stud dog for $50. Pioneer breeder retiring. Shadeland Farms, Amity, Oregon.

FOR EXCHANGE

For Exchange—A 5-acre chicken ranch at Upland. 1200 White Leghorns. Chicken houses with cement floors. Good house, bath and toilet. Will take clear house Los Angeles or good nearby town. Mortgage $2000, nearly three years to run. A big snap, but must be turned quick. A. W. Richards, Claremont, Cal.

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Sales conducted in all parts of California and Adjoining States. 25 Years' Experience.
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RIVERSIDE FAIR

Riverside fair dates chosen are October 9-13. The directors state that this is the second largest county fair in California and they will make greater efforts this year than ever before for a great exhibit. This year's effort is largely for the encouragement of greater and better production for the sustenance of the armies of our government. The directors are appealing to every live stock breeder and to every producer to produce the best and save the finest for this fair.

ALL THE YEAR ROUND

Cooler cooking in summer—better and more economical cooking all the year 'round.

A good oil stove will cook anything that any wood or coal range will cook, and do it better because of the steady, evenly-distributed heat.

All the convenience of gas. Meals in a jiffy, and a cool kitchen in summer.

The long blue chimneys prevent all smoke and smell.

In 1, 2, 3 and 4 burner sizes, with or without ovens. Also cabinet models. Ask your dealer today.

NEW PERFECTION OIL COOK-STOVE

STANDARD OIL COMPANY
(California)

We Close Out Our Entire RUG SECTION

Whittall's Anglo-Persian Wilton, 11.3x15, $141.00, for.. $117.00

Whittall's Royal Worcester Wilton, 11.3x15, $106.00, for $88.25

Whittall's Body Brussels, 11.3 x15, $67.00, for $55.75

Whittall's Anglo-Persian Wilton, 9x12, $82.50, for.....$68.75

Whittall's Anglo-Indian Wilton, 9x12, $69.25, for $57.70

Whittall's Royal Worcester Wilton, 9x12, $61.75, for.....$51.45

Whittall's Body Brussels, 9x12, $40, for $33.35

Axminster Rugs, 9x12, $37.50, for $31.25

One-piece Brussels Rugs, 9x12, $25.00, for $19.85

Coulter Dry Goods Co.

215-229 So. Broadway 224-228 So. Hill St.
LOS ANGELES, CAL.

Make Coulter's Your Headquarters for Shopping When in Los Angeles for the Week-end Trip.

Get the Light and Power You Need

from your own generating plant

The UNI-LECTRIC lighting system will put electric light in every room in your house, will run your sewing machine, electric iron, vacuum cleaner, churn, washing machine, etc.

It is Economical and Efficient—Always Ready

Operates with a silent gasoline engine of high speed, generator and automatic governor. Uses standard globes and fixtures. Is easy to install.

Can be used for one or more houses, barns, sheds, work shop and any place where you need light and power.

Write today for illustrated catalogue to

Karl A. Hedberg
104-106 Clay Street, San Francisco, Cal.

Household Department

TOGETHER

Together we'll laugh at the dawn of the sun;
Together we'll smile till the evening is done,
Together, together, the day and the weather
Are evermore fair when we two are together.

We'll sing at the clouds and we'll cheer at the rain,
And thunder must roar in a rollicking strain
As together we tramp through the wild wood and heather,
For the whole world rejoices when we are together.

The sad wind upleaps in a frolicsome glee;
And from woeful willows a bright melody
Sounds through our revel when light as a feather
Our heart's fare the highways of beauty together.

Together, together, we'll laugh in the sun
And smile till our evening of gladness is done.
Together, together, the days and the weather
Will always be merry when we are together.
—St. Louis Post-Dispatch.

DICKY BIRD'S WOOING

"NO, Mr. Dicky Bird, I will not marry you, marry you, marry you," trilled pretty Rose Lee, as the swing with her dainty weight flew lightly into space and the flutter of her white dress with its ruffles and ribbons and the gleam of her golden hair wrought further ruin in the heart of the youth, her present companion and willing servitor.

"Why not, Rose, dear Rose?" pleaded the young man, ignoring the name bestowed upon him as the swing with its winsome burden came swiftly to his hands again. The youth and maiden were neighbors and lifelong friends and now accepted by their little world as an engaged couple. For these two the river of love ran a smooth and tranquil course undisturbed by anything more tumultuous than the ripples caused by the sportive pebbles of their own flinging.

Past experience, therefore, had taught the young man that to resent the appellation of "Dicky Bird" would only serve to increase the mirth of the dearly loved but tantalizing sweetheart. The fact that his name was Richard Budd, and now with the distinguishing adjunct of attorney-at-law, was all too well known to his tormentor. But even so long ago as pinafore days she was wont to prick his childish pride by her mischievous call of "Dicky Bird, Dicky Bird", only to redouble her mockery when her playmate showed confusion.

"Say 'yes,' Rose dear," as again the swing responded to his forceful push.

"No, Mr. Dicky Bird, no, no, no," and the words floated into the treetops on the wings of a silvery laugh as the fair maiden again reached the zenith of her flight.

It was the old swing down in the orchard, or rather a new swing in the old place, for the former weather-beaten rope and seatboard lay in an abandoned heap and at present formed a springy, yielding platform under the feet of the stalwart, quick-eyed youth who with each successive return of the new swing involuntarily braced his strength and deftly caught and impelled forward its burden, each time to the refrain of his own entreaty:

"Rose, won't you marry me?"

"Oh, delicious," was the dreamy response, as a straying curl and a frill of lace from the flowing sleeve willfully brushed against his cheek.

"Rose, dear Rose——"

"Rapturous," and Rose breathed a sigh of perfect content, apparently oblivious to all except the exhilaration of her ride.

"Rose, please——"

"Positively entrancing," and Rose closed her eyes and with beatific countenance and saintly mein ignored all thoughts of earth and its allurement.

"Rose, darling——"

"Simply glorious; ah, if one might only swing forever."

"Rose, you must——"

"Absolute bliss," and Rose leaned her head against the rope in the curve of her dimpled arm and swayed the swing from its rythmic course just far enough to allow her elbow to smartly box the ear of her ardent wooer, who on tiptoe and with outstretched arms was taken unaware by this maneuver. Dr. Dicky rubbed his smarting ear and groaned.

"This must stop," said he, in tones that suggested the limit of a long strained patience, as he held the swing board captive.

"Rose, will you, or will you not? I am tired of being trifled with. Every body thinks we are engaged, and it is time we had a serious understanding. This is a suit which I intend to settle right in this term of court, and there will be no appeal and no judge or jury either; the testimony has gone far enough."

"Why, you ridiculous Dicky Bird, you nearly spilled me to the ground with you vehemence," rippled forth the musical laughter of the willful Rose, who was not all disconcerted over the earnestness of the situation. "Keep on swinging, Dicky; don't talk nonsense in this enchanting, bewitching, soul-satisfying atmosphere Swing, Dicky, swing with care, and remember, sir, that I am your passengaire."

"Not another swing, Rose, until you tell me why you will not answer me."

"Swing, Dicky Bird, swing with care."

"Tell me," repeated Dicky sternly.

"Oh, Dicky, this is really unkind in you. Why, I want to marry a hero, a real genuine hero. Are you a hero, Dicky?"

"May I ask what is your benevolent interpretation of a hero?" inquired Dicky, wrath and devotion struggling for mastery.

"Oh, a man who does things—saves lives from fire or drowning or something else that threatens their destruction—flags trains that are running toward broken bridges, captures burglars, goes to war, sacrifices himself in some way for the good of others."

"I could do all of those things, and more too, and make no fuss about it either," said Dicky, bottling up his wrath and smiling down at his tormentor who, still seated in the swing, her pretty hands grasping the rope high up and with sleeves falling away to the elbow, and with winsome face upturned to his, made a most attractive picture.

"Oh, Dicky, I wish you might have the chance, for then I would be sure."

"Sure of what?"

"Oh, sure, just sure."

"Oh what? I insist on knowing, Rose."

"Just sure you ridiculous Dicky; now swing me please."

A strange cry and the rapid crunch of footsteps caused both to turn.

"Get behind the tree, Rose, quick, behind the tree!"

With one hand Dicky thrust the girl behind cover and with the other jerked the old swing board from beneath his feet. In another instant he had brought down the board with the strength of a young giant on the body of the oncoming intruder, a creature in the semblance of man, foaming in insane frenzy, and whom Dicky recognized as an escaped lunatic from the Dixdale asylum some few miles away and for whom the authorities had been searching for several days.

The maniac staggered beneath the blow but still lunged forward on murderous intent, the strength and fury of a baffled beast in his swirling arms and clawing hands.

"Keep close behind the tree, Rose," said Dicky in steady tones. He could hear Rose shriek as he met the maniacal lunge with another blow that split the old board in two. The man reeled to the ground, bleeding and stunned. In an instant Dicky wound a coil of the heavy rope about the ankles of the man and another twist pinioned arms and body, while Rose, frightened, but light footed, obeyed commands and swiftly sped away for help.

Dicky magnanimously refrained from asking any further definition of

a hero when later he sat with Rose on the veranda of her father's residence and continued his interrupted wooing.

"Oh, Mr. Budd, I cannot tell you how much I am indebted to you," broke in Rose in some agitation. "You really saved by life and I never can be sufficiently grateful."

"Call me Dicky," demanded the hero with savage emphasis.

"Oh, Mr. Budd—Richard—really I am under great obligation."

"Call me Dicky," and the hero's tones were positively threatening.

"Oh, Dick—Richard"—and the voice of pretty Rose quivered with merriment. "I cannot very well do that any more. I must break myself of the habit before we are married. How perfectly silly it would be to have our dear friends dubbing us 'Mr. and Mrs. Dick Bird.'"—Journal of Agriculture.

HINTS ON CANNING

Written for California Cultivator
By Martha

PUTTING up fruit is a laborious process, taking it from beginning to end, and no pains should be spared to make it successful. Care in the selection of cans, tops and rubbers is necessary in order to obtain the best results. It is not well to use jars unless you are sure they can be made airtight, for while sugar is the keeping power of preserves we must rely on perfect cans for canned fruits and vegetables, and if the air is entirely excluded from the fruit it will keep as well without sugar as with it, and fruit canned without sugar has a fresher taste.

Before beginning the work of canning fruit, buy a roll of the very best cotton batting, cut rounds of it just the size of the top of the fruit cans and place one on top of the fruit as soon as the can is filled and seal it immediately. The cotton excludes all the air, and if any particles of mold form they adhere to the cotton and can be lifted out without spreading into the fruit.

Nearly half the labor of canning is saved if all the cans are made ready before hand. The best way to clean new glass jars and tin cans is to wash them in warm suds and then rinse with hot water in which a little borax is dissolved, as this not only purifies but leaves the cans bright and shining. One of the best ways to clean and sweeten all glass jars and covers that have been used is to put as many in the boiler as it will hold without crowding, then sprinkle two large spoons of powdered borax over the jars and shave in enough soap to make a good suds, cover with cold water and let boil and steam for half an hour or longer. Remove from the stove, rinse and drain, and they will be as fresh and clean as new jars, and even old musty and sour jars can be freshened in this way, only more borax must be used if the jars are sour or discolored as this is the purifying agent. Some housekeepers rinse out all old and new jars with hot borax water before using to be sure they are thoroughly cleaned and purified.

If you are using tin cans be careful to heat the lids before pouring on the sealing wax, for if the wax is put on a cold surface it will soon become loose and the can of fruit will be spoiled.

SALT RISING BREAD

No doubt many persons prefer the salt rising loaf of old times to the newer yeast breads. My recipe never fails if proper care is given. Scald one cup of fresh milk at night, and while hot stir in one cup of corn meal, then set in warm place over night. In the morning add one cup of sweet milk to one cup boiling water and when lukewarm, add one quarter teaspoon soda, one-half teaspoon salt and one cup of scalded meal. Thicken with one-third meal, two-thirds flour, then set the mixture in a vessel of warm water to rise. When foamy and light, add two quarts water—half sweet milk is better—two tablespoons of sugar, lard the size of an egg, and salt to taste. Pour this into flour which has been previously warmed, mix stiff, knead well and mold into loaves. Put in well greased pans and set them in a warm place to rise. When risen to twice its original size, bake in a hot oven. In warm weather I raise both yeast and bread in the sunshine.

MAKING THE OLD NEW

When the springtime comes and the leaves come forth and the flowers begin to open, making the world look new again, then it is that people instinctively begin to brighten up things, so as to be in harmony with nature.

Women, with their sense of the esthetic, are particularly given to cleaning up. A little varnish on the furniture, a stain on the floor and a polish on the metal, and the home looks new and cheerful again.

Most of the preparations for this purpose are easily applied, and they will do wonders in the way of reviving the new appearance of surfaces that have become old and worn.

BIAS FOLDS

Many people do not know of the prepared bias tapes with turned edges that may be bought at almost any dry goods store. The tapes come in various widths, ranging from one-quarter inch to an inch or more. They may be had in lawn or cambric and in solid color or striped ginghams and percales. They are much truer than those made at home and make neat finishes on wash garments.

Baking day is full of joys,
For little girls and little boys.
Sister bakes the cake, 'tis true,
But brother eats it when she's through!

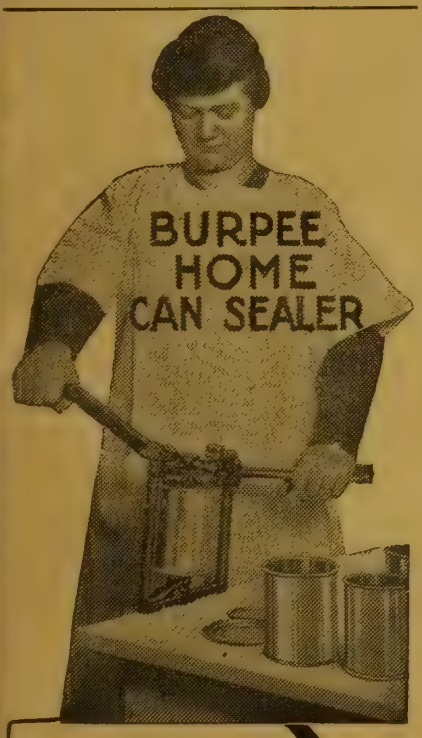
SALISBURY STEAK

One-half pound steak. Scrape on both sides until nothing is left but tough fiber. Mould the scraped meat into a little cake and broil it over coals until hot, not too long. Season and serve on toast. Scraped beef on toast is good.

WHAT'S GUMMING THE GAME?

Kerrigan—Do ye think, Kelly, that after th' war th' wur-rkin' payple iv Europe will git a square deal?

Kelly—They will iv they discar-rd th' kings, quanes an' knaves!—Life



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BURPEE HOME CAN SEALER

The strongly built, simple, easily operated machine for sealing sanitary tin cans without acid or solder. Clamps on any kitchen table. It will save all those fruits and vegetables you might have to feed the hogs. It will start you in a new and highly profitable business. Made and guaranteed by one of the biggest canning machine manufacturers in the country. Cans easily secured. Free book of canning recipes, compiled with the assistance of the U. S. Dept. of Agriculture, with each machine. Write today for information.

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MAYROSE HAMS and BACON

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Get a Stephenson Patent Cooler and have everything cool and wholesome.

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by a patented water absorption process which cannot fail. It works according to an established LAW OF NATURE.

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Machinery, Supplies,
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Red Comb Chick Mash
With Buttermilk

The greatest Chick Grower ever produced. Prevents White Diarrhoea—Authority for this statement found in Bulletin No. 162, University of California, Berkeley, California. Write to Berkeley for this bulletin. Hale & Edwards Co., Chicago, who manufacture the RED COMB and RED HORN FEEDS are the only people who have succeeded in drying buttermilk—without killing the Lactic Acid Bacilli or materially reducing digestibility. Tests made after this Dry Buttermilk has been manufactured SIX MONTHS show 10,000 Live Active Lactic Acid Bacilli to the centimeter. Send for a small sample of this Dry Buttermilk and convince yourself of its merit.

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Los Angeles, Cal.

Right Now
use DEVIL'S DUST
and Kill Lice and Mites
Sold Everywhere

Devil's Dust is a deadly poison to all insect life; harmless to poultry, stock, plants
Globe Mills
Los Angeles, Cal

The tuna and albacore season has opened with prospects for a heavy run of both fish.

The First Six Weeks With Baby Chicks

Written for California Cultivator By Jean A. Koethen

THE care of chicks is largely a matter of detail. Many caretakers ignore this detail, and giving their birds warm quarters, a ration of chick feed and dry mash and moderate cleanliness, leave the rest to Providence. Their chicks do fairly well, too, but there are more losses and more culls than when a more careful system is followed. I have been surprised in visiting poultry farms this spring to find how many different systems of feeding young chicks are followed, all admirable and all successful, but nowhere have I found a system more scientifically worked out or more carefully followed than at the Palm Avenue Poultry Yards at Gardena.

On this little ranch, containing not more than an acre or two of ground, about a thousand chicks are raised each season. The brooder house which is 30 feet long by 14 feet wide, is divided into 12 runs, each 32 inches wide by 6 feet long and designed to accommodate 100 chicks. Like all well constructed brooder houses this is nearly all glass on the south. Each indoor run is matched by an outdoor run of equal size, the two being connected by a tiny door which is raised by a pulley, so that the chicks may go in and out at will on pleasant days and yet be quickly confined when necessary. As these brooder runs are raised above the level of the alley back of them, and all grain bins as well as brooders are ranged along the alley, it is possible to care for the chicks with very little stooping and without leaving the building till every brooder is cleaned and every hopper and fountain filled. The brooders, which are of the hot water type, have false bottoms which can be removed and cleaned with a single motion, making the daily cleaning a very simple matter. The water fountains stand on slatted platforms where the chicks can easily reach them, but can never scratch litter into them, and the mash hoppers are slatted with round holes along the sides for the chicks' heads. The use of these round holes keeps the chicks from crowding and gives each one its chance to eat.

When the hatch is nearly over all the unhatched eggs are collected into one small incubator where they may hatch if they will without interfering with the welfare of the hatched chicks. Lamps are turned low, ventilators opened, and the chicks kept quietly in the nursery for 24 hours. The next day they are removed to the brooders but are given no food till they are about 48 hours old. This first day in the brooder they have access to charcoal and grit all day but do not receive their first meal till just before bed time, which is about four o'clock.

This first meal is dry and very simple, for the chicks are in no pressing need of food but must learn to eat and to look for their scratch grain in the litter which covers the floor of the run. The following scratch mixture has been previously prepared: 50 cents' worth (about 10 pounds) of rolled oats, the same amount of steel cut oat and 25 cents' worth of cracked rice. To this add 50 pounds cracked wheat, 9 quarts cracked milo and 9 quarts Egyptian corn. A single handful of this mixture in the litter for each 100 chicks is all they get for their first meal. As soon as they have eaten this, or pecked at it, which is all most chicks will do at first, they are tucked away for the night.

Real feeding begins the next day, which is the third after hatching. A handful of the mixture, or a little more if the chicks will eat it, is thrown in the litter every two hours, which makes five meals. The next day the number of meals is reduced to four and the amount increased as required. On the fourth day the following mash mixture is set before them: Six pounds each of bran, shorts and beef scrap; 4 pounds corn meal; 2 pounds cocoanut or soy bean meal; ½ pound charcoal. This is not left before them, but is removed after an hour and then set before them again for an hour early in the afternoon. The next day the mash hopper is in the run for two hours and then removed. After this it is left in the run so that the chicks may eat whenever they are inclined.

When the chicks are put in the brooder, 100 in each, two runs are left vacant, but they do not remain vacant. From the first day the sharp eyes of the mistress of the ranch are on the watch for weaklings. Chicks which do not eat well, which stand around moping or lag behind the others in development are spotted and removed at once to one of the empty brooders. In a short time the strong and the weak are automatically separated, and each has a better chance because of the separation. Chicks which are obviously diseased or runts are put out of the way without ceremony.

The grain feed from the first is always a mixture, and for this very excellent reason: It often happens that a change must be made. Wheat, for instance, goes up and must be dropped. Egyptian corn cannot be obtained. If one of these is dropped from the mixture, the chicks hardly notice it, while an entire change would upset them.

When the chicks are two weeks old the feeding of sprouted oats begins. The oats are fed as soon as the roots show and before the green appears. There is no better growing feed than oats at this stage of sprouting, and the chicks are given all they will eat once a day until they reach maturity.

When the chicks are six weeks old the pullets are removed from the brooder house to the roosting house where they will remain, and the cockerels are placed in the fattening pens. The process of segregating pullets from cockerels, like that of separating the weak from the strong, is begun in the brooder pens as soon as sex can be noted. As soon as comb development indicates a cockerel he is taken from the run where he began his brooder existence and placed in another devoted to cockerels. In a short time each run contains either all pullets or all cockerels, and the birds have become accustomed to their future mates.

When the pullets are moved to their new home no attempt is made to put them on the roosts, but they are given a slatted platform under the roosts and are confined here by a wire screen till they have learned where to go at night. When they are ready for the roosts they take to them like a duck to water, and the platforms are removed.

Storrs Egg Laying Contest

Storrs, Connecticut.—Report for the thirtieth week May 29, 1911.

The feature in the laying contest at Storrs is a new weekly pen record; not only for the current contest but for the past four years, or during the whole time that ten birds have been required for entry. Three years ago Tom Barron's pen of White Leghorns from Catforth, England, laid 63 eggs in one week or a yield of 90 per cent. This record stood until just about a year ago when the new breed from Corvallis, Oregon, set the mark one higher, making it 64 eggs in a week. Two weeks later a Pennslyvania pen of White Leghorns entered by P. G. Platt of Wallingford equalled this weekly yield of 64 eggs, but until now no pen has been able to beat it. The honor falls to a pen of Barred Rocks owned by Fairfield Farms, Short Falls, New Hampshire. For the first five days of the contest week this pen made perfect scores, then they laid nine and eight, or a total of 67 for the week, a yield of nearly 96 per cent. As a matter of fact, these birds would be credited with 69 eggs in seven days if the contest week ended on Monday instead of on Tuesday. And their efforts are by no means temporary and spasmodic, for this is the best pen in the Plymouth Rock class and second best in the entire contest.

The three best pens in each of the principal varieties are as follows:

Barred Plymouth Rocks

Fairfields Poultry Farms, 1206; Merritt M. Clark, 1037; Michigan Poultry Farm, 933.

White Wyandottes

Merrythought Farm, 1125; Obed G. Knight, 1030; Joseph Moreau, 979.

Rhode Island Reds

Allan's hard to Beat Reds, 1154; Jacob E. Jansen, 1099; Geo. W. Harris, 1096.

White Leghorns

A. P. Robinson, 1280; J. O. LeFevre, 1144; Hilltop Poultry Yards, 1140.

Miscellaneous

Obed G. Knight (White Orpingtons), 1048; Holliston Hill Poultry Farm (White Rocks) 1034; Cloyes & Sullivan (Buff Wyandottes), 1029.

HEARTLESS

"Why didn't Rastus marry dat Coopah gal?"

"Oh, she dun flunk at de last minute —wouldnt lend him a dollah foh t' git de license wif."—Boston Transcript.

Charles M. Schwab, the steel king, once remarked: "I have always felt that the surest way to qualify for the job just ahead is to work a little harder than anyone else in the job one is holding down."

Baby Chicks Many Varieties
Ten, 12 and 15 cents. We ship everywhere. Free 66-page illustrated catalog. Ducks, Turkeys, Rabbits, Guineas, Pigeons, etc.
Pioneer Hatchery, 320 S. Spring St., Los Angeles

PEERLESS CHICK FEED

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Feed a Clean Chick Feed
One that will raise your chicks. Peerless is free from cheap filler commonly found in chick feeds to increase profit for manufacturer and dealer. Peerless contains the largest percentage of Hard Red Cracked Wheat; the wheat which has the highest protein content. Insist on your dealer supplying you with Peerless Chick Feed.
Globe Mills, 913 E. Third St. LOS ANGELES

Los Angeles Market

LOS ANGELES, June 20, 1917.

BUTTER

Wholesale prices:

Rcts. wk. ending June 19, 310,450 lbs.

California extra creamery 37
Prime first 36

Extr. Cry.	Exch.	past wk.			
June 13	14	15	16	18	19
'17 36	36	36	36	36	37

CHEESE

Brokers' prices:
California fresh, lb. .....24@25
Oregon Longhorn 28
Tillamook Trip. 27

EGGS

Exchange quotations:
Rcts. wk. ending June 19, 2936 cs.
Fresh extras 32
Case count 31
Pullet 30

Fresh Ranch	Exch.	past wk.			
June 13	14	15	16	18	19
'17 33	33	33	33	33	32

POULTRY

We quote from growers:
Broilers .....18@22
Fryers 25
Hens—Leghorns 12-14; Heavy Col'd..21
Roasters 25
Ducklings, lb. 18
Squabs, doz. .....3.00@4.00
Roosters, old 10
Turkeys .....21@24

LIVE STOCK

We quote cwt. f.o.b. L. A.
Cattle—
Beef steers, av. 1000 to 1100 lbs.....9.00
Heifers, good 7.00
Cows, good .....6.50@7.00
Fair .....6.00@6.50
HOGS—
Av. 125 lbs. 12.50
Av. 150 lbs. 13.50
Av. 175-200 lbs. .....14.00@14.50
Rough, docked 20 lbs.; piggy sows, 40 lbs., stags, 40 per cent.
Prime wethers .....9.50@10.00
Ewes .....9.00@9.50
Lambs 13.00
Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:
Northern 5.00
Oregon 5.00
Russets 5.00
New, lug .....1.20@1.35

ONIONS

Wholesale selling price:
Crystal Wax, cr. 1.25
Bermuda, cwt. 2.00
Garlic, lb. 8

VEGETABLES

Wholesale prices:
Artichokes, doz. .....50@75
Asparagus, lb. .....10@11
Beans—Wax, 6@6½; string 5
Limas, lb. .....10@11
Ky Wonder .....5@5½
Beets, doz. bunches 40
Cabbage, lb. .....1@1¼
Carrots, doz. 40
Chicory, doz. .....40@50
Cauliflower, doz. 1.00
Celery, doz. .....1.00@1.50
Corn, lug 1.65
Cucumbers, doz. .....90@1.10
Eggplant, lb. 20
Horseradish, rt. lb. 15
Lettuce, doz. 25
Leeks, doz. 30
Mint 40
Onions, green, doz. 25
Okra 15
Oyster Plant, doz. 45
Peas, lb., Telephone .....5½@6
Peppers, Chili, lb., 25, Bell 20
Parsnips, doz. 45
Parsley 20
Radishes, doz. 17½
Rhubarb—Crimson Winter 75
Strawberry 1.10
Giant 1.35
Romaine, doz. 45
Spinach, doz. 17½
Squash, Summer, cr. .....45@50
Turnips, doz. 40
Tomatoes, cr. .....1.75@2.00

FRUITS

Wholesale prices:
Apples—
Newtown Pippin, Yellow 3.50
Avocados, doz. .....6.00@10.00
Apricots, cr. .....1.25@1.35
Bananas, lb. .....5¼@5½
Cantaloupes—
Standard 4.00
Pony .....2.50@3.00
Diamond 2.50
Cherries, lb. .....8@12
Currants, cr. 1.25
Figs, bx. 1.65
Loganberries, bskt. .....5@6
Loquats, lb. 7½
Peaches, lug. 2.00
Plums, lb. 6
Blackberries, basket .....7@8
Raspberries, basket .....7@8
Gooseberries, lb. .....8½@9
Strawberries, basket .....7@10
Pineapples, lb. 8
Watermelon, lb. .....2½@3

CITRUS

Lemons .....3.50@4.00
Juice 2.25
Grapefruit .....2.50@3.50
Limes, basket 1.00
Valencias .....2.50@3.10
Navels .....2.50@2.75

HONEY

Wholesale prices:
Extr. White 11; W.W. 12½
Comb., case. W. 3.75; W.W. case....4.00
Beeswax, lb. 32

NUTS

Peanuts, raw 12
Pine Nuts 20
Pecans 19

BEANS

Wholesale Prices:
Lady Washington 14.50
Limas 14.50
Pinks .....11.00.
Manchurian Reds 11.00
Baby Mex. 10.00
Garbanzos .....9.00@10.00
Small White 14.50
Blackeyes 8.00
Tepary 7.00
Lentils 18.00

HAY

We quote ton f.o.b. L. A. to producers:
Barley .....17.00@19.00
Alfalfa .....13.00@16.00
Straw .....10.00@12.00

GRAIN AND FEEDSTUFFS

Wholesale cwt. f.o.b. L. A.
Alfalfa Meal, 100 lbs. 1.65
Alfalfa Molasses, 100 lbs. 1.75
Barley, Rolled 2.50
Barley, Recleaned Whole 2.55
Barley, Hulled 3.00
Beet Pulp 1.80
Bran, heavy 2.25
Blood Meal 4.60
Bone, Green .....2.65@2.75
Bone, Dry .....2.85@2.95
Charcoal, 50-lb. sk. .....2.55@2.65
Clam Shell .....70@80
Cocoanut Meal 2.05
Cottonseed Meal 2.50
Corn, Yellow 3.70
Corn, White 3.80
Corn, Cracked 3.75
Corn, Egyptian 3.70
Corn, Feed Meal, 100 lbs.....3.80
Grit Granite .....65@75
Hemp .....5.50@5.60
Milo Maize 3.70
Middlings 2.95
Oat Chop 2.10
Oats, White 2.70
Oats, Rolled, White 2.75
Oats, Hulled 4.60
Oyster Shell .....1.25@1.35
Oilcake Meal 3.30
Rye 4.65
Sunflower Seed .....4.10@4.20
Soya Bean Meal .....3.30@3.40
Scratch Feed .....3.90@4.00
Wheat, No. 1 .....4.30@4.35
Wheat, Cracked, No. 1.....4.70

San Francisco Markets

SAN FRANCISCO, June 19, 1917.

BUTTER

Dairy Exchange quotations, lb.:
Rcts. wk. ending June 18, 628,160 lbs.
Fresh extras 36½
Prime firsts 36

Extr. Cr'y.	Prod.	Exch.	past wk.		
June 12	13	14	15	16	18
'17 36	35	34½	35	35½	36½
'16 .....25½	25½	24½	24½	24½	....

CHEESE

Dairy Exchange quotations:
Cal. Flats ...20@21 Y. Am. .....23@24

EGGS

Rcts. wk. ending June 18, 15,988 cs.
Dairy Exchange quotations:
Fresh extras 32
Firsts 31
Select Pullets 30
Firsts 29

Fresh Extr.	Prod.	Evch..	past wk.		
June 12	13	14	15	16	18
'17 31	31	30½	31	31½	32
'16 25	25½	25½	25½	24½	..

POULTRY

We quote from producers, lb.
Hens, large 24@25; Leghorns .....15@17
Small Colored .....20@21
Fryers, lb. .....22@26
Broilers .....20@22
Roosters .....28@32
Squabs, doz. .....2.00@3.50
Ducks .....16@18
Geese .....19@20
Belgian Hares, live 14@15; dr. .....17@18

LIVE STOCK

Prices gross weight:
Cattle:
The following prices are for grass fed stock. Hay fed bring ½ to ¾c more.
Steers, lb., 6½@8¾; cows and heifers, 4@7; calves, 7@9½.
Sheep:
Wethers, 11; shorn, 1½@2c less; ewes, 10; lamb, lb., 12@12½.
Hogs:
Hard grain fed, wt. 100 to 150 lbs., 13; 150 to 300 lbs., 14¾@15; 300 to 400 lbs., 14¼@14½.

POTATOES

Wholesale selling prices at wharf:
Burbanks, old, cwt.....3.25@3.50
New, lb. .....3@3½

ONIONS

Wholesale selling price on wharf:
New crop.
Crystal Wax and Bermuda, cr...1.75@2.00
New Red and Silverskin, sk. ....1.00@1.25
New Green, bx. .....50@75
Australian Yellow, cwt. .....2.50@3.00
Garlic, lb. .....2½@4

VEGETABLES

Wholesale selling price:
Asparagus, Fy. Wh. lb.....6@7
Green, field run .....2.00@2.25
Beans, String, lb., 4@5; Wax.....5@7
Imperial string, sk. .....1.00@1.50
Celery, cr. .....2.75@3.25
Corn, Green, doz.—
Brentwood ..40@50; Southern....25@30
Cucumbers, bx. .....65@1.00
Okra .....10@15
Peas, sack .....1.50@2.25
Peppers, Bell, 20@25; Chili .....10@15
Rhubarb, bx. .....1.00@1.50
Squash, Summer, bx.....50@75
Italian, bx. .....50@60
Tomatoes, bx. .....1.50@1.75

FRESH FRUIT

Wholesale selling price:
Apples—Newtown Pippins .....2.50@3.00
New, Green .....75@1.00
Apricots, crate .....1.00@1.50
Bananas, bunch .....1.25@1.75
Cantaloupes—
Standard .....3.50@4.50
Flats .....1.25@1.50
Pony .....2.50@3.50
Cherries, dr. .....75@1.25
Royal Anne, lb. .....6@9
Black, lb. .....6@8
Figs, blk. bx. .....75@1.25
Currants, dr. 40
Peaches, cr. .....1.00@1.25
Strawberries, chest .....4.50@7.00
Longworths, chest .....6.50@8.00
Plums—
Clyman, cr. .....90@1.00
Cherry, dr. .....75@90
Blackberries, chest .....5.00@7.00
Gooseberries, lb. .....4@9
Loganberries, chest .....4.00@6.00
Raspberries, chest .....12.00@14.00

CITRUS FRUIT

Wholesale selling price:
Lemons .....3.00@5.00
Lemonettes .....1.25@2.25
Limes, Mex., cs. .....4.50@5.50
Grapefruit .....1.75@3.25
Navels, bx. .....2.50@3.50
Valencias .....2.50@3.50
Tangerines, half orange box....1.75@2.00

DRIED FRUITS

Wholesale quotations:
PRUNES—Bulk basis, 30s to 40s, 9¼c; 40s to 50s, 9½c; 50s to 60s, 9¾c; from 60s to 70s and 70s to 80s, 9¾c; 80s to 90s and 90s to 100s, 10c.
Other fruits, 50-lb. boxes:

	Stand-ard.	Extra Choice	Choice	Fncy.
Pears	7½c	8½c	9½c	12¾c
Apples	...	11 c	11½c	12 c

The Raisin Growers' Association have sold out all of the 1916 crop of raisins.
RAISINS—The California Associated Raisin Company quotes new 1917 crop and cluster raisins for October, November and December shipment in 20-lb. boxes as follows: Sun Maid layers, $1.50; 3-crown London layers, $1.50; 4-crown clusters, $1.75; 6-crown Imperial clusters, $2.60; 10-lb. bx., 25c and 5-lb. bx. 50c additional. Bulk, vineyard run layers, 50-lb. bx., $3.25; do., 100-lb. bx., $6.25.
Sun Maid brand cluster—Per case: Fancy 1-lb. carton, 20 to cs., $1.85; do., 24 to cs., $3.20; 2-lb. cartons, 12 to cs., $2.20; 5-lb. cartons, 4 to cs., $2.80. All f.o.b. California common shipping points. Regular California dried fruit terms.

BEANS

Jobbers' prices, cwt. recleaned:
Limas .....14.50@15.00
Bayous .....10.60@10.75
Garbanzos .....6.25@6.50
Small White .....15.00@15.75
Mexican Red .....11.00@11.25
Large White .....15.00@15.75
Pinks .....11.00@11.25
Black Eyes .....9.00@9.50
Red Kidneys .....14.00@15.00
Cranberry 12.00

NUTS

Peanuts, Jap, 7@7½; Eastern 7½
Pecans .....19@20
Pine Nuts .....15@17

HONEY

Jobbers' prices:
Comb, lb., W.W., 13@15; A., 8@10c; Lt. A. .....11@12
Ex. Fy. W. lb.....13c; Lt. A.....11
Beeswax, lb. 38

RICE

Price to growers:
Cal. Rough cwt. .....3.00@3.25
Lower Grades .....2.00@2.75

HAY

Under date of June 16 Scott, Magner & Miller say:

Receipts for the week amounted to 1433 tons. The most of this has been old hay and has moved into consumption from day to day as it has arrived. It has been placed at market quotations. It is expected now that warehouses will be entirely cleaned up during the coming week and that from then on markets must depend on new crop. There has been an occasional car or two of new hay arriving recently but not enough to establish any market basis. Harvesting is going on rapidly and a great deal of hay is now offered in different districts. The weather recently has been excellent for curing hay and the quality of the crop is excellent. The demand for export account has not been active although there has been a little moving from time to time. First cutting alfalfa still continues to arrive in moderate quantities and is being placed without difficulty. There has been no second cutting in the market as yet but some expected very shortly. There is no straw arriving and probably there will be no new straw in the market for a month or so. Prices given below are on old hay only.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the market. For prices to consumers charges of cartage, commission and handling expenses must be added.

Wheat, Fy., lt. bales.....29.00@30.00
Wheat or Wh. and Oat, No. 1.27.00@28.00
Wheat or Wh. and Oat, No. 2.25.50@26.50
Oats, Choice Tame .....29.00@30.00
Other Tame .....24.50@26.00
Barley .....25.00@27.00
Alfalfa, first cutting.....14.00@15.50
Stock Hay, new .....10.00@12.00
No. 1 Barley Straw, Baled.....1.00@1.10

GRAIN

Grain Exchange prices, ctl.
Wheat—No. Bluestem .....4.55@4.60
Corn, California Yellow .....3.25@3.50
Corn, Eastern Yellow .....3.25@3.30
Corn, Egyptian White .....3.50@3.75
Oats, White Feed .....2.45@2.50
Barley, Feed .....2.10@2.15

FEEDSTUFFS

Wholesale prices per ton:
Bran .....38.00@39.00
Cornmeal .....72.00@73.00
Cracked Corn .....72.00@73.00
Cocoanut Meal .....37.50@38.50
Middlings .....49.00@50.00
Alfalfa Meal, carlots .....33.00@34.00
Shorts .....42.00@43.00
Rolled Barley .....45.00@46.00

SEEDS

Prices in round lots, lb.:
Millet, recleaned .....3¼@4
Alfalfa .....20@21
Flax .....5@6

Citrus Fruit Market

LOS ANGELES, June 20, 1917.

Valencias are finding quick sales and at long prices. A few sales reach as low as the $3.00 mark and many are being made above $4.00. Large sized fruit is being discounted to an extent.

The lemon market is in splendid condition. The crop will be greatly reduced by the hot wave and it is presumed that the few cars in storage (less than 2000) will soon be cleaned up. Experts are in the orchards to determine the extent of the injury. It is yet too early to give any percentages.

Shipments

Shipments of oranges from Southern California to date since November 1, 1916, 29,047 cars, lemons 6409, total 35,456; to same date last season, oranges 24,153, lemons 4583, total 28,736. From Central California to date this season, oranges 4475, lemons 164, total 4639; to same date last season, oranges 5390, lemons 146, total 5536. From Northern California to date this season, oranges 845 cars; to same date last season, oranges 610, lemons 1.

FROM THE AUCTION

June 14

New York: 30 cars oranges, 3 lemons. Lemons higher. Nav., $2.70@3.90; seed., $2.85@3.35; Val., $2.85@4.35; lem., $2.35@4.00; grapefruit, halves, $1.45.

Boston: 18 cars. Nav., $2.40@4.40; sweets, $3.30@3.65; lem., $3.70@5.00.

Philadelphia: 12 cars. Nav., $1.70@3.20; Val., $3.15@3.55; lem., $3.30@5.10.

June 15

New York: 29 oranges, 1 lemon. Nav., $2.80@3.80; Val., $2.70@4.30; lem., $3.00@3.75.

Pittsburg: 10 cars. Nav., $1.10@2.80; Val., $3.05@3.80; lem., $3.05@3.30.

Cleveland: 8 cars. Nav., $2.25@3.90; lem., $1.75@3.85.

St. Louis: 7 cars. Nav., $2.30@2.65; Sweets, $2.25@3.15; lem., $2.40@3.50.

Boston: 16 cars. Nav., $2.15@3.95; Val., $3.15@3.55; lem., $3.60@4.85.

June 18

New York: 51 oranges, 3 lem. Nav., $1.80@4.00; Val., $3.15@4.45; Seed., $2.45@3.85; lem., $2.85@4.05.

Philadelphia: 14 cars. Nav., $1.80@3.75; Val., $3.10@3.85; Seed., $2.05@3.00; lem., $1.30@4.10.

Cleveland: 12 cars. Nav., $2.35@3.50; lem., $295@3.70.

St. Louis: 9 cars. Nav., $2.60@3.10; Val., $2.90@3.60; lem., $3.50@4.20.

June 19

New York: 32 cars oranges, 3 lem. Higher. Nav., $2.10@4.05; Val., $3.05@4.55; Sweets., $3.00@3.90; grapefruit, $2.25@3.05.

The improvement of rural highways and the building of good roads lay a new responsibility upon every farmer. The farmer and his home life are now brought more directly to the attention of the general public. The improvement of the home grounds does not necessarily imply spending great sums or building an extensive show place decorated with architectural furnishings and formal gardens. It means treating the yard as an out-of-door living room, as a part of the house. It means keeping it clean and neat and comfortable and cheerful. It should be decorated with fine trees, beautiful flowering shrubs, and with annual and perennial flowers that fill the soul with gladness and make home a lovable spot surrounded by endearing associations, that tug at the heart-strings and give the full meaning of "Home, Sweet Home."

The indications are for a splendid crop of strawberries in the Hood River district of Oregon.

WEATHER CONDITIONS

For the Week Ending June 16, 1917

	Wk.	Rainfall— Season.	Norm.	Temp Max.	Min.
Eureka	.00	31.36	45.73	64	40
Red Bluff	.00	19.25	24.89	104	54
Sacramento	.00	12.95	20.09	104	56
San Francisco	.00	15.78	22.26	87	46
San Jose	.00	12.63	16.79	94	42
Fresno	.00	7.25	9.68	108	52
San Luis Obispo	.00	23.03	20.51	110	44
Los Angeles	.00	15.26	15.64	100	52
San Diego	.00	10.13	10.01	[illegible]	56

ALFALFA LAND
20 Acres and up planted in Alfalfa for dairying; also first-class Orchard Land.
Brentwood Irrigated Farms
In Contra Costa County—63 Miles from San Francisco
Easy terms of payment. For prices, etc., address
BALFOUR, GUTHRIE & CO., Land Dept., 350 California St., San Francisco

GET READY NOW!

Put your farm on a basis of big crops—big profits—no labor troubles. Use Smith Form-a-Tractor and be one of the 30,000 progressive farmers who will make a 75% saving in their farm costs this year.

PROTECT YOUR INTERESTS

Regardless of how busy you are now—take a few minutes and protect your own interests.

If a day off now would put $400 into your pockets you would not hesitate to take it.

That is what a few minutes taken now to order your Smith Form-a-Tractor, will do for you. And if you own a big farm, it will add even more.

For Smith Form-a-Tractor costs $400 less a year to operate than four farm horses—and does every bit of work the best 4-horse team you own can do.

NOW IS THE TIME TO BUY

Farmers all over the country who bought early, used SmithForm-a-Tractors in Spring plowing—drilling—cultivating—and are already getting a tremendously increased yield from their land.

Profit by their experience. They have proved Smith Form-a-Tractor for you. The results they are getting are definite—and they are so big that you cannot afford to overlook them. Get ready for your late plowing—do your binding and harvesting with Smith Form-a-Tractor. Now is the time to buy.

DO ALL YOUR WORK

The day you put Smith Form-a-Tractor at work for you will be the day you get rid of horses — and you know horses are costly to maintain—subject to all kinds of disease—affected by weather—easily tired—and only 7% efficient. Smith Form-a-Tractor gives you the high efficiency of the automobile motor—over 22%.

It can be worked in all kinds of weather—will do its work 75% faster than horses—plow seven acres to every four plowed by horses—do other work with the same big time-saving—and while it uses your Ford for the power plant, it gives you the Ford touring car for pleasure driving in fifteen minutes after you drive your tractor out of your fields.

THE BEST AT ANY PRICE

You cannot buy your tractor on the basis of price alone. You must buy it on the basis of what it is and what it does. Smith Form-a-Tractor is a thoroughly proved tractor. Every detail of design and construction has been carefully worked out.

It has many exclusive features:

1—A radiator that guarantees perfect cooling—replaces Ford radiator. **It will not overheat.**

2—An oiling system that gives perfect lubrication—stays on the car permanently.

3—A sub-frame that extends the full length of the Ford but that is removed completely when change is made back to touring car.

4—10-inch tractor wheels—for soft soil without packing.

5—15 minutes change from touring car to tractor or back again.

You must have these features.

We Will Fill Your Order

If there is no Smith Form-a-Tractor dealer near you, send the coupon with $10 attached. We will ship your Smith Form-a-Tractor to you *at once.* You pay the full cost less $10 when it reaches you.

Smith Form-a-Tractor, Michigan Ave. at 16th St., Chicago, Ill.

This Amazing Book FREE!

Send for Smith Form-a-Tractor catalog. It is FREE. The finest catalog of Tractors and what Tractors will do that has ever been published. Big color illustrations showing Tractor in all kinds of work, with government statistics on tractor cost vs. horse cost.

Ask for it today—write NOW!

C.C. 6-23-17

SMITH FORM-A-TRACTOR, Michigan Ave. at 16th St., Chicago

Gentlemen:—Please send me your big, FREE catalog. I own

a farm of.....acres and my principal crops are.....

Enclosed find $10.00 for which please enter my order for one Smith Form-a-Tractor with the understanding that I will pay the balance of $245 plus freight, on sight draft attached to bill of lading. (Cross off if you do not want to place your order now.)

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State.....

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CALIFORNIA CULTIVATOR

THE LIVESTOCK and DAIRY JOURNAL Combined with CALIFORNIA CULTIVATOR

LOS ANGELES June 30, 1917 SAN FRANCISCO

Frost Fighters Demonstration at Pomona

With the price of steel making manufacture and sale of orchard heaters within economic bounds very difficult, and with a heat wave causing material dropping of the fruit in citrus orchards, citrus growers feel this year is putting up most severe problems to them. However, they are investigating and endeavoring to turn every way to force success. A demonstration or test of various heaters has been held at Pomona. Almost every conceivable way of creating heat with as little smoke as possible has been attempted. The upper left-hand picture shows one of the air compressors or blowers used in the Glass system. Mr. C. N. Burton, with the derby hat, is discussing the work of pumping the air to atomize the oil. A double pipe line carrying compressed air and oil goes from the blower to various portions of the orchard. Standing by Mr. Burton is Mr. Hibbard, who is demonstrating this heater. Lower left-hand corner shows several of the heaters, the one being inspected by the corps of three men is the steam oil burner. The steam from the tank is used to atomize the oil in the burner. The heater in the lower left-hand corner of the picture is the Klunk & Wheeler kerosene heater. The upper right-hand corner shows Mr. Kodima demonstrating the stack attachment. Lower right-hand corner, Mr. Green of the American Can Company is standing between two burners which had been burning for eight hours at the time the photograph was taken. No soot had gathered, and, as may be seen in the photograph, no smoke is escaping. These heaters are equipped with the Simpson stack. See article on third page of this issue.

We are going to GIVE AWAY

Home Steam Canners

Get one for yourself—the plan and work is easy and you can save $100 or more on your grocery bill.

California Cultivator is going to give away **Economy Home Canners,** one of the handiest, most economical and successful Home Steam Canning devices ever made. Anyone accustomed to cooking can put up fruit and vegetables rapidly and successfully with the Economy Home Steam Canner. Directions as to how long to steam and otherwise handle fruits and vegetables are sent with each canner. The work is easy and to secure one will only take a few minutes' effort among some of your friends.

Get a Canner Like This and Save Money on Your Grocery Bill.

The Economy Home Canner and Cooker is a scientifically made canning vat 24 inches long, 10 inches deep and 12 inches wide with steam tight cover made to hold 16 quart jars at a filling. It has two bottoms, one inside the other. The inside one is so made that the fruit jars set on it above one gallon of water. It is perforated.

This arrangement necessitates only a small amount of water and therefore minimum fire. The top or lid closes down inside a steam tight suction slot, making it possible with the canner and cooker to retain great steam heat, thoroughly cooking and sterilizing whatever is inside. Directions for putting up fruits and vegetables and how to get best results from using the Economy Home Canner and Cooker will be sent with each order filled. Any housewife accustomed to cooking can operate one of these canners successfully. It is quite possible for one person to can from 50 to 75 quarts of fruit or vegetables in one day after the fruit is prepared. When not in use as a canner it can be used as a steam cooker and it makes a valuable bread or cake box, lunch or picnic kit.

Owing to the high prices of canned foods and the shortage of tin cans, it behooves every housewife to put up as much foodstuffs as possible from California's great crops. If this is not done by individuals everywhere, rich and poor alike, hundreds of tons of foodstuffs will go to waste in California soon, when, a little later, high prices will be paid for similar eatables that are canned and when thousands of p e o p l e throughout the world are going hungry, some actually starving.

Pitch in and help conserve the Nation's food supply.

Here is our proposition to you—If you will send us only 10 yearly subscriptions (at least five of which are new ones), to California Cultivator at $1.00 each, or 5 for 2 years at $2.00 each (of which 3 are new), total $10.00 in subscriptions, we will send you one of these Economy Home Canners prepaid to your address. Part may be one-year and part two-year subscriptions, just so the amount is $10.00.

You can get these subscriptions in a few minutes to such a well known reliable paper as California Cultivator. Some find it a good plan to go in with four others, each paying $2.00 for a subscription and then the club owns the canner. They then get together, going from home to home, putting up each others' fruits or vegetables. This affords recreation and enjoyment and gets the work done. You won't know how easy it is until you try. You can soon get a club of 5 or 10 subscriptions.

OUR GUARANTEE—Anyone accepting this offer who is not entirely pleased with the canner may return it at once in good condition and the entire amount sent will be refunded. Some who have these canners say they have saved $100 on their year's grocery bill and wouldn't take $25 for their canner if they couldn't get another.

Address all orders to

CALIFORNIA CULTIVATOR

Dept. Home Canning Club

115-117 No. Broadway - LOS ANGELES

FOREMAN WANTED

A large, successful and progressive citrus ranch desires to secure the services of an experienced foreman who has proven ability to head what is planned to be a model organization. Liberal salary is offered with interest in profits and the opportunity to gain a prominent place in the citrus industry. Address Box L, care Cultivator.

When writing advertisers, mention The Cultivator.

The New Oliver Nine

Was $100 Now $49

A TYPEWRITER REVOLUTION

New Machines for Half the Former Price

At the very height of its success, The Oliver Typewriter Company again upsets the typewriter industry. Just as it did in 1896, when it introduced visible writing and forced all others to follow. Now this powerful Company—world wide in influence—calls a halt to old expensive ways of selling typewriters. It frees buyers of a wasteful burden.

A company strong enough, large enough and brave enough to do a big, startling thing like this, deserves a hearing.

The full facts are set forth in our amazing exposure, entitled "The High Cost of Typewriters — The Reason and The Remedy." One copy will be mailed to you if you send us the coupon below.

HOW WE DO IT

Henceforth The Oliver Typewriter Company will maintain no expensive sales force of 15,000 salesmen and agents. Henceforth it will pay no high rents in 50 cities. There will be no idle stocks.

You, Mr. User, will deal direct now with the actual manufacturer. No middlemen—no useless tolls. We end the waste and give you the savings. You get the $51 by being your own salesman. And we gain economies for ourselves, too. So it isn't philanthropy. Just the new, efficient way of doing business to meet present-day economic changes.

Note this fact carefully. We offer the identical Oliver Nine—the latest model—brand new, for $49, the exact one which was $100 until March 1st.

THE LATEST MODEL

Do not confuse this offer of The Oliver Typewriter Company itself of a brand new latest model 9 with offers of second hand or rebuilt machines.

This is the first time in history that a new, standard $100 typewriter has been offered for $49. We do not offer a substitute model, cheaper, different or rebuilt.

Read all the secret facts in our document, entitled "The High Cost of Typewriters—The Reason and The Remedy." The coupon below mailed today will bring you one copy.

SAVE $51

This Oliver Nine is a twenty-year development. It is the finest, costliest, most successful typewriter we ever built. It is yours for 10 cents per day in monthly payments of $3.00. Everyone can own a typewriter now. Will any sane person ever again pay $100 for a standard typewriter when the Standard Visible Oliver Nine sells for $49?

Send today for your copy of our book and further details. You'll be surprised.

Over 600,000 Sold

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After you read our book you may ask for an Oliver for five days free trial. Be your own salesman. Save yourself $51. You decide in the privacy of your own office or home, as you use the Oliver. Then if you want to own an Oliver you may pay at the rate of 10 cents per day.

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The Oliver Typewriter Company

Los Oliver Typewriter Bldg., Chicago, Ill.

THE OLIVER TYPEWRITER COMPANY

Los Oliver Typewriter Bldg., Chicago

Do not send a machine until I order it. Mail me your book, "The High Cost of Typewriters—The Reason and The Remedy," your de luxe catalogs and further information.

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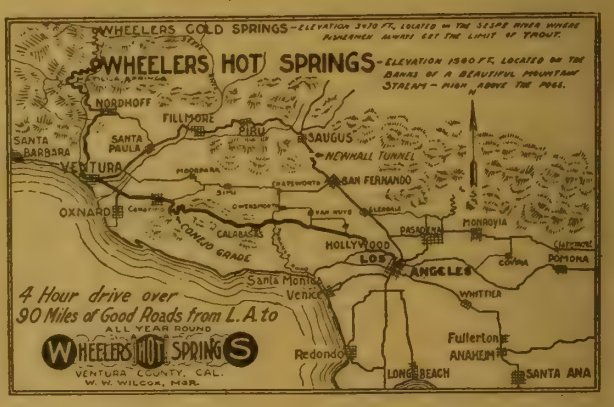
City ..... State .....



The greatest Forest Fire in the history of Southern California has been conquered and subdued and Wheelers Hot Springs Summer Resort, of which Mr. Webb W. Wilcox is Manager, has been saved and not a building or tree lost. A visit to the resort will prove to any one what efficient Forest Fire fighting will do and also afford one a picture that has been painted across the mountain peaks that never will again be seen in this part of the country. The auto roads are in good condition and every accommodation for those seeking rest and recreation awaits their arrival.

Wheelers Hot Springs

Ventura County, Cal.

Folders and Information at every Information Bureau in Los Angeles

California Cultivator

Vol. XLVIII No. 26 LOS ANGELES: June 30, 1917 One Dollar Yearly

Frost Fighting Equipment Demonstration

The Test of Orchard Heaters Made at Pomona in Most Intense Heat Ever Given to California. Committee Appointed by Chamber of Commerce Makes Report on Heaters Exhibited. See Photos of Pomona Test on Cover.

WHEN the Pomona frost fighting equipment demonstration was scheduled the commitee appointed by the chamber of commerce had no idea that it would be compelled to make its test in the most intense heat ever given to the state. This heat made impossible determination as to the heating power of the different appliances. We have no comment regarding the various heaters tested other than to give the report of the committee which made observations.

Notwithstanding California has been fighting frost for more than a quarter of a century, the equipment is still far from perfect. Since 1913, when the severe freeze came, frost fighting has been general. Those who were prepared to combat the cold of that year made thousands—it is almost safe to say millions—because of their forethought. The sucess of frost fighting is now unquestioned, but two factors have still to be considered. One is the economical side, the other has to do with the smoke nuisance, which causes inconvenience and even severe financial loss, hence the Pomona test to learn as to the smokeless heater and to learn as to the heater which could be installed and still leave a reasonable profit for the grower. The smokeless feature is practically solved. The economical side of the question has been complicated more than ever by the enormous increase in prices of steel and fuel. As Mr. Adamson says in his article below. there are serious problems before the grower but he will solve them.

* * *

The report of the committee follows:

In compliance with your request the undersigned committee, appointed by you to conduct a test of orchard heating appliances, has made such tests and begs to report as follows:

The comittee nominated by you consisted of the following members: E. T. Sederholm, chairman, Willis S. Jones, J. E. Adamson, A. F. Norcross, O. H. Hottel. Of these, Messrs. Jones and Adamson were unable to attend, so that the tests had to be conducted by the other three members on the nights set by you, June 12, 13 and 14, 1917.

The following heating appliances were entered for demonstration: Wizard heater, by G. L. Blanchard; steam oil burner, by Boley & Fairall; stack attachment, by J. P. Simpson; stack attachment, by Eclipse Patent Agency, exhibited by Mr. Kodima; glass orchard heating system, by D. R. Glass, exhibited by C. W. Hibbard and J. B. Vaile; kerosene orchard heater, by Klunk & Wheeler; blue-flame kerosene heater, by W. W. Crosby. This last named heater was exhibited only on the last night of the tests and for too short a time for the committee to form an idea of its merits.

Of the above heaters the Wizard, the Simpson, the Glass and the Klunk & Wheeler were exhibited in an orange grove, each heater placed in the middle between four trees. All the other heaters were exhibited on the grounds of the adjoining San Antonio public school, where also several Simpson and Klunk & Wheeler heaters were exhibited.

All the pots, except as later stated, burned ordinary smudge oil of about 27 degrees gravity, all taken from the same tank. Mr. Glass stated that he could just as well, if not rather, have burned crude oil, or any heavy oil. The Klunk & Wheeler heater and the Crosby heater both burned kerosene and are not adapted to burn heavy oil.

The committee considered that it would be of no value to make any thermometer tests, owing to the very warm weather that prevailed during the tests. However, in order to make sure as to this point, as well as in order to know positively whether or not any trees had been overheated, one such trial was made, and that with the pot which gave by far the greatest amount of heat of any of those burning in the orange grove. This was the Glass heater, and two of these were installed. Thermometer readings were taken at five points with thermometers that were compared with each other immediately before the test. No. 1 was placed outside the heated area, to windward; No. 2, about two feet above ground, at the nearest tree, facing the heater; No. 3, about 1½ feet above ground, on a tree adjoining the second heater, but so as to face the next empty middle where there was no heater. It was in direct line, however, with any such air currents as could be expected on a cold night. No. 4 was placed 4½ feet above ground in tree nearest to leeward of second heater and facing same. No. 5 was placed directly below No. 4, and about 1½ feet above ground. Readings were, of course, taken simultaneously, as nearly as possible. Thermometer No. 4 gave the greatest rise in temperature, but only 5 degrees Fahrenheit. The heater was going full blast and gave off an unusual amount of heat. On a cold night, where draft conditions would be entirely different, the result would undoubtedly also have been different, and we mention this especially so that no one may think that this heater is not capable of producing a great amount of heating effect. It simply proved our contention that thermometer tests under the circumstances were out of the question. It also proved that no damage could by any possibility be done to the trees.

The committee, therefore, had to

Continued on Page 710

Genuine Warmth

Forest and Field Fires Unite with Old Sol to Give to Coast Sections South of San Luis Obispo an Unprecedented Visitation of Heat

DARKLY pessimistic views of the heat wave which prevailed for a few days after its greatest intensity—Sunday, June 17th—have given way to a more hopeful feeling. The lemon grower who at first estimated his loss to be at least 80 per cent of the fruit on the tree now estimates that a much higher percentage will be marketable. Some lemons of nearly picking size were actually cooked and the tissue immediately broken down. Others had when cut much the same appearance as frosted lemons. Valencias were softened so that picking ceased for several days. They are now returning to normal condition and shipping is resumed. Walnuts suffered greatly, a large number most exposed to the afternoon heat being burned so that they dropped from the trees. The more protected nuts, however, are yet apparently all right, and it is estimated that at least 75 per cent of the crop will be marketed.

An interview with walnut, lemon and orange growers through the San Gabriel Valley, San Dimas, Pomona and Ontario sections, and later in Riverside, Corona and Orange County sections, shows somewhat diverse opinions, almost everyone saying it is yet too early to determine actual loss.

But with the loss there are some compensations. For instance, one very large orchard company reports that the heat has wiped out practically all black scale from its trees.

The lemon injury is far less serious than would appear at first thought. Nine-tenths of the lemon crop for the season has been harvested. Of that remaining on the tree, the later fall picking, which usually commands good prices, will yet be marketed. It was feared at first that these under half-sized lemons would drop from the tree, but the drop has proved much less serious than at first anticipated, and, unlike the full grown lemon, the young fruit seems to show less breaking down of the tissue and less injury.

Navel oranges in orchards on very light, sandy soils, and which possibly were suffering for moisture, have shown very severe dropping. Others, especially where well irrigated shortly before the heat, are yet carrying the greater proportion of their crop. Young fruit of Valencias, that is the crop for next year, shows much less effect of heat than does the navel.

As to the walnut crop, very thorough canvass of the situation has been made by the California Walnut Growers' Association, and the following notice is being sent to the trade:

"Southern California has experienced the hottest spell of weather reported for 40 odd years. During the period from June 14 to 17, inclusive, temperatures ranged from 111 to 123 degrees in the shade in the principal walnut producing districts. This freakish spell caught the walnuts at a very tender stage before the shells had hardened and simply cooked a large percentage of them. We have just completed a very thorough investigation of the damage with the following results: Santa Barbara County 5 per cent damage, Ventura County 20, Los Angeles County 25, Orange County 35.

"As the largest productions are in Orange and Los Angeles Counties the average damage for the entire crop is close to 25 per cent, but as we had a prospect for the greatest production on record we will still apparently ship about as many walnuts as were marketed last year.

"We are aware that many reports have been circulated to the effect that the walnut crop was much more seriously damaged than is indicated by our estimate. However, we believe that the higher estimates of damage are not based on any systematic investigation. We feel confident, therefore, that our prediction of the damage will prove sufficiently high and that it is as accurate as it is possible to obtain.

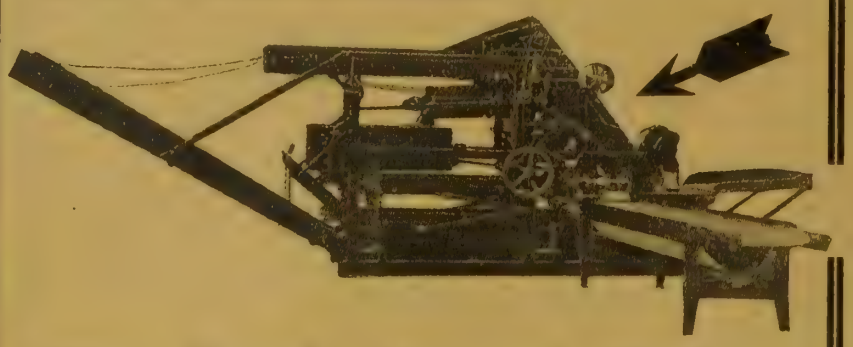
"Apparently all of the nuts that are badly burned will prematurely drop from the trees. There are perhaps from seven to ten per cent of the nuts which show no outward appearance of damage but still are so badly cooked that the kernels have turned black and are drying up. These will probably also prematurely drop, but if they do not, as the kernels will be badly shrivelled and light weight, they will be removed from the merchantable walnuts by our suction machines. Thus at this time we see no reason why the quality of Diamond Brand walnuts should not be at least equal to the 1916 deliveries."

Small Crops

Strawberries and other small fruits suffered from injury to ripening fruit, but young fruit is now coming on and the market is abundantly supplied. Potatoes and beans lacking in moisture at the root suffered, but the great bulk of the crop is in fine condition.

Mr. Almond Grower

You can reduce the cost of your own hulling fully 80 per cent, and hull your neighbors' almonds at a profit of $20.00 per ton with this wonderful machine.



The Read Almond Huller and Separator

will hull and separate almonds—quick and clean—at a cost of only $5.00 A TON.

The hand method costs from $25 to $32 a ton.

No wonder one owner says, "It would be impossible to do without it."

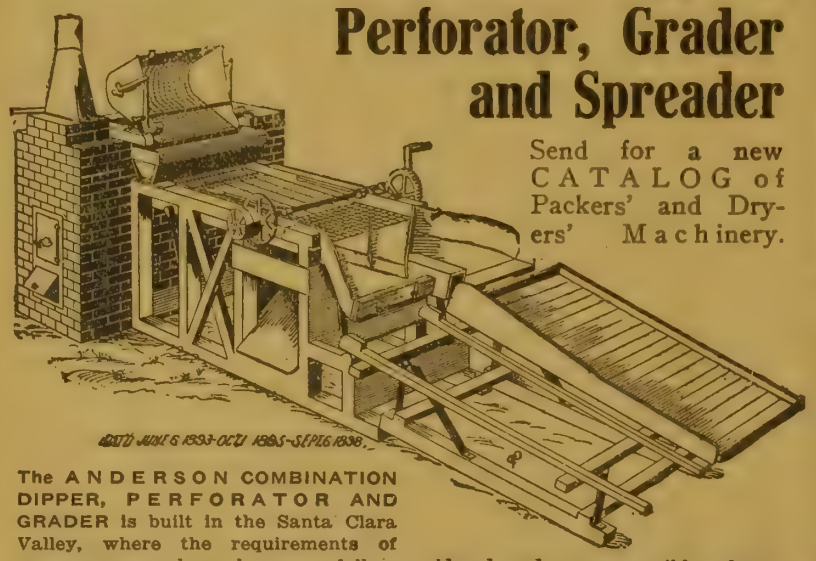
Let us send you our literature describing it, and telling what other owners say about it. Would ask that you get your order in early, so that you will not be disappointed in delivery, as we are behind in filling orders in all our departments, and will be for some time to come.

Write now while you think of it. Address,

Schmeiser Manufacturing Co.

22 Mechanic Street Davis, California

Anderson Combination Dipper, Perforator, Grader and Spreader



Send for a new CATALOG of Packers' and Dryers' Machinery.

The ANDERSON COMBINATION DIPPER, PERFORATOR AND GRADER is built in the Santa Clara Valley, where the requirements of prune growers have been carefully considered and every possible advantage incorporated into the machine. Can be furnished with or without rinse tank. Made in various sizes for hand or power.

SEND FOR 1917 CATALOG.

It illustrates and describes the entire Anderson-Barngrover line of Fruit Packers and Dryers' Machinery. A copy will be sent free to all who are interested. A postcard will bring it.

Anderson-Barngrover Manufacturing Co.

30 West Julian St. - SAN JOSE, CAL.

Perforated Tree Protector

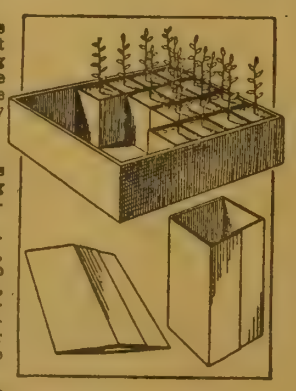
That will keep Squirrels, Rabbits and Gophers from barking your trees and give perfect protection from hot sun, sandstorms, barking in cultivation, etc. Tell us your pest and we will tell you what kind of a wrap to use. We make a number of kinds and can save every tree for you from pests.

Collapsible Planting Pots

These pots are bottomless. This allows you to plant pot and plant, never disturbing your plant nor stopping its growth in transplanting a single hour.

For starting early vegetables, such as Tomatoes, Cabbage, Eggplant, Cauliflower, Cucumbers, Cantaloupes and Squash; also for propagating Rose Cuttings, Geraniums, Eucalyptus and Conifers. It's the only practical pot on the market today for propagating work. Write us for samples of either Pots or Protectors. Tell us which you are interested in.

THE EXPAN CO., 935 E. Central Ave., Redlands, Cal.



When writing advertisers, mention The Cultivator.

"Peach Growers" Has Successful Year

THE California Peach Growers, Inc., is closing its first year most satisfactorily to the members. The members will receive nearly six cents per pound for this year's pack, and investors in its $847,165 worth of stock will receive 7 per cent on the money invested.

The old board and former officers were re-elected. They are F. H. Wilson, president; J. F. Niswander, vice-president and general manager, and Al Sunderland, secretary-treasurer. W. J. Wilson, John C. Rorden, Warren A. Woods and A. L. Sayre are the directors.

The trustees have sent out the following letter to members:

"We take pleasure in announcing that the crop of peaches handled by this company during the past year will net the grower an average of approximately six cents, meaning that there is yet one cent per pound to be distributed in accordance with the grade-out of the various crops of the individual growers. Please advise the growers in your district that just as soon as possible (and within 60 days) there will be mailed to each of them a complete statement of peaches delivered to this company, with percentages of grades, together with a check for the balance due. The final payment will be based upon grades, and the amount each individual grower will receive will depend entirely upon the size of the peaches delivered by him. There are those who will receive less than one cent per pound additional; others will receive more than one cent.

"It is also very gratifying to your directorate to announce that a dividend of seven per cent will be declared to each subscriber of record. This dividend will very shortly be distributed to such subscribers as have settled in full with this company for their stock. The dividend of any stockholder who has not paid in full for his subscription will be credited to his account.

"A number of growers delivered to this company, through the 'Rorden Pool,' their holdings of 1915 crop peaches, upon which they have received a payment of five cents per pound. These goods have been sold, with the result that approximately one-fourth of a cent per pound will be paid as a final settlement.

"With the closing of our records for the first fiscal year ending May 31, 1917, every detail of the past season's work has been checked and completely audited."

The balance sheet of May 31 shows:

ASSETS			
Quick.			
Accounts Receivable			
For 2c on undelivered peaches		$ 480.50	
General		25,358.31	
Sundry consignments		34,733.11	$ 60,571.92
Notes Receivable			
For stock subscriptions			499,443.94
Suspense Account			
For interest receivable accrued			35,000.00
Advances for 1917 Crop			2,225.00
Balances in Banks			299,405.44
Inventory			
Peaches in stock		231,793.23	
Packing material		25,093.92	256,887.15
TOTAL QUICK ASSETS			$1,153,533.45
FIXED ASSETS			
Real estate		$ 13,301.10	
Real estate improvements		4.00	
Plant Accounts (Buildings)		66,588.63	
Plant equipment		58,763.39	
Office equipment		10,876.54	
TOTAL FIXED ASSETS			149,533.66
SUNDRY ASSETS			
Unsecured stock		42,478.92	
Inventory stationery		1,000.00	
Organization expense		35,097.43	
Loss on 1915 crop		33.28	78,609.65
TOTAL			$1,381,676.74
LIABILITIES			
Current			
Sundry growers' 1915 crop		$ 73.57	
Sundry growers' 1916 crop		11,635.50	
Balance 5c for peaches delivered			$ 11,709.07
Due Sundry Brokers			5,068.04
Commission			434.95
Accounts Payable			21,521.88
Notes Payable			47,087.19
Interest Payable Accrued			1,559.04
Due Growers—Final Settlement on Peaches			334,612.77
TOTAL CURRENT LIABILITIES			$ 421,992.94
CAPITAL LIABILITIES			
Authorized stock	$1,000,000.00		
Less unissued stock	153,115.00	$ 846,885.00	
Plus organization stock		280.00	
TOTAL STOCK ISSUED			$ 847,165.00
SUNDRY LIABILITIES			
Surplus Account			
Being balance of ⅝c on all peaches delivered			$ 112,518.80
TOTAL			$1,381,676.74

Quality First

However much we may believe in the expansion of the olive business in the future, and the probable extension of the eating of olives to the masses of the people of this and other countries in this hemisphere, it is undoubted that this article will not soon come to be regarded as a necessary part of the daily diet of the average person, or, in other words, a staple like bread or meat. For a good many years to come the ripe olive, because of limitations placed on its finished production in the way of cost, will remain beyond the means of the wage-earning class to purchase except as an occasional luxury or indulgence. And however much we would like to see every person in this country using olives as they do other staple articles of food, knowing well the benefits that would follow such a practice, both to producer and consumer, we cannot proceed on any theory at this time except that the ripe olive of this country is a delicacy, is bought as a delicacy, and will continue for many years to be sold for such use only.

Now, as everyone knows, an article falling naturally in this class, and perforce making its appeal to a limited buying public possessed of the means

to indulge its tastes, must take a different course in selling methods from those applying to canned tomatoes, for instance. Since we cannot, under present conditions of relatively high cost of production, reach the masses with our product, we should, it seems to us, do what we can to set and maintain a high standard of quality that will justify among the trade we have the necessary prices that we are now obliged to ask. Of course, it will be understood that we are now referring t good olives put out by responsible firms and not taking into account the stuff that passes for edible fruit and which we unfortunately find with too much frequency in our larger cities—a mixed assortment of undersized, poorly colored, carelessly processed junk that is a libel on the legitimate olive business. —Olive Journal.

GRAPE PRICES

Regarding prices of labor in Central California we have heard that raisin and other growers are more liberal than ever. We note in the Dinuba Sentinel:

"In order to meet the desires of large labor contractors throughout the state the managing and executive committees of the Valley Fruit Growers Association met Monday, June 18, at their offices, 1840 Kern Street, Fresno, to name rates of wages and contract prices to be paid for harvest work during the ensuing season.

"The rates fixed were as follows (basis average crop):

For Raisin Grapes

"Muscats, 3c per tray of 22 pounds of grapes.

"Thompsons, 2½c per tray of 22 pounds of grapes.

"Sultanas, 2½c per tray of 22 pounds of grapes.

"Contracts for picking, curing and boxing:

"Muscats, $17.50 per ton of raisins.

"Thompsons, $14 per ton of raisins.

"Sultanas, $14 per ton of raisins.

"Wine grapes: Picking in boxes, $2 per ton.

"Peaches: Cutting, 6c per box.

"Day work during harvesting period: Month of August, 27½c per hour; month of September, 30c per hour.

"In fixing the above schedule of wages the Valley Fruit Growers' Association was actuated by a desire to fix prices considerably higher than have been obtained in the past, although the result of inquiries throughout the entire state demonstrates that in four counties of Tulare, Fresno, Kings and Madera, represented in this association, a very considerably higher rate of wages has obtained than has been paid in any portion of the state for like work, all of which goes to prove that this association aims not only to be just to the laborer who does farm work, but to be generous.

"The attorneys of the association have in preparation a form of contract to be used by all of its members, and which will deal with the various classes of work to be performed, and its members are requested to await the receipt of these blank forms of contract before formally signing agreements for the ensuing season."

MORE PEACHES

Sales Manager Sturtevant of the California Peach Growers finds on closing the season that a few cars of last season's peaches are on hand and is offering the trade regular stock and some fancy peeled at list made on May 15.

CARVER LECTURES

The University of Southern California announces a course of lectures by Dr. Thomas Nixon Carver of the United States Department of Agriculture. Dr. Carver was at one time professor of political economy in the institution from which he graduated. He later went to Harvard University and from there was drawn into the service of the government. Dr. Carver's addresses in Los Angeles will be on the subject of principles of rural economics and the theory of social progress. The lectures begin at 10 o'clock on Monday, July 2 and continue daily till August 10.

Book Review

MANUAL OF FRUIT DISEASES

"Manual of Fruit Diseases," by Lex R. Hesler, assistant professor of plant pathology, New York state college of agriculture at Cornell, and H. H. Whetzel, professor of plant pathology, same institution, published by the Macmillan Company, New York, at $2.00.

There are 462 pages of information for every fruit grower in this book. As it states in the preface; "It has been estimated that 75 per cent of fruit growers' losses may be prevented by spraying, the chief method of fruit disease control.

"In order to understand and to perform properly the measures of fruit disease control, it is essential that some knowledge of the cause of the disease in hand be acquired. In recent years scientists and laymen alike have recognized the importance of certain technical details regarding the cause in order to undertake the prevention of these losses. Similarly, the value of other facts must be apprehended, such as the history of a disease, where it originated, with what rapidity the pathogene has spread, the losses it is capable of incurring, and under what conditions these destructive outbreaks (epiphytotics) occur."

There are 16 chapters and an appendix. No pages are wasted on introductory talk, Chapter I beginning immediately with apple diseases, this chapter and Chapter II requiring 151 pages to discuss troubles, symptoms and treatment.

Chapter III touches upon apricot diseases, IV upon the blackberry and its troubles; others on the diseases of the cherry, cranberry, currant, gooseberry, grape, peach, pear, plum, quince, raspberry, strawberry, and the last chapter and the appendix treat of fungicides, books and journals on fruit diseases, glossary, etc. It is a good book for every grower of fruits.

Boy Scouts of Lodi are planting city lots to beans.

-help balance the nation's hay shortage by planting Sudan Hay now!

YOUR COUNTRY NEEDS HAY

Sufficient Egyptian corn and milo maize have been planted to more than meet the demand—reports indicate a *shortage of hay*. Sudan grass is the hay crop that will make REAL MONEY for you.

If you plant now under the present warm and favorable conditions, you should have a crop five to six feet high (ready to cut) in 40 to 60 days. Subsequent cuttings mature in 35 to 40 days.

The University of California bulletin says, "Sudan grass is good to look at, is easy to grow and handle, grows during the summer, gives large yield and is well liked by stock. It maintains growth throughout the season under arid conditions. It grows so tall and thick that weeds have no chance to grow. *With* irrigation it will produce eight to ten tons per acre—without irrigation, up to four tons to the acre. Grows in a wide range of soils—from sand to clay."

SHOWING 68 DAYS GROWTH OF SUDAN GRASS MADE AT TRIAL GROUNDS OF GERMAIN SEED & PLANT CO.

Sudan Grass Beats Them All!

This table from the University of California State Bulletin shows yield of constituents in pounds per acre from grass hays:

Kind of hay	Yield per Acre	Dry matter	Protein	Fat	Crude Fiber	Nitrogen free extract	Ash
Sudan Grass	8,640	6,367.7	439.4	191.0	1,794.6	3,485.2	457.8
Barley Hay	4,000	3,400.0	350.2	95.2	996.0	1,792.0	166.6
Rye Grass	4,000	3,520.0	369.6	123.2	969.0	1,735.5	323.5
Timothy	4,000	3,316.0	225.5	96.2	1,107.5	1,721.0	165.8

Reports indicate an overproduction of corn and a shortage of hay this year.
Our free Sudan Grass folder explains the wonderful features of this great forage crop. Write or call for it.
Better place your order for seed at once in order to insure early delivery.

Special Summer Prices

36 cents per single pound, enough for 50x100 ft.
10 pound lots, 34 cents a pound, will plant an acre (sown broadcast.)
25 pound lots, 32 cents a pound.
100 pound lots, 28 cents lb.

ORDER BLANK

Enclosed find $.....for which send me.....lbs. of Germain's Proven Sudan Seed.

Name .....

Address .....

.....

Germain Seed & Plant Co.
Established 1871
326 --- 328 --- 330 SOUTH MAIN STREET
LOS ANGELES --- CAL.

FROST FIGTING EXPERIMENT

Continued from Page 707

content itself with testing such points only as could be observed in other ways, and depended on personal judgment. All the members have had considerable experience with orchard heaters under actual field conditions during a frost, and yet they have thought it unjust to attempt to rate these heaters in order of merit, and that fairness demands that they confine themselves only to a recital of facts as they found them.

Wizard Heater

This consists essentially of a cast-iron retort, in two pieces, placed in a smudge pot punched full of holes. The oil is dripped into this retort through a small pipe and vaporized. It burns in the smudge pot in the form of gas and continues to burn all the way up the stack, which is also punched full of holes. Old smudge pots can be used as well as new, for they need, of course, not be tight at all.

During the first night this heater made about as much smoke as an ordinary smudge pot as generally burned. It gave off a good deal of heat, probably more than the average heater would be expected to give. The second night Mr. Blanchard had made some alterations which had materially lessened the smoke without in any way lessening the heat, and the third night some further changes had still further improved it, so that the flame burned fairly clear. It appears, however, that the heater is still entirely in the development stage and needs to be further improved before it can be classed as smokeless. Its present cost is approximately $1.75 per heater.

Steam Oil Burner

The elements of this heater are a tank or boiler for the water and steam, another tank for oil, a burner for atomizing the oil, a fire pot and a pipe coil in the fire pot, in which the steam is made. The steam is conducted to the upper end of the boiler and the coil is fed with water from the lower end of the same boiler or tank. The steam is then piped to the burner, where it atomizes the oil and blows it into the fire pot or combustion chamber. The steam pressure is regulated by means of a small lever safety valve, and varied to change the intensity of the fire by sliding the weight along the lever; 1½ to 6 pounds pressure is maintained.

This heater requires several minutes time to light up, but burns well afterward. It is perfectly smokeless and gave by far the greatest heating effect of any heater tested. This heat was in fact so intense that it is a question whether it would not be too much for the trees if the heater would be placed in a grove. On the windward border it would certainly be able to temper the air before it ever enters the grove at all. It can be burned less intensely, but it is a question whether it would pay to do it on account of its considerable cost, which was stated to be between $10 and $12 per unit.

Simpson's Stack Attachment

Mr. Simpson exhibited a stack which can be used on practically any make of smudge pot, and which serves to gasify the oil so as to burn it with a minimum of smoke. He exhibited pots of most of the leading makers and they all gave good results where the pots were in good order. Some had stacks five inches in diameter and others six inches in diameter. Some stacks were fitted to the Simpson rectangular pot, which was unusually air tight, owing to having its cover riveted on, as well as on account of good workmanship.

The Simpson stacks all lighted up with the greatest ease. Out of 43 pots lighted the last night all but three started right away and remained burning. The other three also started to burn, but went out later, and two of them could not be made to burn satisfactorily at all, owing, apparently, to a defect in these particular pots. Towards the end of the test two of the other pots were put out through explosions caused by water in the oil. Other pots also showed evidence of the presence of water. All of his pots burned with only very little smoke, probably not over five per cent of what would be found with ordinary smudge pots. The stacks are high, and it was shown that the gases of combustion rose straight in the air for a height of some 30 to 40 feet. At the same time the pots, which burned approximately at the rate of a half gallon per hour, gave off a good deal of heat. The price is $1 for a five-inch stack and $1.25 for a six-inch stack.

Eclipse Stack

To outside appearance as well as application this is similar to the Simpson stack. Like the latter it was fitted to several different makes of smudge pots, and it also is one of the high stacks. On the last night the committee lighted the 16 pots of this make, all with five-inch stacks, and had considerable difficulty in getting them to burn. Only very few started right away. Several were kindled again and again, as many as from six to nine times, without success, and left smoldering until the rest were lighted and until the Simpson stacks were started. On returning to the Eclipse stacks the committee found eight of them out, and tried again, partly succeeding with a few, but failing with several. Of those that burned all burned well, giving off about the same amount of heat as the Simpson five-inch stacks, as near as could be judged, and with but very little smoke. In this respect there did not seem to be much choice between the two makes, and both were very free from smoke. The cost of this stack was given as being 75 cents, but the committee was informed that improvements were under way, and it is possible that they may change the price.

Glass Orchard Heating System

This system aims not only at doing away with all smoke, but also with the labor of filling the heaters. It consists of a central oil tank, one for the whole orchard, a power driven air compressor, or rather blower, an oil pipe system and an air pipe system, both placed under ground and both leading to the burners and smudge pots. Each burner is made up of pipe fittings, one end of a small ell connecting the oil system, the other end connected to the air system. The atomized oil issues through

Students, Machine Shops---Polytechnic College of Engineering

THIRTEENTH AND MADISON STREETS, OAKLAND, CALIFORNIA

One of the Best Equipped Schools in the United States

Immediate Employment at Excellent Salaries for All Who Qualify.

Join the Industrial Army Now

A MACHINIST IN SIX MONTHS

Why serve four years as apprentice learning the machinist's trade when you can learn to be a journeyman-mechanic in six months at the Polytechnic College and receive a minimum wage of four dollars a day to begin with This is the record of many of our students and it is being demonstrated every day.

TIME IS MONEY. Don't waste three and one-half years of time "sweeping out" or doing some one thing six months or a year that can be learned in a week. The Polytechnic Shops are run on a Commercial basis. Contracts for construction work are taken and students are advanced as fast as they master the successive steps in shop practice.

MECHANICS IN DEMAND

Throughout the Country, and especially in California, the demand for mechanics and mechanical engineers is pressing. Every machine shop is running full capacity and "MORE men wanted" is the cry everywhere. There is no excuse for idleness if one is qualified. The great industrial army now in service must be increased by thousands of new recruits. But they must have the proper training. They must KNOW how to do the things that MUST be done. Actual practice on the most practical kind of mechanical construction is the daily program at the Polytechnic College. Seeing is believing. Visit the College and see for yourself and then decide to take advantage of the opportunity.

Many of the leading firms in Oakland have mechanical work done at the Polytechnic Shops. Many outside machine shops have special work done at the College Shops where the facilities for handling all classes of machine work are complete. The College is open all summer and students admitted at any time. A descriptive catalog will be sent free to anyone upon request.

YOUR Opportunity

The Greatest and Most Wonderful Home Furnishing Opportunity You Have Ever Had Presented to You Is Now Here In

BARKER BROS. GREAT ANNUAL SALE OF FURNITURE AND HOME FURNISHINGS

—More than $1,250,000.00 worth of Dependable Home Furnishing Merchandise Embracing Almost Every Department and Nearly Every Line In Our Immense and Complete Stock.

—Your Chance to Get Up to Half as Much Again, and in Many Cases Even More, For Every Dollar You Invest.

Out-of-town home furnishers may take advantage of this sale through our MAIL ORDER DEPT. who will pick for you the very best values and make your buying as satisfactory as if you visited our store in person.

REMEMBER,—We Pay the Freight 250 Miles on any Shipment and Make Liberal Allowance for Greater Distances.

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a narrow slot and is sprayed far enough away to leave the nozzle cool. It is burned in a sheet iron furnace with a rather wide hood on top, which has a tendency to spread the heated air out near the ground.

This spreading effect was explained to the committee, but could not be demonstrated on account of the high temperature of the surrounding air, which prevented all similar effect on all the heaters. It was evident, however, that the general heating effect of this heater is considerable, and the sheet metal was heated to a red heat. The combustion was perfectly smokeless, and is said to be equally smokeless even with still lower grade oil than was used.

The makers were not in position to give the exact cost. They stated, however, that the oil pipe need be of but small dimensions. The air pipe has to be comparatively large, and under present conditions of the market it is impossible to say from day to day what the cost will actually be. The approximate figure given was from $300 to $350 per acre, installed, figuring 25 heaters to the acre, which is what the makers advise. This is approximately one heater to each four trees. They also state that the air compressor requires about one horsepower per acre, although they say it is best to figure on 1½ horsepower. The fuel consumption during the test was exactly a half gallon per hour per heater. Air pressure is said to have to be only six ounces at burner.

Klunk & Wheeler's Kerosene Heater

This heater consisted of a one-gallon tank for kerosene, elevated to a height of about four feet and piped to the vaporizer and burner placed immediately below. The vaporized consisted essentially of a small ring-shaped tube, with a small aperture on the inside of the top. It was placed in a smudge pot and surrounded by its own flame. It was easy and quick to light, but took a little longer to burn freely. Then its flame was perfectly clear and smokeless, and it appeared to give off a very considerable amount of heat, as near as could be judged practically as much as the average five-gallon smudge pot. The fuel consumption was very small and amounted to 0.107, 0.121, 0.114 and 0.123 gallons per hour, respectively, for the four different heaters. This amount is so small as to offset the extra cost of the higher grade fuel required, and it goes without saying that the less fuel needed the less is also the labor of filling after a frost night. The committee also thought that almost, if not qurte, as good heating effect could be had when burning without any fire pot whatever. That is not the way the makers recommend, but they expect that old smudge pots would be used for fire pots. They state that the present cost of each unit is $1.30.

Crosby Blue Flame Heater

For reasons already stated we are not in position to say anything about this heater, beyond stating the fact that it burned with a clear blue flame, free from smoke.

In conclusion we wish to state that the price for the Wizard heater, as for the steam oil burner and the Glass heater, in every case is for a complete heater. The Glass heater is even installed by the makers. All other prices contemplate the use of existing smudge pots, and where they are not to be found the price would, of course, be increased accordingly. In every case there would anyway be some expense attached to adapting the old pots to the new system.

We would further say that we have emphasized the smokelessness wherever we found it, without, therefore, wishing to go on record as saying that it would be at all safe to do away with all smoke. On this point the committee is divided, the chairman and Mr. Norcross holding that in very cold weather, where, in spite of all heating, some freezing might and will take place, a cloud of smoke may still save the fruit by holding off the sun's rays in the morning until the fruit has gradually warmed. The third member considers this point one of less importance and prefers perfectly smokeless heaters. This is, of course, not a point that we were to consider, but the committee wishes to mention it so that a wrong construction may not be placed on the often repeated remarks as to this or that heater being perfectly smokeless.

Respectfully submitted this 23rd day of June, 1917.—G. T. Henderson, H. F. Norcross, O. H. Hottel.

DOES IT PAY?

Written for California Cultivator
By J. E. Adamson

THERE seems little if anything to say about the prospects of the frost fighting campaign for the coming winter.

If the loss from the extreme heat is as serious as reported the only work done will be on lemons or to save the trees in case very low temperatures are reached.

As to the agitation for smokeless heaters, there is no new discovery in this line, simply new adaptations of the same old principle in making heat from the combustion of hydrogen, carbon and oxygen. Given the right proportions and the combustion is perfect, but vary the proportions ever so little and there appears more or less smoke. This immutable law is the stumbling block of the inventor of heaters. The demands of the grower for a variable fire to suit the weather and the varying level of the oil in the heater are not to be satisfied with a one-size fire, and when a change is made perfect combustion is lost. This can be proved by the simple experiment of turning the wick of a high-grade oil lamp too high for the set of conditions given in the chimney and burner, when you will have a real smudge-pot.

There is little or no interest in the question of new heaters at this time for the reason that the high cost of steel and labor make the price prohibitive, and it is safe to predict very small if any purchases of new equipment this season .

The most probable move in this district will be the use of the block or check-line system of early firing in an effort to reduce the cost of the campaign and also to hold down the total smoke. This system would allow for the better dissipation of the smoke in the atmosphere and do away with the excessive carbon-laden smoke of the present system.

The California state fair has changed its plan of sending premium lists, and this year sends a separate list for each class. This will make a material saving in that poultry or live stock people are often but little interested in lists of premiums for fancy work or other features of a state fair. The first to be received is the list of the poultry, pigeon and pet stock show. Entries in this class close August 25. E. F. Mitchell is director of this division of the fair. Write Secretary Paine at Sacramento for lists.

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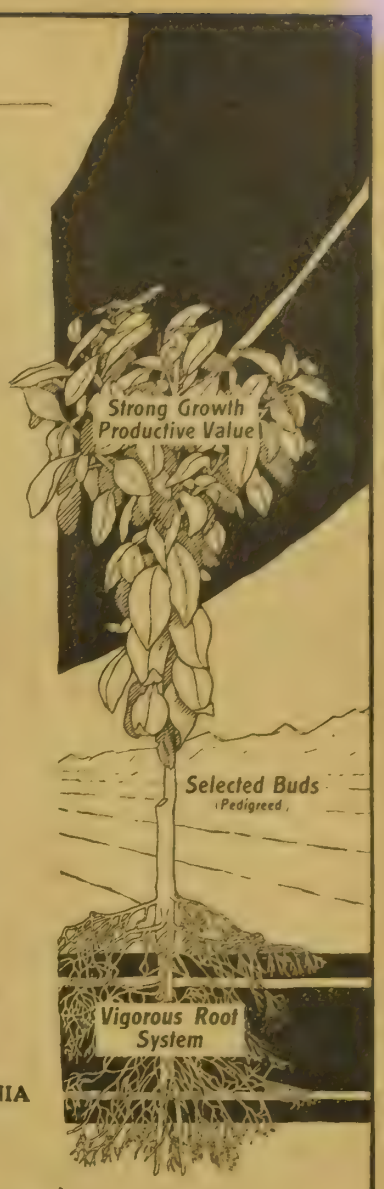

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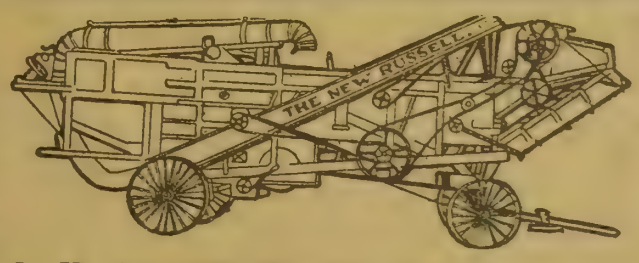

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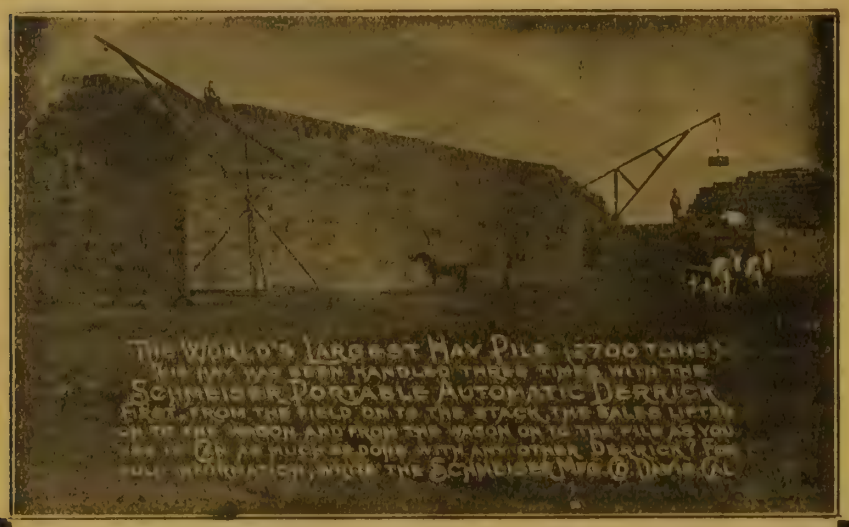

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Questions and Answers

ANSWERS BY EDITOR AND STAFF

Questions to be answered in this department should be received at the office one week before reply is expected. Write plainly on one side of the paper and sign full name and address. Unsigned communications receive no attention.

Hale Peach Not Bearing

Have three-year-old J. H. Hale peach trees which were sprayed and pruned and put out fruit spurs, but the latter died back to the main limb. and although new branches have come out the tree is not fruiting. Would appreciate information as to proper treatment to induce fruiting another season.—Subscriber, Woodland.

As a sugestion for next year, irrigation should be continued until the fruit buds have been well formed. Too many orchardists believe in leaving the tree alone after the fruiting period is passed. Again, when leaves have all dropped the mistaken idea sometimes prevails that the tree is in no need of moisture at the roots, and in such seasons dearth of rain may cause trees to suffer. There should be sufficient moisture at all times in the ground. Regarding the Hale peach not bearing in this state, the matter was referred to J. W. Mills, farm adviser for Solano County, and he finds that this variety does well in that section. Mr. Mills writes: "I have made inquiry in the Vacaville district in regard to the bearing of the J. H. Hale peach and find that it bears well in that locality. I do not know of any of these peaches having been planted in Suisun Valley more than two years ago. I imagine that Mr. Walber's trouble might be due to the trees having grown too thick and dense, thereby injuring the fruit spurs. However, this should not interfere with the blossom buds on the outside of the trees. His peach trees are rather young to expect much fruit. I imagine if he would see Mr. Searls, the farm adviser of Yolo County, he could give him better information, as he is there on the ground."

Squirrel Pest

Squirrels are eating up our melon vines. Have tried poison with no effect. What spray may be used successfully against this pest?—Subscriber, Lindsay.

Boys should get these pests, but safer and quicker is suffocation. Every neighborhood should unite and kill off every squirrel, for they are not only destructive to plants and even trees, but are a menace to life. Good work has been done by attaching a large hose to the exhaust pipe of an automobile and pumping the smoke or consumed gas down into the hole and closing immediately. There has also been constructed, according to plans drawn by the United States department of agriculture, an instrument called the squirrel destructor, which pumps carbon bisulphide, "kilmol," or similar deadly gas into the holes. Balls of waste cotton may be saturated with either of these substances and dropped into the hole and most effective work done. Be sure that the holes are filled with dirt and covered tightly after the gas has been released in the holes. More effective work along this line is accomplished in the rainy season, for then the ground is not so porous and the deadly gases are retained a longer time.

Pendulous Crop

Have hatched several hundred turkeys and have had very few die. I feed very simply; sour milk, rolled oats and alfalfa range, with, of course, grit and water. When they "sport the red," add cracked milo maize. The results have been splendid so far. Now, some that are two months or so old are showing pendulous crops, two or three very marked and many others with a tendency toward it. They have been hand raised and do not like the range. Our range is large, with good shade, scattered alfalfa and weeds, but few bugs, so we feed grain and milk. Weather has been very hot, so that milk quickly sours with much whey. Unless we feed they seem very hungry.

Feathers are unhealthy looking. When emptying crops the contents seem to be whey alone, yet we like to continue the sour milk, for we attribute our freedom from bowel trouble to the lactic acid. In hanging the crops do not look stiff like those stuffed with grain, but loose and baggy. The marked symptoms have occurred since the extreme heat and since the milk has become whey so quickly. Can it be the whey is at fault?—Subscriber, Brawley.

The whey itself ought not to have an injurious effect if fed in moderation, but if the poults have been allowed to fill their crops with it to the exclusion of other food it might easily produce a baggy crop. At the Rhode Island station, beginning when the poults are about three weeks old, they are given a quart of sour milk morning and night for 35 to 40 poults, and this amount is gradually increased. I notice your poults are getting no hard grain the first three months and no green except what they get from the alfalfa range, so it is more than likely the whey has formed too large a proportion of their ration. A little chick feed, cracked wheat or broken rice should be mixed with the oats once a day or fed separately if more convenient, and they should have some chopped green, especially onions, every day to make sure that they are getting all the greens they require. It would be a good plan when the milk sours so quickly to make a part of it, at least, into cottage cheese. Set the pan on the stove and let the milk just warm through, then drain through cheesecloth. In this way you get rid of the whey, which contains very litle nourishment, and have left a protein feed of great value. The cottage cheese may be mixed with the rolled oats and chopped greens or fed alone in place of the sour milk. Half a teaspoon for each bird twice a day would be an ample allowance. You are quite right in not trusting your birds to get all their food from the range, but should guard just as carefully against feeding them too much at this critical age. They ought to get the equivalent of the noon meal for themselves, but have a light feed in the morning and a sufficient amount at night to make the crop firm but not stuffed. You can tell by feeling the crops when they come for their supper how much they need.—J. A. K.

Sulphuring Fruit

Please give further advice regarding the sulphuring of fruit. Some apricots which I put out yesterday smell and taste so much of the sulphur that I am afraid to risk any more without further instructions.—Subscriber, Pheonix, Arizona.

About the only recipe there is for sulphuring fruit is the same as given in the Cultivator referred to, that is, an air-tight box is necessary and into this is placed the trays filled with fruit, the door is closed and the sulphur is lighted, often through an opening which is made underneath the sides of the box. There should be sulphur sufficient to burn from one to several hours. In drying apricots, for

instance, after cutting they are usually held in the fumes of the burning sulphur until the little "cup" from which the pit is removed has filled with the liquid drawn from the fruit by the sulphur fumes. The fact that this freshly sulphured fruit may have tasted of sulphur is no indication of its condition when drying has been completed for almost all of this sulphur is evaporated by the sun's heat.

Cucumber Beetles

Can you tell me what bug is eating the blossoms on our beans? And what would cause them? They are similar to the lady bug. Have yellow wings with 12 black spots on them. They eat the blossoms on our Kentucky Wonder and Golden Wax beans. Last year we didn't have anything but a nice lot of vines, and they are on them again this year. I have put wood ashes on them but it does not help.—Subscriber, Merced.

This is probably the 12-spotted cucumber beetle. These usually have a bright green body with yellowish head. They are about a quarter of an inch long and attack nearly everything that grows. Don't confuse these with the lady bird, which they are not in any sense. Lady birds are nearly always beneficial. These should have been taken in hand when first they appeared by feeding them on neutral lead arsenate. On beans it is probable that six pounds of lead to 100 gallons of water would not injure the plants.

Fall Potato

What is the best potato for fall planting? How about the Burbank? —Subscriber.

This inquiry was referred to H. L. Musser, who answers: "The Burbank is an old-timer and now out of the race. It used to be the favorite for June planting, but it is no longer a favorite for anything in Southern California. In the north they plant it largely, but here it is the White Rose, for early, middle and late. It is now all of 17 years since we first introduced the White Rose, and it has been gaining in popularity ever since. No other potato has held the lead so long."

Planting Sweet Potatoes

Is it too late to plant sweet potatoes? How should they be planted?—Subscriber, Pomona.

This inquiry was referred to D. F. Reichard, who answers: "Replying to your inquiry regarding the culture of sweet potatoes, would say the plants are being planted extensively at this time and can be set out until July 1. They should be planted on ridges which should be about three feet apart, the plants being set about 10 inches apart in the row. This method of planting permits of irrigation in such a manner that the water flows in the ditches made by throwing up the ridges, which is the most desirable way."

Ticks

I send bugs which I find in my chicken house. Am informed that these may be California ticks. They seem to come out only at night. Please advise method of control.—Subscriber, Visalia.

These are the common fowl ticks which are sometimes an awful pest, especially where the soil is very sandy. In "Poultry for Profit" Mrs. Koethen recommends spraying or scrubbing the poultry house with corrosive sublimate solution, eight ounces corrosive sublimate to 20 gallons water. Or one may fumigate by burning sulphur or with formaldehyde, or, still better, with cyanide such as is used in fumigating citrus trees. In the cyanide fumigation care must be exercised not to breathe the fumes, which are deadly. Keep the house tightly closed for several hours. Those who have files of the Cultivator as far back as 1910 will find in the issue of August 11 a four-column illustrated article giving suggestions for poultry house construction, which makes it possible to keep down this pest, also illustration of the pest itself. Features of control recommended in that article are as given above. The use of tanglefoot or grease barriers, which prevent the pest from reaching the roosts, is also recommended; where roosts are infested burn and substitute new ones, seek out all hiding places, etc.

Used Tin Cans

Inquiry by "Subscriber, Chula Vista," in Cultivator of June 23 is further answered by Philip M. Stone of the state university. He writes:

"In answer to your request of June 1, 1917, for information as to whether it is safe to use 'Crisco cans,' also lard pails and other tins, for canning fruits or vegetables, I am enclosing for your information a mimeograph circular on 'Hints on Food Conservation,' which contains the paragraph: 'Crisco cans and cans with smilar tops may be used for canning fruits. They should be sealed with sealing wax after sterilizing fruit in them. Do not let any available container go unfilled.'"

Keeping Potatoes

Can you tell me how to keep potatoes all the year round? I would like to keep some small ones for seed, but do not know exactly how to handle them.—Subscriber, Poway.

We presume the subscriber is inquiring as to the present or spring crop of potatoes. It will be impossible to keep them through until another spring planting time. If irrigation is possible, then the seed from this spring crop may be planted, say during July or early August, and this crop when it matures in the fall will have far better keeping quality than the spring-grown one. Of course where one has a cool, well ventilated cellar it might be possible to keep for some weeks, or maybe months, but would advise selling the present crop excepting such as may be needed until the fall crop may ripen.

Peach Blight

I send some ripe Alexander and green Salway peaches to learn the cause of the small "dents" in them. What treatment is recommended to prevent a recurrence of the trouble another year?—Subscriber, Lakeside.

This is a typical case of peach blight, Coryneum Beijerinckii. It takes branch, leaf and fruit and has caused millions of dollars of loss in California, and from this state has spread to many other peach sections. It is comparatively easy of control, however, if taken at the proper season, by spraying with Bordeaux mixture as soon as the trees become dormant in the fall. Prof. Ralph E. Smith, in his bulletin, refers to instances where spraying in December gave almost perfect results in the control. After December, and especially in February, results were not satisfactory. We recommend every peach grower to write the University of California and ask for Bulletin 191, the California Peach Blight, by Ralph E. Smith, assisted by E. H. Smith, T. F. Hunt and B. J. Jones. It is possible this bulletin is out of print, but if not peach growers should secure it.

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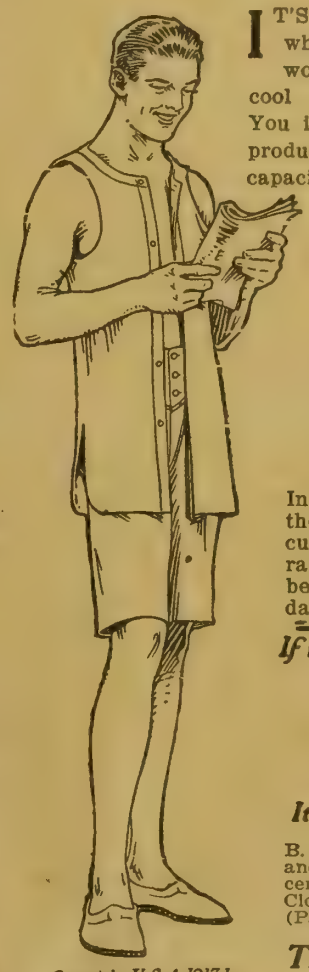

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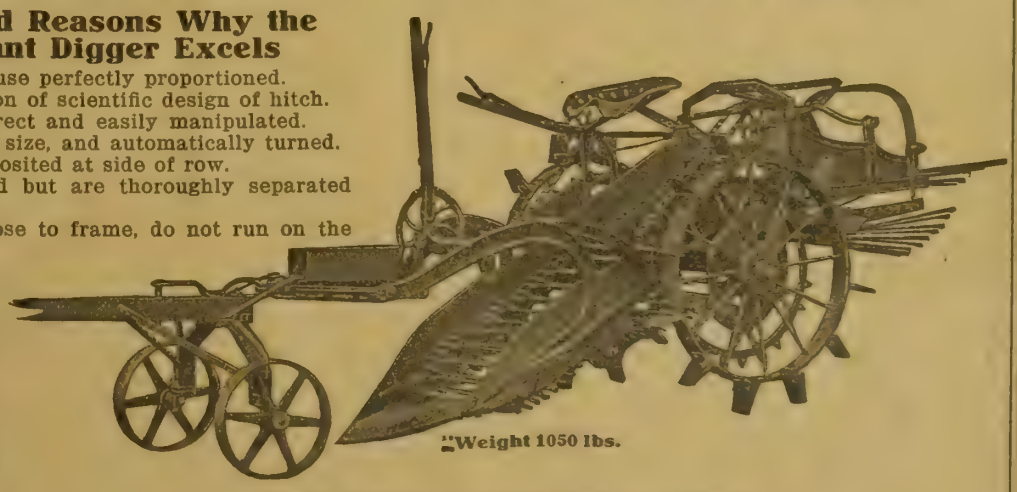

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Cantaloupes

California is the largest grower of cantaloupes of any section in the United States. In fact, the state produces as many cants as all the rest of the United States combined. The acreage 1917 is 17,300 while last year it was 16,300. The nearest competitor is Arkansas, which plants about 6900 acres, with Georgia a close second with 6700 acres. North Carolina, Colorado and Arizona are all large producers. The bureau of crop estimates refers to California's and Arizona's production as follows:

"Personal field inspection of the cantaloupes in Imperial Valley and Salt River Valley on May 15 to 17 and May 18 to 20, respectively, by the Assistant Truck Crop Specialist and numerous interviews with growers and distributors is the basis for the following estimate:

Imperial Valley

The total area of cantaloupes to be harvested this year from Imperial County is 13,040 acres; in 1916 it was 8492 acres; and in 1915 it was 8156 acres. There has been an increase of 54 per cent for 1917 over 1916 and an increase of 4 per cent for 1916 over 1915.

In 1916 there were 4617 cars shipped making a production of .543 of a car per acre of shipping cantaloupes. In 1915 there were 4722 cars shipped making a production of .578 of a car per acre of shipping cantaloupes.

It is estimated that the stand of the plants on May 20 was 85 per cent of perfect having improved 7 per cent during the last three weeks due to the appearance of plants from hills and fields which were replanted late.

Although aphis appeared in parts of the valley, spraying was practiced, and the insects were controlled by the work of parasites before serious damage was done. The early effects of frost and cold weather have been overcome by replanting and by recovery of the slightly injured plants. Plants are making rapid growth and are well loaded with blossoms. The thrifty appearance of the vines indicates that the condition is 100 per cent as compared with a year ago.

There are good reasons to believe that the yield per acre will be equal to the yield per acre in 1916. The increased acreage has been put largely on alfalfa land which yields heavily. Records of yields indicate that late seasons yield fully as much as early seasons, popular opinion to the contrary.

The first carlot shipments from Imperial Valley have rolled on the following dates: 1914, May 15; 1915, May 25; 1916, May 16.

The first crate was shipped from the valley this year on May 18. The first movements will be light, the bulk of the crop being late, but the later plantings will mature faster than the difference in dates of planting would indicate. The season is very extraordinary and difficult to forecast, but it is predicted that more of the crop will be ready for shipment after the Arizona shipments begin than usual.

Turlock District

Cool, dry weather, frosts and severe wind storms together with other influences have affected the stand and condition of the crop to such an extent that growers became discouraged and substituted beans for a large area of the cantaloupes. This accounts for a heavy reduction in the acreage as compared with 1916.

Salt River Valley, Arizona

The stand of the plants is estimated to be 85 per cent of perfect and a thrifty appearance with vines standing to run and blossoms forming normally is the basis for an estimate for condition of 100 per cent as compared with one year ago, or 87 per cent of normal. While a later attack of aphis is probable and sometimes does serious damage an unusual supply of parasites is present and it is believed that the aphis will be controlled successfully.

Last year there were 895 cars shipped. Later an estimate will be made on the number to move this year.

The first carlot shipment in 1915 was on July 4 and in 1916 the first carlot shipment was on June 28. Earlier planting has been done this year than previously and will overcome the backwardness of the season so that the first car lot shipment will be during the first week in July.

Returns from truck crop reports show the per cent of the cantaloupe crop in the following States usually harvested in each month from April to September to be as follows:

	May Pct.	July Pct.	Aug. Pct.	Sept. Pct.	Total. Pct.
Florida	43.8	8.4	0.9	.....	93.0
California	3.0	25.5	25.5	23.0	99.0
Alabama	1.3	46.5	6.8	1.0	89.4
North Carolina	.....	49.9	10.7	2.9	100.0
South Carolina	.....	66.7	16.6	.....	100.0
Georgia	.....	65.4	.....	.....	100.0
Tennessee	.....	45.3	45.0	2.3	100.0
Arkansas	.....	38.4	28.3	.....	100.0
Nevada	.....	90.0	7.0	.....	100.0
Arizona	.....	80.0	15.0	.....	95.5
New Mexico	.....	80.0	20.0	.....	100.0
Colorado	.....	.....	23.6	69.3	92.9

Squash Bugs

OWING to the prevalence of squash bugs we have asked State Horticultural Commissioner Hecke for use of engravings and an article from "Injurious and Beneficial Insects of California," written by Mr. E. O. Essig. In the book he says:

"This bug is one of the most perplexing pests which California producers have to deal with.

Description

"The small, somewhat three-sided eggs are dark metallic brown in color and laid in groups of from 15 to 40. The newly hatched bug is light green with pinkish appendages. As it ages, the thorax, legs and antennae become black and the abdomen gray. The adults are dark grayish-brown above, mottled yellowish beneath, and about three-quarters inch long. They secrete a very offensive liquid, the odor of which has led to their being called "stink bugs." They hibernate in any dry, protected place, under boards, rubbish, etc., or in barns or outhouses.

Life History

"The eggs are laid in the spring

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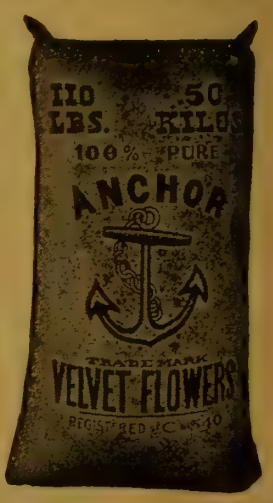

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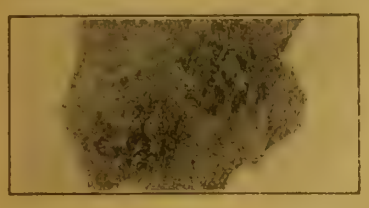
and early summer on the under or upper surface of the leaves or on the stems of the vines. They hatch in about two weeks, and the young bugs begin work upon the small plants, and continue throughout the nymphal and adult stages often causing great damage. The period from egg to adult occupies from one to two



Eggs

months. The latter hibernate and are ready to begin egg-laying as soon as the vines are suitable in the spring. There is only one generation each year.

Nature of Work

"The young adults work upon the young plants, often killing them. They also attack the young foliage

Nymphs

of older plants. In the process of piercing the tissues, these bugs are carriers of fungous diseases, inoculating healthy plants from diseased ones.

Distribution

"The squash bug occurs throughout the state and is especially abundant in the central and southern parts.

Food Plants

"Most of the members of the squash family (Cucurbitaceae), including the pumpkin, squash and gourd, are atacked by this bug.

Control

"Hand picking early in the spring, as soon as the adults appear and begin egg laying, is recommended. The vines are so tender that spraying is impracticable. The bugs may be trapped by placing in the garden boards, pieces of bark or similar material under which they may find shelter. They may then be collected in the early morning and destroyed.

Adults

Young plants may be covered to afford protection until they are able to resist the attacks. Repellents, such as gypsum saturated with kerosene or turpentine, scattered on the land are said to help to drive them away. Clean culture is also suggested, care being taken to burn all vines and rubbish in the fall. Thoroughly fertilizing and watering the land may so stimulate plant growth as to make the attacks of the bug of little avail."

Another Remedy

One more remedy which has been sent to us by Harry S. Smith, in charge of the state insectary at Sacramento, is to smear tar or thick crude oil over paper and place under vines, shaking the bugs upon them. This however, is hardly practicable where a field is to be cleared of the pest.

A Wheatless Egg Laying Ration

WITH wheat so high poultrymen will be interested to learn that on the United States department of agriculture experiment farm excellent egg laying results were secured with a wheatless ration. Thirty Leghorn pullets to which this ration has been fed for 1½ years produced an average of 147.3 eggs per hen for the pullet year. This compares favorably with egg yields secured on other rations containing wheat and therefore more expensive. This pen, moreover, during the first 16 weeks of its second year has averaged 28.5 eggs per hen, 17.5 eggs per hen being produced in March.

The same wheatless ration has been fed since last November to a pen of Buff Orpington pullets which have laid 53 eggs per hen in 20 weeks and hold the highest egg record of any of the large feeding pens of pullets at the farm this year. Two other pens, however, are less than one egg per hen behind this pen.

The ration used was as follows: Scratch mixture.—Two pounds cracked corn, one pound oats. Dry mash. —Three pounds corn meal, one pound beef scrap.

The scratch mixture was fed sparingly so that the hens ate about equal parts of this mixture and of the dry mash. The total grain consumption of feed for the year was 52 pounds, of which 26 pounds was scratch mixture. Throughout the year it took 4.6 pounds of feed to produce a dozen eggs.

If the wheat is omitted from the ration it is essential to feed a considerable proportion of beef scrap in the mash, but with present prices beef scrap is one of the cheapest poultry feeds considering its high protein content.

These experiments, the specialists say, prove that wheat is not essential in an egg laying ration and that excellent results can be secured by using corn and oats as a scratch mixture provided this is fed with a good mash containing 25 per cent beef scrap.

National Egg Laying Contest

By C. T. Patterson, Director

MAY report of sixth national egg laying contest at Missouri state poultry experiment station at Mountain Grove.

The contest at present is ahead of any previous one. The average eggs produced during the first seven months of each contest are as follows:

First contest, 80 eggs per hen; second contest, 85.6; third contest, 97; fourth contest, 83; fifth contest, 99.6. fourth contest, 83; fifth contest, 99.6; sixth contest, 109.

The average eggs produced per hen during May of each of the six contests is as follows: First contest, 17.5 eggs per hen; second contest, 17.5; third contest, 19; fourth contest, 17; fifth contest, 18.2; sixth contest, 19.8

Twenty-eight per cent of the hens went broody during May.

The cup for May was won by pen 49, White Plymouth Rocks, Missouri, which averaged 7.3 pounds each. The five hens produced 134 eggs during the month, or an average of 26.8 eggs each.

The pens occupying the five highest places for May are as follows:

White Plymouth Rocks, Missouri, 134 eggs; S. C. White Leghorns, Pennsylvania, 128; S. C. White Leghorns, Missouri, 126; White Wyandottes, Missouri, 121; S. C. White Leghorns, Pensylvania, 119; S. C. White Leghorns, Missouri, 119.

The ten highest pens to date are as follows:

White Wyandottes, Missouri, 754 eggs; R. C. R. I. Whites, New Jersey, 722; S. C. W. Leghorns, Missouri, 693; S. C. White Leghorns, Pennsylvania, 641; S. C. Reds, Iowa, 640; Barred Rocks, Missouri, 638; White Orpingtons, Missouri, 634; R. C. Reds, Missouri, 631; S. C. R. I. Whites, Michigan, 625; White Rocks, Idaho, 609.

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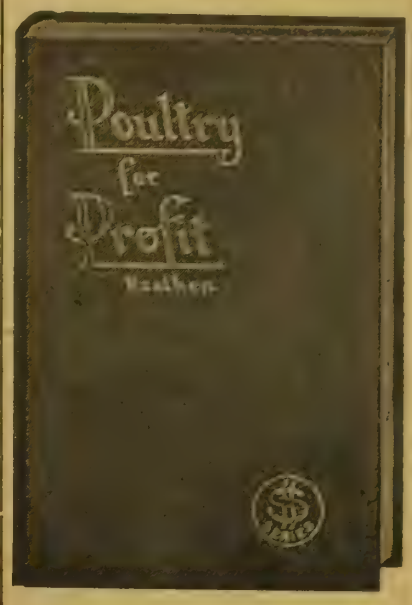

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Combined with California Cultivator 1914
Livestock and Dairy Journal, Established 1901, Combined with California Cultivator 1916

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Saturday, June 30, 1917

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THIS WEEK'S COVER

Illustrations on cover page this week speak for themselves. The photographs were taken by the Cultivator at the demonstration of frost fighting appliances at Pomona and give an idea of the variety of apparatus now on the market. Nearly all are effective and some of them are economical. As an insurance proposition frost fighting equipment, which may be had within economic bounds, is invaluable. Perfect equipment is not yet devised, but it is coming.

INDEX

The best reading in this issue of the Cultivator is on pages 726 and 727. On those pages are references to contents of Volume XLVIII, a whole library of information on things agricultural in California.

The Cultivator is well worth filing for the information it contains is made available by the index which is published in the last issue of each volume; in other words, the last issue in June and the last issue in December. File the Cultivator, have it bound at the end of each six months.

EFFICIENCY

Work less and accomplish more seems to be the motto of subscriber contributors to the household department in this issue. "Woman's work is never done" may become obsolete if the women will but take some of the hints on these three pages and make electricity and make gasoline and make compressed air "do it." Labor saving appliances find quicker purchase when they help in raising crops than when they help in raising children and in making the home comfortable and liveable. But let the farmers see to it that the drudgery of the household is lightened so far as possible and the woman given a chance to get her work done, at least occasionally.

Speaking of labor lighteners, one of the contributors mentions the phonograph. Even though there is natural talent in the family, the phonograph record may add reproductions of the most wonderful music in the world and bring into the home inspiration and culture which may be gained in no other way.

FALL POTATOES

See Professor Vaile's article on the third page of this issue. There have been innumerable mistakes in planting and growing the spring crop, for there have been great numbers of amateurs who have gone into potato growing. The growing of the fall crop is even more difficult, but for California the fall crop has far greater value than the spring crop. To secure a stand intelligent harvesting and handling of the seed is necessary. Professor Vaile gives some good suggestions.

BUILD A SILO

Built your silo yet? Fortunately for the live stock man, grain is coming down. When grain comes down all other feeds follow suit, but come down as much as they will the live stock man is confronted by a situation more difficult than any he has faced before, for prices are still high and will remain high for many months. It is not yet too late to plan for the silo. No cheaper feed can be purchased. Every live stock man should use the silo as never before.

CITRUS EXPERIMENT STATION

The citrus experiment station at Riverside is assuming form. This may be considered a somewhat delayed statement, for a station has been maintained by the University of California at Riverside many years. But in 1915 Riverside was chosen as the site for a new and greatly enlarged station, and the state university proceeded at once to make plans for a great experimental work and for a school for post graduates which should have a world wide influence.

The plans have not all matured for they are ever growing. But with nearly a dozen buildings almost completed, some of them on most prominent sites, one now gets more of an idea of the scope of a great institution.

But in addition to administrative building, laboratories, residences, barns and other buildings, and the experimental plots, an interesting feature at this time is—Beans. Not for experimental work but for practical feeding of hungry folks, the force is now planting beans, not "back-yard" beans but broad acres of beans.

So our new station starts with being practical and fitting itself to conditions.

SAFETY FIRST

Brave little Ojai in Ventura County is rebuilding its homes in the ashes. Hundreds were made homeless by the "carelessness of a camper." Rangers and others are endeavoring to trace the cause of the fire and find the guilty ones. While Ojai may build better and finer, and other crops may be grown to replace the hundreds of acres destroyed, it takes time and suffering to do it.

In an appeal to all the people to observe every possible rule for fire prevention it is stated that $200,000,000 is the annual fire loss of the United States: "If all the buildings destroyed during any one year were erected on the two sides of a single street they would stretch out along that street for a thousand miles. To accomplish this annual destruction, fire starting at one end of this street would have to burn at the rate of three miles a day for every day in the year. Going through such a burned street at every 1,000 feet one would pass the ruins of a building from which an injured person was being removed, and every three-quarters of a mile would be the ruin of a building in which a life was lost."

In these days of many ciphered figures $200,000,000 means but little, but to make it more evident to our ordinary minds this way of stating it makes it more emphatic.

Of all the places in the world where care should be exercised, semi-arid California calls for most consideration of "safety first." Our continual preachments along this line may seem trite, but we are surely a careless people and continual reminder seems necessary. The best of all precautions is common sense.

Do not leave the camp fire with a single coal alive. If a smoker, swallow the stubs, especially of cigarettes Above all, hoe the dried grass and weeds away from all buildings. An extra barrel of water or a box of sand make excellent fire extinguishers.

If selfishness does not inspire to take this extra precaution, do it as an act of patriotism.

NEW SEED

The department of agriculture sends out warning to farmers to exercise care in purchasing seed of new and untried varieties of sorghums. We believe the department might have gone farther and given warning against the indiscriminate buying of untried seeds of any crop. We would not urge against the trying of new things, only that the trial be made in a small way. Farmers have been offered "Miracle Wheat" and "wheats" going under other miraculous names which have proven entirely worthless, yet the seed was purchased at enormous prices.

One of the new kafirs which is being worked off on Middle West farmers is called the Schrock. It is said to be remarkably early and to have great drouth resistance. The department says that it requires so long to reach maturity that it will suffer more from drouth than other varieties. The department has tested it out at its stations in Kansas and Texas.

CHEAPER FARM MONEY

With all the patriotism being manifested in great subscriptions to the liberty loan it will be well for those who have money, whether little or much, to remember that equally as important as great funds for the purchase of guns, ammunition and food for the soldiers is the production of food. Producers are finding their problems many. Implements and all farm supplies have advanced enormously in price. Bankers do not seem to recognize this need, at least not as a rule. It is hoped that the federal farm loan will aid greatly in this supplying of cheaper money, but if it were possible for other large interests to give opportunities to farmers to secure funds at a reasonable rate of interest relief could be had much sooner.

PLANTING POTATOES DURING MIDSUMMER

By R. S. Vaile, Citrus Experiment Station

IT is often very difficult to secure a satisfactory yield of potatoes when the seed is planted during warm weather. There are two conditions which are largely responsible, namely: First, the use of seed which has not been properly matured, and, second, the improper treatment of the soil prior to planting.

Handling the Seed

The spring crop that is to be harvested should have been planted during the period from February 1 to March 10. It must have been grown on land free from potato diseases. Tuber moth should have been avoided so far as possible by high banking of the plants in the row. The potatoes should be dug when the vines are brown but not completely dry. The skin of the potato should not slip when handled. Hand digging is usually the most satisfactory method of harvesting potatoes for seed. Great care must be taken not to bruise during the digging.

Immediately upon digging, the potatoes should be stored in a place that is cool, moist and well ventilated, dark and free from tuber moth. The potatoes may be placed in piles three to four feet high, preferably in a cool screen room. If such a room is not available the pile should be covered deeply with straw. When straw is used care must be taken to have the covering thick enough to prevent tuber moths reaching the potatoes. In any case the humidity should be kept high by sprinkling the piles if necessary. After two weeks of such treatment the potatoes should be carefully hand-sorted. Any that are inclined to be soft should be discarded, as well as any that show sunburn. Planting may be done immediately, provided the tubers show signs of sprouting. If they do not they should be exposed to a weak diffused light until they do sprout. Any tubers that do not show definite signs of sprouting should be turned over to the commissary department.

Treatment of the Soil

It is very important in order that a good stand may be obtained that the soil be thoroughly moist and as cool as possible at the time of planting. This is best done by irrigating heavily a week or two before planting and putting on a second application of water a few days before the field is to be used. The soil is not worked between the applications of water.

The second irrigation is helpful mainly in cooling the soil, and the field should be plowed and worked into shape as soon as the earth has dried sufficiently to allow its proper preparation. The potatoes should be planted immediately afer the field is thus prepared, and it will be found much more satisfactory, if a considerable area is to be planted, to divide it up into small tracts, for if too large a field is handled it will be impossible to plant as soon as desirable.

Time of Planting

The time of planting will vary somewhat with the locality. In Central and Northern California planting should be finished before the middle of July or else the fall frosts may catch the crop. In Southern California, on the other hand, planting should not commence before July, 20 and should be finished by August 10.

Agricultural News Notes of the Pacific Coast

Northern California

Nevada County reports prospects for a very large crop of pears and apples.

The Oroville Register reports contracts being made for plums at $40 a ton, apricots $50.

The Glenn County farm adviser states that hay crops in that county are 120 per cent of normal.

Several large plantings of Large White and Small White beans are being made in Shasta County.

Sycamore, Colusa County, reports a big crop of grain, especially barley, which is now going into warehouses.

Representatives of the Prune and Apricot Growers' Association are securing crop agreements in the Hayward district.

Horticultural Commissioner C. K. Turner of Placer County reports very heavy plantings of plums and prunes in that county.

"Russian thistle is now practically cleared from all lands in Butte County" is the report of Horticultural Commissioner Earl Mills.

Sheep and cattle are now coming in to the summer ranges on the Tahoe national forest. The feed is very backward this season.

Yolo County reports 131,885 acres planted to barley; alfalfa has the next largest acreage, 38,105; beans take third place with 34,537.

The rice mill at Biggs has just finished the cleaning of 205,000 bags and will soon be put in shape to handle the coming season's output.

Horticultural Commissioner Mills of Butte County has outlined certain quarantine areas within that county to prevent the spread of olive knot.

The bean thrips is doing some damage in Placer County. Farm Adviser Amundsen is recommending the use of a spray of Blackleaf "40" and soap.

Peach growers affiliated with the California Peach Growers' Association are gratified at the financial report of the company made at the recent annual meeting in Fresno.

"One of the best grain crops in years" is the report coming in from farming sections about Dixon, Solano County. At present prices the grain crop is often worth more than the land.

The Paradise Irrigation District of Paradise, Butte County, has been granted a permit by the state water commission to appropriate 9500 acre feet of the waters of Little Butte Creek.

A desire to "do their bit" though deprived of their personal liberty is evidenced by the purchase of liberty bonds by prisoners in San Quentin, some of whom are serving life sentences.

Yolo County has a council of defense which has inaugurated a campaign to prevent fire losses. The aim of the campaign is to save the food crops this year when they are so bitterly needed by the world.

The Oroville plant of the California Ripe Olive Company is installing the necessary machinery for handling the tomato pack for which it has a government contract. Numbered among the products of the company at the present time are ripe olives and olive oil, mayonnaise dressing, honey, marmalade and dried figs.

Central California

The packing house at Sultana, Tulare County, is running on Valencias.

Fresno organizations are urging government aid for the Pine Flat dam project.

The trustees of the Peach Growers' Association have re-elected the old board of trustees.

Tulare County is distributing five tons of poisoned grain in its campaign against ground squirrels.

The Fresno District Fair Association is offering many prizes to boys and girls of that section for exhibits at the coming fair.

The last of the sales of canning peaches was recently closed at Visalia, bringing $50 a ton, against $27.50 and $30 last year.

Santa Clara Valley will hold its third annual Prune and Apricot Exposition on September 21 and 22. It will be held at Mountain View.

The Cooperative Creamery Association at Porterville is liquidating claims against it and it is asserted all obligations will be met.

The cannery at Mountain View, Santa Clara County, has been doubled in size, and a large pickling and catsup factory has been built.

The alfalfa meal mill at Kerman, Fresno County, expects to turn out several tons of alfalfa meal this season, starting its run this week.

Two combined harvesters and hundreds of acres of grain and pasture, together with farm buildings, were burned near Montpellier, Stanislaus County.

Contracts have been completed between 45 packers of the state and the Prune and Apricot Growers, the new packers' association to be known as the Affiliated Packers.

Scarcity of feed for flocks has caused disappointment among sheep men because of the decision of the national park service to allow no sheep in Yosemite National Park.

The Turlock Merchants and Growers' Association is making plans to install a bean cleaning plant and will build a large ware house for the exclusive purpose of handling beans.

Better plans for shipment of fruit and produce from the Modesto, Turlock and Merced districts were discussed at a joint meeting of railway and fruit men in Turlock recently.

Some subjects under consideration at the recent conference of grape men, packers and shippers of the state at Fresno were standardization of pack, the wage problem, future of the industry, etc.

The Valley Fruit Growers Association of Fresno County has fixed on contract prices for harvesting raisin grapes as follows: Muscats 3 cents per tray of 22 pounds, Thompson 2½ cents, Sultanas 2½ cents.

The Tulare Canning Peach Growers' Association has contracted its peach crop to the California Packing Corporation at $27.50 for freestones, $45 for Orange Clings and Tuscans and $50 for Phillips.

A movement is on foot to organize dairymen of the San Joaquin Valley in an association similar to the peach and raisin companies. A committee, one member of which is appointed by Market Director Weinstock, has been delegated to work out the preliminary steps.

Southern California

There is a big supply of new potatoes on the market.

San Diego is trying out a new aerial fire fighting truck.

A sale of 18 bales of cotton at 25 cents is reported from Imperial.

Canneries of Lankershim, Los Angeles County, have opened for the fruit season.

Riverside reports a good attendance at its poultry institute, notwithstanding the hot weather.

Tests of orchard heaters were made last week at Pomona on the San Antonio school grounds.

The city of Chino is cutting the barley hay on its sewer farm. There will be more than 100 tons.

The extreme heat of the past week is thought by some citrus growers to have killed off many scale.

Potato growers of San Bernardino County are reported seriously embarrassed by shortage of labor.

Calexico is planning a big Fourth of July celebration, to which it invites all of Imperial County.

The fruit and vegetable cannery at Hueneme is nearly completed. It will be ready for the fruit pack.

Ojai, Ventura County, which suffered so terribly from the recent forest fires, is already rebuilding.

Cotton growers of the district about Seeley, Imperial County, are discussing the building of a cooperative gin.

The Alamo canal of the Imperial Irrigation District is carrying 25 per cent more water than at this time last year.

The Covina Farmers' Club will join with the Claremont Pomological Club in its meeting at Ganesha Park, Pomona, today.

Nuevo, Riverside County, has shipped out 15 carloads of potatoes, marketing them early in the season at 3¼ cents.

Several apiaries were destroyed by the fires which recently burned over sections of the Santa Barbara national forest.

Fillmore, Ventura County, reports damage to apricots by sun burning; also some young lemon trees have been damaged.

The Arlington cannery is now working on cabbage, which is being made into kraut and packed in half and quarter barrels.

The very hot weather of the past two weeks is reported to have done some damage to bean fields, but more benefit in the killing off of bean aphis.

Cherries in the Yucapia and Beaumont district have ripened with a rush under the excessive heat and will not last much longer on the trees.

R. K. Walker of Devore has been in Imperial Valley for the past few weeks arousing interest in exhibits at the Riverside County fair, to be held at Riverside October 9-13.

The University of California will send experts to Riverside next month to give demonstrations in methods of curing and canning meats, fruits and vegetables. The demonstrations will begin about the 20th.

At the recent meeting of alfalfa growers of Southern California at Riverside reports showed that Southern California has been shipping hay to Nevada, Idaho and Utah because of short crop in those states due to late spring.

The Coast

Oregon has passed a $6,000,000 road bond measure.

Warm weather is reported all over the Pacific Coast.

Colorado has quarantined against the potato tuber moth.

The Oregon State Grange met in annual session at Astoria last week.

The Portland Union Stock Yards report the bulk of hog sales being made at $12.

The contract has been let for a $5000 creamery building at Phoenix, Arizona.

Wednesday June 6, was celebrated as Strawberry Day in the state of Washington.

Hogs are now selling at the North Portland Stock Yards at $15.25 for extra fancy stock.

Idaho stockmen are refusing to sell veal calves and all are trying hard to increase their stock.

Wheat is declining at all coast points. One day's drop at Portland showed a loss of 13 cents.

For the first time in its history the fair to be held at Boise, Idaho, will receive a state appropriation.

Redistricting the entire Yuma Valley of Arizona for school purposes is on the program for early fall.

Chandler, Arizona, cotton growers announce that they found blossoms on their cotton as early as June 13.

A 75-ton capacity fruit and vegetable dryer has been erected by the Idaho Products Company at Payette.

Texas vegetable markets have been given wonderful impetus because of the location of army camps in that state.

An independent sugar factory, the Beet Growers' Sugar Company, at Rigby, Idaho, has been capitalized at $1,500,000.

B. G. Webster of Phoenix, Arizona, has been adding a large number of registered Holstein cows and bulls to his dairy herd.

A farm survey of Coos County, Oregon, shows a farm acreage of over 100,000, while only 18,464 acres are producing crops.

November 8-15 is the date of the Northwest Live Stock Show at Lewiston. Ten thousand dollars cash premiums will be offered.

The town of Cove, in Eastern Oregon, boasts an output of 100 carloads of cherries, which will bring to that section $65,000 for this season's pack.

The Yuma Sun states that the drainage ditch proposed by the reclamation service will be opposed by 80 to 90 per cent of the farmers of Yuma Valley.

H. C. Seymour of extension department of the University of Oregon, after traveling over the state, declares that Oregon's food crop will be doubled this year.

According to telegrams to the reclamation service the Colorado will reach a depth of 30 to 31 feet by July 1. All northern streams are still rising. It is not thought the Yuma levees will be damaged.

The Southern Idaho Dairy Loan Association, the object of which is "to stand betwen the farmer and the banker, to further the dairy interests of the farmer and protect the banker in the matter of loans," has been formed. The president is R. E. Shepherd of Jerome.

Santa Anita Rancho
Anoakia Breeding Farm

ARABIAN THOROUGHBREDS: Two-year-olds, sired by Imported Stallion Ibn Mahruss, head of our Arabian stud. Dams are the choicest thoroughbred mares of Santa Anita Rancho.

SADDLE HORSES: Some of which were sired by Ibn Mahruss, world renowned imported desert saddle stallion, and Don Castano, a five-gaited Kentucky saddle Stallion. These horses are mostly three-year-olds.

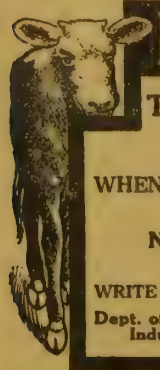
POLAND-CHINA AND BERKSHIRE BOARS: Four to nine months old. Sired by famous Poland-China herd boars. Banker's Boy and Glenview Wonder. And Berkshire boars, Kintyre Laird, Grandson's Duke and Fashion's Longfellow 5th. The dams are from the very best blood lines. Most all these animals have winnings at World's Fair. Write for catalogue.

HOLSTEINS: We will sell a number of young bulls. Some sons and grandsons of the noted Prince Gelsche Walker, and bulls from one World Record cow and two California State Record Cows. Write for details.

Correspondence Invited

Anita M. Baldwin

W. H. TAYLOR, Superintendent — Santa Anita, Cal.



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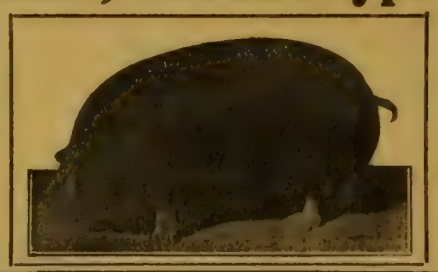

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The farmer who wants a hog that puts on 200 lbs. of firm meat at six and a half months of age buys the Hampshire.

Boars, gilts, bred and open, for sale from the P. P. I. E. Champion Hampshire stock, just as nearly perfect as they make them.

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Our herd of registered Shorthorns has been carefully selected from the leading milk producing strains of the breed and is being developed along the same lines in our hands.
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GIVES GREATEST VALUE FOR LEAST MONEY.
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State Dairy Cow Competition

THE following cows produced over 40 pounds of butterfat during May, 1917. Name of owner is given first, then list of cows with performance. The abbreviations Gr., Ay., G., H., J., stand for Grade, Ayrshire, Guernsey, Holstein, Jersey. The first figures indicate age (where age is not given it is indicated by dash). For instance, "Mabel Haskins Colantha Girl H. 4-2" means that animal is a Holstein aged four years and two months. The next figure (63) indicates number of days in milk at beginning of month; the next (2063.2), production of milk in pounds for the month; the next (3.36), percentage of fat; the last (69.324), pounds fat for the month.

Abbott, K. W.—Fidessa Butter Bell, H., 4-2, 5, 2199.7, 4.10, 90.188; Mabel Haskins Colantha Girl, H., 4-7, 63, 2063.2, 3.36, 69.324; Roma Yuba, H., 8-5, 20, 2352.7, 2.93, 68.934; Ione, Gr. J., —, 11, 1601.5, 4.02, 64.380; Melba, Gr., —, 147, 1307.0, 4.33, 56.593; Blossom, Gr., —, 35, 2009.2, 2.81, 56.459; Riverside Beauty 2d, H., 8-7, 144, 1771.4, 3.12, 55.268; Zaza, Gr., 6-0, 48, 1645.9, 3.27, 53.821; Birdie, Gr., —, 54, 1668.1, 3.16, 52.712; Geraldine, Gr., 3-10, 11, 1720.4, 3.04, 52.300; Norma, Gr., —, 35, 1522.8, 3.42, 52.080; Pet, Gr., —, 128, 1345.9, 3.72, 50.067; Molly, Gr., —, 48, 1658.1, 2.99, 49.577; *Pearl, Gr., —, 5, 1472.2, 3.36, 49.466; Nellie, Gr., 8-0, 60, 1459.1, 3.36, 49.026; Colantha, Gr., 6-0, 69, 1658.9, 2,89, 47.942; Opal, Gr., 3-8, 69, 1379.6, 3.36, 45.355; Carrie, Gr., —, 44, 1422.8, 3.22, 45.814; Ella, Gr., —, 195, 1031.1, 4.24, 43.719; Virginia, Gr., —, 5, 1228.8, 3.5, 43.008; Lillian, Gr, 2-9, 63, 944.5, 4.3, 40.614.

* 23 days.

Beebe, Floyd—Blackie, Gr., 7-0, 55, 1633.7, 4.7, 76.784; Mazie, J. H., —, —, 1959.2, 3.40, 66.613; Tessie, Gr., 2-11, 41, 1466.3, 4.50, 65.984; Irene, Gr., —, 11, 1599.6, 4.00, 63.984; Rosie, Gr. S., 11-0, 184, 1339.2, 3.50, 46.872.

Bibens, A. M.—Abbie de Kol of East Bank 2d, H., 5-3, 166, 1920.4, 3.17, 60.877; Holland-Aggie Belle Colantha H., 7-9, 90, 2192.3, 2.59, 56.781; Leda de Kol Ormsby, H., 4-9, 5, 1421.2, 3.40, 48.321.

Bohnett Bros.—Nancy, Gr. J., 5-0, 10, 1622.1, 4.31, 69.913; Cecil, J. H., 3-0, 37, 1104.1, 4.50, 49.685; Spot, J. H., 5-0, 176, 890.2, 5.43, 48.338; Sophia, Gr. J., 7-0, 81, 814.1, 5.77, 46.974; Flossy, Gr. J., 9-0, 113, 1001.9, 4.57, 45.787; Dorris, H. D., 7-0, 240, 1028.3, 4.14, 42.572.

Bomberger, J. M.—Pansy, Gr. J.. —, 30, 1260.4, 4.84, 61.003; Lulu, Gr. J., 9-0, 61, 1320.4, 4.41, 58.230; Rose, Gr. J., 8-0, 132, 1084.6, 5.04, 54.664; Nina, Gr. J., 7-0, 61, 887.3, 5.86, 51.996; Edith, Gr. J., 5-0, 181, 1075.3, 4.24, 45.593; Petnalida, J., 15-2, 169, 773.8, 5.53, 42.791.

Christen, J. M.—Commedia Soldene Hengerveld, H., 8-10, 35, 1291.1, 3.54, 45.705; Aralia Y. De Kol, Gr. H., 3-7, 57, 973.0, 4.50, 43.785.

Coppini, J. W.—Beauty 2d, Gr. J., 6-0, 41, 1432.2, 6.1, 87.364; Lady Mc., Gr. J., 12-10, 55, 1723.6, 4.7, 81.009; Diana, Gr. J., 8-0, 53, 1413.6, 5.6, 79.162; Beauty 1st, Gr. J., 8-0, 58, 1379.5, 5.6, 77.252; Florinda, Gr. J., 5-10, 59, 1271.0, 5.7, 72.447; Grace, Gr. J., 6-0, 46, 1413.6, 5.0, 70.680; Rosalee, Gr. J., 11-0, 59, 1103.6, 6.4, 70.631; *Little Surprise, Gr. J., 5-0, 5, 1441.3, 4.7, 67.741; Marigold Olga Ann, J., 7-11, 51, 1198.8, 5.22, 62.577; Princess 2d, Gr. J., 6-10, 82, 1184.2, 5.2, 61.578; Little Glynlyn, J., 6-8, 59, 1153.0, 5.32, 61.340; Gertie Olga of F., J., 3-11, 35, 1232.5, 4.93, 60.762; Marigold of Ferndale, J., 5-1, 45, 1103.9, 5.42, 59.831; Pride of California, J., 3-0, 46, 1067.5, 5.54, 59.140; Dandy Jr., Gr. J., —, 30, 1035.4, 5.38, 55.705; Olga Fern Smith, J., 5-11, 81, 997.1, 5.57, 55.538; Olga Darling, J., 2-11, 35, 1029.5, 5.10, 52.605; Bellina Darling, J., 5-1, 52, 1014.5, 5.14, 52.145; Tormenter's Easter Lily, J., 5-0, 44, 860.6, 5.16, 44.407; Melia Olga Pogis, J., 2-11, 67, 831.8, 5.29, 44.002.

*29 days.

Elliot-Brant-Rancho — Butternut Queen, G., 8-1, 148, 1227.3, 5.10, 62.992; Nerio's Elsie Granger, G., 4-1, 30, 876.9, 5.21, 45.686; Imp. Victime of Iowa, G., 5-2, 87, 860.5, 4.95, 42.595.

Grice, C. R.—Golden Buttercup of Bella Vista, G., 4-3, 12, 1070.3, 4.12, 44.096; Yeksa Poppy of Bella Vista, G., 4-7, 9, 1087.2, 4.02, 43.705.

Gross, Dr. H. G.—King's Lady Maggie, J., 7-3, 43, 1115.0, 4.20, 46.830; Marion of Butler Valley, J., 4-10, 164, 817.0, 5.67, 46.324.

Guise, N. J.—Guise Beauty, 5-0, 98, 933.1, 5.90, 55.053.

Henderson, Dr. J. W.—Clementine Mabel, G., 11-11, 99, 1215.8, 4.35, 52.887; Kitchener's Clementine of Belle Vista, G., 2-1, 172, 1184.3, 3.71, 43.938.

Hess, Leonard—Dollarspot, Gr. H., 8-0, 22, 1553.1, 3.22, 50.010; St. Patrick, Gr. H., 5-0, 25, 1373.3, 3.55, 48.752; Easter, Gr. H., 6-0, 41, 1407.4, 3.14, 44.192; Piebe Laura Inka de Kol, H., 11-0, 105, 945.5, 4.46, 42.169.

Hewins, Homer, Jr.—Silver Gloss Poplar 2d, H., 7-0, 124, 1270.6, 3.4, 43.200.

Higdon, W. J.—Paula Segis, H., 5-2, 156, 1797.8, 4.18, 75.148.

Hollow Hill Farm—Imp. Brittleware Mistletoe, G., 4-2, 156, 1268.1, 5.57, 70.639; No. 458, Gr. G., 5-2, 35, 1174.7, 5.98, 70.247; Imp. Cherry III of the Effords, G., 4-7, 181, 1357.3, 4.82, 65.422; No. 476, Gr. G., 5-1, 60, 1478.3, 4.36, 64.454; No. 481, Gr. G., 5-2, 27, 1172.0, 5.43, 63.640; No. 459, Gr. G., 6-0, 95, 1016.3, 6.23, 63.315; No. 460, Gr. G., —, 21, 1247.3, 4.79, 59.746; No. 811, Gr. G., 4-0, 150, 1206.6, 4.88, 58.882; No. 482, Gr. G., 4-9, 131, 959.5, 5.54, 53.156; Imp. Brittleware Wild Rose, G., 4-11, 141, 844.7, 5.98, 50.513; No. 480, Gr. G., 4-9, 116, 1078.3, 4.66, 50.249; No. 812, Gr. G., 4-0, 155, 889.5, 5.53, 49.189; No. 485, Gr. G., 4-5, 181, 606.5, 6.9, 41.849.

Iverson, I.—Roan, Gr. G., 7-0, 42, 1655.4, 4.7, 77.804; Little Red Cow, Gr. J., 7-0, 43, 1581.0, 4.5, 71.145; Bony, Gr. J., 6-0, 79, 1088.1, 5.9, 64.198; McFarland, Gr. G., 3-0, 47, 1438.4, 4.4, 63.290; Babe, Gr. J., 6-0, 45, 1230.7, 5.1, 62.766; Silky, Gr., J., 3, 41, 1240.0, 5.0, 62.00; Kern's Holstein, Gr. H., 10-0, 39, 1407.4, 4.4, 61.926; Little Guernsey, Gr. G., 9-0, 39, 1469.4, 4-2, 61.715; Donahue, Gr. H., 7-0, 35, 1398.1, 3.5, 60.869; Foster's Brindle, Gr. J., 5-0, 45, 1398.1, 4.3, 60.118; Little Brownie, Gr. J., 8-0, 77, 1100.5, 5.4, 59.427; Anderson's Spotted, Gr. G., 5-0, 43, 1478.7, 4.0, 59.148; Big Brindle, Gr. J., 5-0, 46, 1326.8, 4.4, 58.379; Jef. Brownie, Gr. J., 7-0, 44, 1168.7, 4.6, 53.760; Foster's Jersey, Gr. J., 5-0, 44, 1007.5, 5.0, 50.075.

Keil, F. J.—Creamcup Piebe, H., 5-10, 96, 2284.7, 2.9, 66.256; No. 101, Gr. H., 2-4, —, 1810.4, 3.6, 65.174; No. 16, Gr. H., 2-11, 69, 1218.3, 4.8, 58.478; No. 66, Gr. H., 3-2, 67, 1720.5, 3.3, 56.777; No. 65, Gr. H., 3-1, 94, 1444.6, 3.8, 54.895; No. 63, Gr. H., 3-1, 95, 1794.9, 3.0, 53.847; No. 1, Gr. H., 3-2, 68, 1593.4, 3.1, 49.395.

Kounias, S. G.—Florence Nightingale De Kol, H., 7-6, 76, 1436.6, 2.85, 40.943.

McFarland — Willowmoore Vesta 4th, Ayr., 4-5, 246, 1403.5, 4.16. 58.386.

Mealey, S. A.—Beauty, Gr. H., 5-0, 211, 1322.7, 4.0, 52.948.

Miller, Guy H.—Lorita of Venadera, J., 10-2, 74, 860.2, 6.12, 52.644; Annette of Venadera, J., 6-7, 60, 1060.0, 4.84, 51.304; Gladys of Venadera, J., 4-7, 35, 1027.5, 4.91, 50.450; Juanita of Venadera, J., 8-7, 66, 858.2, 5.77, 49.518; Goldie of Venadera, J., 7-1, 151, 961.8, 4.90, 47.128; Pearl of Venadera, J., 10-6, 245, 742.0, 5.69, 42.220; Wanda of Venadera, J., 10-3, 253, 679.2, 5.98, 40.616; Lorna of Venadera, J., 2-8, 150, 822.9, 4.91, 40.404.

Morris, A. W. & Sons Corp.—Aralia de Kol Mead, H., 5-8, 6, 2414.1, 3.68, 88.839; Aaggie Acme of Riverside 2d, H., 6-1, 176, 2056.3, 4.24, 87.187; Pauline Creamelle Mercedes, H., 8-7, 59, 2668.3, 3.16, 84.318; Aralia de Kol Mead, H., 5-7, 30, 2002.3, 3.94, 78.891; Hartog Creamelle de Kol, H., 7-5, 178, 2393.6, 2.98, 71.329; Aralia de Kol 3d, H., 6-2, 174, 2050.6, 3.22, 66.029; Aralia de Kol Pontiac Mead, H., 2-7, 166, 1618.9, 3.77, 61.033; Aralia Mead Pontiac de Kol, H., 2-7, 180, 1637.0, 3.15, 51.566; Cobossie Korndyke Burke, H., 2-3, 156, 1456.9, 3.06, 44.581.

Napa State Hospital—N. S. H. Monte, Gr. H., 6-0, 47, 2714.6, 3.58, 97.183; No. 15, Gr. H., 6-0, 185, 1638.3, 3.73, 61.109; No. 67, Gr. H., 4-0, 150, 1554.0, 3.75, 58.275; N. S. H. Brownie, Gr. H., 6-7, 141, 1757.8, 3.30, 58.007; Shy Lady, Gr. H., 3-0, 120, 1924.3, 3.00, 57.729; No. 30, 4-0, 230, 1641.1, 3.39, 55.633; N. S. H. Queen, Gr. H., 7-0, 150, 1720.1, 3.19, 54.871; No. 29 Maudie Select, Gr. H., 5-0, 181, 1361.2, 4.01, 54.584; No. 68 N. S. H. Peggie, Gr. H., 4.0, 161, 1783.4, 2.79, 49.757.

Palo Alto Stock Farm—Roxie Pauline Burke Heng, H., 6-3, 104, 2395.0, 3.49, 83.586; Imp. President Doris of

L., G., 7-0, 36, 1735.9, 4.73, 82.108; *Imp. Miss Jane of L., G., 5-8, 117, 1701.9, 4.8, 81.691; Jennie Terzool Hicks 4th, H., 7-9, 101, 2557.9, 3.19, 81.597; Kitchener's Dainty Lass, G., 5-7, 103, 1332.7, 5.67, 75.564; Mysie's Jane of Alta Vista, G., 9-11, 89, 1503.6, 4.74, 71.271; Imp. England's Lady Orange, G., 5-6, 129, 1247.8, 5.46, 68.130; May Wa Wa de Kol B. 3d, H., 6-11, 153, 2162.3, 2.95, 63.788; Athalva 2d, H., 5-2, 175, 1815.0, 3.14, 56.991; Mousie de Kol Lady 2d, H., 5-8, 151, 1945.6, 2.47, 48.056.

*27 days.

Rexholm Farms—Edith of Redwood, Gr. H., 5-0, 11, 2462.0, 2.98, 73.368.

Southern California State Hospital—Molly, Gr. H., 7-0, 55, 1585.7, 3.35, 53.121; Cora, Gr. H., 10-0, 61, 1649.4, 3.19, 52.616; Lady, Gr. H., 10-0, 14, 1560.6, 3.36, 52.436; Daisy, Gr. H., 4-0, 20, 1506.7, 3.25, 48.968; Dean, Gr. H., 7.0, 144, 1427.9, 3.38, 48.263; Flora, Gr. H., 4-0, 54, 1379.2, 3.40, 46.893; Crocus, Gr. H., 3-0, 18, 1487.1, 3.05, 45.357; Cherry(Gr. H., 3-0, 112, 1386.9, 2.95, 40.914; Nancy, Gr. H., 3-0, 25, 1366.6, 2.99, 40.861.

Stenzel, F.—Alice, Gr. H., 5-0, 51, 2552.3, 4.03, 102.858; Blackie, Gr. H., 5-0, 125, 2174.5, 4.05, 88.067; Hilda, Gr. H., 5-0, 139, 2438.6, 3.51, 85.595; Jenette, Gr. H., 5-0, 163, 2076.1, 4.12, 85.535; Brownie, Gr. H., 5-0, 100, 1643.7, 3.72, 61.146; Rosa, Gr. H., 5-0, 133, 1721.7, 3.48, 59.915; Carmelita, Gr. H., 3-0, 117, 1587.3, 3.68, 58.413; Rumpy, Gr. H., 5-0, 181, 1962.5, 2.73, 53.576; Fannie, Gr. H., 5-0, 178, 1788.8, 2.97, 53.127; Dixie, Gr. H., 3-0, 156, 1507.3, 3.30, 49,741; Spot Teat, Gr. H., 3-0, 140, 1705.8, 2.91, 49.639; Spot, Gr. H., 3-0, 102, 1634.8, 3.03, 49.534.

Trigg, G. E.—Queen, Gr.J., —, 50, 1667.8, 5.5, 91.729; Irene, Gr. J., —, 45, 1602.7, 5.6, 89.751; Lady Fern, Gr. J., —, 50, 1289.6, 6.4, 82.534; Brindle, Gr. J., —, 36, 2018.1, 4.35, 87.784; Valda, Gr. J., —, 52, 1581.0, 5.1, 80.631; Fanny, Gr. J., —, 57, 1196.6, 6.2, 74.189; Hilda, Gr. J., —, 52, 1302.0, 5.65, 73.563; Frances, Gr. J., —, 43, 1534.5, 4.8, 73.656; Reddy, Gr. J., —, 51, 1624.4, 4.45, 72.286; Martha, Gr. J., —, 42, 1401.2, 5.0, 70.060; Bonnie, Gr. J., —, 50, 1156.3, 5.8, 67.065; Mabel, Gr. J., —, 45, 1522.1, 4.4, 66.972; Juanita, Gr. J., 2-8, 8, 1274.1, 5.15, 65.616; Beauty, Gr. J., —, 40, 1302.0, 5.0, 65.100.

University Farm—Interested Jap's Santa, J., 4-2, 121, 1296.6, 6.55, 84.927; Pietertje Lorenz Korndyke, H., 4-2, 14, 2228.2, 3.31, 73.753; Korndyke Senorita, H., 6-2, 142, 1820.1, 3.81, 69.346; University Le Polka Lady II, H., 3-8, 5, 1699.8, 3.57, 60.683; Queen of Hopland, H., 10-3, 35, 1688.5, 3.30, 55.721; University La Polka Lady, H., 9-4, 30, 1758.8, 3.12, 54.875; Meridale Japs Nora, J., 4-6, 35, 1220.3, 4.14, 50.520; Fern Ridge Pearl, J., 7-3, 123, 856.5, 5.36, 45.908; Cherry, G. S., 8-0, 154, 1085.8, 4.15, 45.061; California Inka Colantha, H., 3-3, 23, 1032.8, 4.15, 42.861; Agnes Colantha, H., 5-3, 189, 1113.8, 3.68, 40.988; California Japs Nora, J., 2-1, 58, 692.7, 5.87, 40.661.

Van Derpoel, F. H.—Fern's Silver Ray, J., 7-11, 106, 1611.2, 5.33, 85.877; Katie Snyder, J., 8-10, 31, 1241.8, 5.22, 64.796; Lowland Lad's Lily, J., 12-11, 99, 921.9, 4.35, 40.103.

Welch, A. J.—Imp. Alcia of Linwood, G., 4-8, 55, 1967.9, 5.46, 58.307; Imp. Governor of the Chene's Herald Queen, G., 4-2, 77, 1106.7, 4.87, 53.896; Raymonds Lily of St. Saviours, G., 5-1, 57, 1199.7, 4.49, 53.867; Imp. Amy of Ore Hill, G., 4-2, 90, 868.2, 5.86, 50.877; Imp. Acadia of Linwood, G., 4-2, 83, 911.3, 5.31, 48.390.

Wulff, Fred B.—Jewel, Gr. J., 3-2, 98, 967.2, 5.84, 56.484.

Winner of Pacific Rural Press prize for May: F. Stenzel, San Lorenzo, average production butter fat of five grades, 84.640 lbs. (Coppini, 79.446 lbs.; Trigg, 74.865 lbs.; Iversen, 67.840 lbs.; Hollow Hill Farm, 64.280 lbs.; Beebe, 64.047 lbs.; Abbott, 55.934 lbs.; Southern California State Hospital, 51.081 lbs.; Bohnett Bros., 49,241 lbs.; Hess, 44,278 lbs.; Christen, 33,679 lbs.)

Winner of McAlister & Sons' prize for May: Napa State Hospital, highest production of butter fat by a grade cow, Monte 1st, 97.183 lbs. (Stenzel, 102.858 (barred); Trigg, 91.729; Stenzel, 88.967; Coppini, 87.364; Iversen, 77.804; Beebe, 76.784 lbs.)

Average production of competition cows for month of May (253 cows, 90 days in milk, on the average): 1309.7 lbs. milk, 53.660 lbs. fat. (Range, 102.858 to 17.954 lbs.)

California Gets Famous Guernsey Bull

Of more than ordinary interest is the recent purchase of the world-renowned Guernsey sire, Itchen Daisy's May King of Langwater by R. E. Nixon, proprietor of the Revada Guernsey Farm of Napa County. Some of the highest priced live stock in America has been brought to the Pacific Coast in recent years, but the Nixon importation not only breaks all existing Western records, but is the world's record price for the breed. This bull cost Mr. Nixon $8,000, is seven years old, and is a full brother to the noted Ne Plus Ultra. He has been the leading herd sire of the J. L. Hope Florham Farms at Madison, N. J., for years. Several of his first daughters are now on official test, and two of them brought $1,325 each in the recent Florham auction. Mr. Nixon's bull and Ne Plus Ultra are out of the same dam, Imp. Itchen Daisy 3rd. She is also the dam of Langwater Dairymaid, the record priced cow of the breed, and Imp. King of the May.

1916 fair goers will recall the sensational show winnings of the Nixon Guernseys their first time out, and it is the intention of the owner to show again this year. The home of the Nixon herd is one of the finest and most up-to-date in the country and is considered a show place in every respect. With this wonderful young bull to "nick" with the splendid lot of females on the place some new records for production are certain.

Itchen Daisy's May King of Langwater, 17349
A great Guernsey bull recently purchased by R. E. Nixon of this state.

Field Notes From the Live Stock Men

The Dupee herd of Guernseys at Edgemoor Farm, San Diego County, reports another notable record made by the imported cow Mildred 2nd of Les Godaines. She has just finished a year's test of 14,890.9 pounds of milk and 702.24 pounds of butterfat. As a four-year-old she had a record of 11,546.9 pounds of milk and 575.06 pounds butterfat. She is a show animal as well as a heavy producer and was first prize four-year-old at the San Francisco worlds fair. Her sire is Imp. Old Paddy, an Advanced Register son of Governor of the Chene.

Many California and Arizona cattlemen went East to attend the big Harris dispersal sale of Model Herefords at Harris, Missouri, June 26-27. Over 400 head of animals were sold under the hammer, and the fact that these cattle had not been fitted for sale of show purposes but were sold right off pasture appeals to our western cattlemen who are partial to vigorous, big boned, breeding animals, and at the Harris sale they were given a rare opportunity to secure some of the best individuals of the breed. The White Face has assumed a leading position on the western range and is gaining in popularity rapidly.

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cluding females of the different breeds, is becoming daily more apparent. Those who predicted an early and sharp decline in meat prices as a result of heavy liquidation have another guess coming. Price levels are unusually firm for cattle, hogs, and sheep and will continue to be firm indefinitely. The cattle shortage is particularly acute, and both mutton and wool are world sought commodities. The wise breeder will hold on to his females as long as possible and not glut the market with cheap, thin stuff.

T. T. Miller of Los Angeles has been establishing a remarkable herd of Shorthorn cattle this year. About three months ago he brought out 40 head of the best to be had in the Middle West. Then he purchased the two highest priced cows at the Carruthers sale in early May. But the most notable addition to his string was made a couple of weeks ago at the Chicago Shorthorn combination sale where over 200 animals averaged $1120 per head. Mr. Miller again topped the sale by paying $3100 for the famous red cow, Brandsbys Jinney 18th, a cow with an unbeatable reputation in the London show yard. Unquestionably, the Miller herd ranks with the very highest class herds of Shorthorns in the West. The owner has spared no expense in assembling the herd and has secured quite a number of the best bulls and females from the leading American breeders. Southern California is particularly fortunate in being the home of the Miller herd, in that it will be an important factor in the development of the beef industry.

According to a recent press dispatch from Chicago, the federal trade commission will commence the long deferred investigation of the meat problem, July 1st. The commission with its legal power to subpoena witnesses, and assisted by both the department of agriculture and the various national live stock associations, will endeavor to remedy the evils in connection with the production, marketing, and distribution of meat animals and their products. If the time ever comes when these most important problems are solved to the satisfaction of both producer and consumer the live stock industry of this country will indeed be on a sound economic basis.

Dr. Michael Creamer of Owensmouth, Los Angeles County, reports two fine Duroc-Jersey litters, eight and ten out of his two gilts purchased from the Stewart estate of Ohio, for a price of $180 each. These pigs are sired by a son of Orion Cherry King that recently sold to Welendorf and son of Algona, Iowa, for $1200. These sows will be rebred to Grand Golden Model.

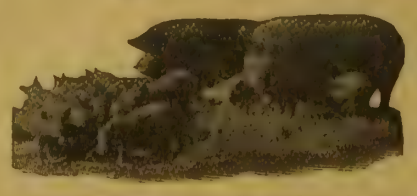
The Delta Farm and Live Stock Company of Colton recently purchased ten registered Holstein cows and two bulls at the Stalder sale. This is a beginning of the 100 head of registered cows they intend to secure. Southern California is due to have another real Holstein herd here.

Frederick M. Johnson of Napa reports the following sales: Bred sow to Dr. Geo. A. Spencer, Fair Oaks; boar to D. V. DuBois, Napa; boar to P. Headley, Napa; boar to L. R. Adams, Island Mountain; boar to I. L. J. Gamble, Middletown.

Miss Dutch 2nd in the A. W. Morris Company herd has completed a 26.40 pounds of butter seven day record. She is a four year old sired by Korndyke Queen De Kol's Prince. Her dam has made a 30 pound seven day record. Miss Dutch 2nd is a good looker and bids fair to make over 1000 pounds butter in a year. If she does this she will be the third generation to make this record which will set a new state mark.

C. B. Cunnigham reports sales of Chester Whites as follows: Two bred gilts and young service boar to Alexander Baldwin, Hilo, Hawaiian Islands; service boar to Mayor James Rolf, Jr., San Francisco; one boar and one gilt to R. B. Piper, Lake View, Oregon; two bred gilts and a service boar to W. Wilbur, Swisshone, Oregon; service boar to T. H. Mullens, Tranquility; bred gilt to Charles Soule, Little Shasta; three bred gilts to Peter P. Hovley, Brawley; bred gilt and young boar pig to George A. Bruns, Livermore; bred sow to C. E. Weikert, Fair Oaks; bred gilt to Charles Rayburn, Placerville; sow pig to William Butler, Woodland; bred gilt to F. E. Rice, Livermore; service boar and open gilt to William Schrumpf, La s; bred gilt and service boar to James McGillivray, Galt; young service boar to T. N. Hudspeth, Fallbrook; bred gilt to Charles L. Shook, Escalon.

Hog Cholera



Mr. L. B. Green and Dr. R. M. Leaf, in introducing Dorsett & Niles methods of U. S. Government, License No. 18, Anti-Hog Cholera Serum, through the Kansas City Stock Yards Serum Co., wish the Hog Raisers of the State of California to watch the splendid results obtained in Imperial Valley. A few names referred to are: Timken Ranch Co., Lyons Bros., Russell & Stuart, C. H. Westmoreland, D. Messman, Farris Bros., and many others. Dr. R. M. Leaf is a specialist in Hog Cholera and Tubercular Serum making—also Black-Leg and Anthrax Vaccine and its application and effects. Anybody wishing information, he will gladly give same from Los Angeles office, 401 Bryson Building, 2nd and Spring Sts. Phone Main 1107.
(Cut this out for future reference.)

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$53,200 PAID FOR HOLSTEIN BULL CALF. The greatest tribute to the superiority of Holstein-Friesian cattle was paid in the auction sale at Worcester, Mass., June 7 and 8, where a Holstein Bull Calf brought $53,200, a Holstein Cow $18,300 and a Holstein Heifer $18,000. 143 animals were sold for $296,470, or an average of about $2,073 per head. In 1916 at Detroit, Mich., 140 animals were sold for an average of $1,173 per head. This great increase in selling values is proof conclusive of Holstein popularity, partly due to Holsteins raising in the past year all world's 7-day records for milk and butter. The world's record for butter in 7 days is now over 50 pounds.

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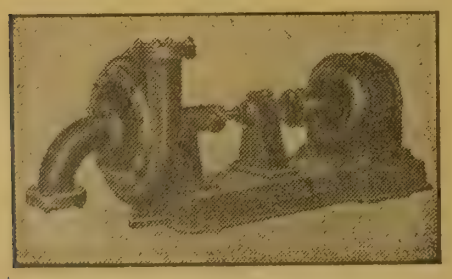

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We Need More Hay

IN our anxiety and patriotic endeavor to comply with the call of our president for the planting of more food crops for human consumption we have in many instances overlooked the necessity of maintaining and if possible increasing our staple market field crops, mainly hay.

The lateness of the season will necessitate very quick action and a quick-growing crop which will produce a hay of high standard marketable value.

Our government says that Sudan grass is one of the most important forage crops introduced into the United States during the past 20 years and is really the only hay crop that can be planted during the month of July and give quick, paying results.

Sudan grass is of the cultivated sorghum family, having rather a sweet flavor causing it to be highly relished by all kinds of stock. It is an annual, even though in general appearance it may resemble Johnson grass. It has no underground root stocks, so cannot become a field pest such as Johnson grass.

Although Sudan grass as a general rule will give its greatest tonnage on rich, well-drained, sandy-loam soil, it is probably less discriminating in this regard than any other kind of hay crop.

The seed, planted in soil properly prepared for germinating any seed, will grow very quickly; and if planted any time during July a heavy crop will easily be obtained. If proper moisture content is maintained in the soil a second cutting may be expected 35 to 45 days later. This second cutting may also be encouraged by a second irrigation. Our unusually cold spring weather has made Sudan grass planted early very slow in going forward up to the recent hot spell; but rapid and phenomenal growth has been made since then in all fields under the writer's observance. Right now is an extremely favorable time for planting on account of the splendid growing weather.

If you are unable to irrigate in order to produce a second crop cutting, but have sufficient moisture to produce one crop, you can figure on cutting a crop of hay and then having left in a small second growth a splendid pasturage.

Sudan will not necessarily be killed out by frost, as there are instances where it lives through the winter in the warmer sections, producing pasturage, and then in the spring growing up and producing a splendid hay crop. This was the case in portions of San Diego County and also in the Imperial Valley. While during the winter there may not be a great deal of growth from the crown, the plants themselves remain alive; but as stated above Sudan grass in no way becomes a pest and a single plowing will eradicate it once and for all.

Discouraging "Rustling"

Complaint has come to the Cultivator from subscribers that cattle rustling is not entirely ancient history in California. Even in "close-in-sections" a fine young veal or often more valuable stock disappears. A subscriber who has failed to get any help from county officials asks the Cultivator what may be done. The matter was taken up with Fred H. Bixby of the Los Alamitos Ranch and vice president of the California Cattlemen's Protective Association, and he writes: "I should advise your subscriber, who has had calves stolen, to join the Central Stockmen's Association of San Luis Obispo, and report any "rustling" to that association, as they have detectives in the field all the time. It is the only organization in the state that seems to have gone ahead and tried to put a stop to the stealing of cattle. In fact, that is its one aim. The California Cattlemen's Protective Association was formed for the purpose of having a bill passed by the legislature of the state similar to the Arizona bill relative to the brand inspection of cattle and hides. This bill as originally proposed had to be amended several times, but finally passed both houses, and I understand has received the signature of the governor. The protective association and the cattlemen of the state will probably amend this at each meeting of the legislature until it becomes as effective as the Arizona law. In regard to the Central Stockmen's Association, will say that the president is Mr. Howard Jacks of San Luis Obispo, and the secretary is Mr. Hollister, San Luis Obispo, and if you will put your case to either one of them they will act immediately."

Cottage Cheese

COTTAGE CHEESE is a good summer substitute for meat. It is a most healthful, economical and on most farms plentiful food. It can be easily made an a small scale and requires no special equipment. Each pound furnishes as much protein or body building material as the same weight of beef. It is, however, not quite so rich in its energy supply as meat.

Because of its ease of making it is desirable to make the cheese often, so that it may be eaten fresh, although if it is kept cool it will not spoil for several days. The following directions have been prepared by the dairy division, United States department of agriculture:

Setting

Select as much good skim milk as will be neded for a two or three days' supply. Each gallon of skim milk will make about one and a half pounds of cheese. The skim milk should first be placed in a pail or shotgun can, warmed to 75 degrees Fahrenheit and allowed to stand at that temperature until curdled. A thermometer should always be used; never guess at the temperature. The temperature can be controlled by keeping the pail or can of milk in a tub, sink or other vessel filled with water of the same temperature. The time required for curdling will depend upon the freshness of the milk. When a starter or good sour milk is available a better and more uniform cheese can be made and the time for curdling lessened. About a cupful of starter or good sour milk per gallon of skim milk is sufficient, although more may be used. With that quantity of starter the skim milk will curdle in from 10 to 15 hours, while without starter fresh milk may not curdle for 24 hours or even longer. The greater the quantity of starter the sooner curdling will take place. During the setting no special attention is necessary. As soon as a firm, smooth curd has been formed, it is ready for cutting.

Cutting, Heating and Stirring

The curd is cut into one-inch or two-inch squares with a long-bladed knife. The temperature of curdled milk (or coagulum) is then raised to 100 degrees Fahrenheit, and the mass stirred gently from time to time. When that temperature has been maintained for about half an hour the curd is ready to be drained. The degree of heating largely determines the dryness of the cheese; the higher the temperature the drier the cheese will be.

Draining

After heating the curd is poured into a cheesecloth sack or a piece of draining cloth thrown over a pail. If a pail is used it will be necessary to pour out the whey occasionally, so that draining will continue. In 15 or 20 minutes the curd will become mushy and will drain more slowly. The sides of the cloth may then be raised and lowered every few minutes to hasten draining. When the curd is rather firm and the whey has nearly ceased to flow, it is ready for salting, although tastes differ somewhat, some preferring a dry, others a soft, moist cheese.

Salting

The cheese should be salted to suit the taste. Usually, however, from one to two teaspoons per gallon of milk is about the quantity desired. The salt may be sprinkled over the curd and worked in with a spoon or paddle. The cheese is then ready to eat. If kept several days it should be stored in an earthenware or glass vessel, rather than one of tin or wood. The cheese should be stored in a cold place, as it will keep longer without becoming sour or moldy.

Cottage cheese made with rennet, a junket tablet or pepsin has a finer and more uniform texture and requires less time and attention in making. Any one of these will cause the milk to curdle sooner. The process of making is the same, except that four to five hours after the skim milk is set at 80 degrees Fahrenheit, two or three drops of liquid rennet per gallon of milk are diluted in a tablespoon of cold water and stirred into the milk. When rennet is not available one-eighth of a junket tablet per gallon of milk may be dissolved in a tablespoon of cold water and stirred into the milk. Powdered pepsin may be used for the same purpose, a quantity that will remain upon the point of a penknife being dissolved in a tablespoon of cold water and then mixed with the milk. When rennet, junket tablet or pepsin is used the coagulum is placed in a drain cloth without cutting or heating. A finer and heavier draining cloth is necessary because of the fineness of the curd. The cheese is salted as described.

Sweet or sour cream added to cottage cheese makes a richer and more palatable product.

While for small-scale operation the pasteurization of skim milk may not always be practicable, it permits a better control of the fermentation, increases the yield of cheese and renders the product safe from disease-producing organisms. With pasteurized milk it is absolutely necessary to use a starter.

Cottage cheese is judged by its flavor and texture. A high quality cheese should have a clean, mild, acid flavor and a texture smooth, free from lumps and uniform or homogeneous throughout. Flavor can be controlled by the use of clean, sweet skim milk and a good starter, but texture largely depends upon careful manipulation during the making process.

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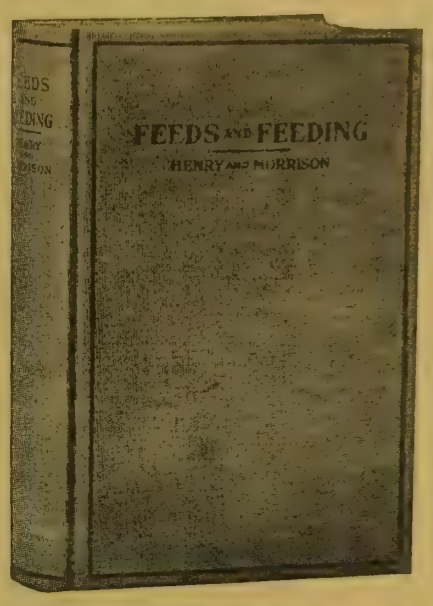

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Address all orders to

CALIFORNIA CULTIVATOR, 115-117 N. Broadway, Los Angeles

HOLSTEIN-FRIESIAN CATTLE

Registered young bulls from best families. Some of serviceable age.

REGISTERED BERKSHIRE PIGS

Masterpiece, Longfellow and Robin Hood Strains. Fine individuals of both sexes—we pay registration fee.

Careful attention given to mail orders.

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Sows, gilts and a few boars of the best breeding FOR SALE
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Offers for summer and fall delivery both registered and unregistered weanling bull and heifer calves.

For prices and particulars apply to

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Berkshire Hogs—Milking Shorthorns
Breeding Stock For Sale
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TREES

For Sale—7000 Eureka lemons, 500 Washington Navel orange trees, budded from selected buds, on sour root in May, 1915. Very healthy, clean and uniform. Will caliper around one inch. No better trees anywhere. Price 15c per tree in the ground at San Dimas. W. B. Richards, 935 N. Park Ave., Pomona. Phone Pomona 6302.

Valencias—Good, clean, thrifty, 2-year-old stock. These trees have never been neglected and are as good as the best. 45c each balled, dipped and loaded on truck at Glendora if taken in lots of 250 or more. C. A. Stoddard, Whittier, Cal.

Here is Your Opportunity to Secure A1 citrus trees. We offer several thousand 2-year-old lemons; Eureka and Villa Franca, also Washington navels; also several hundred Valencias on sweet root. We call these good trees and we know whereof we speak. ALBERT JACKSON, Upland, Cal.

For Sale—15,000 "Sweet Root" Valencia orange trees, choice yearling high buds, very thrifty stock raised from seeds of largest seedling orange trees in California. E. W. Pyne, 4 miles N. E. Olive, Orange County. Phone Placentia, 23J3.

By Far the Lowest Priced means of reaching a buyer for what you have to sell is through classified advertisements in California Cultivator. The cost is only 3 cents per word per issue, with a minimum of 35 cents.

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For Acacias, Avocados, Budded Loquats, Citrus trees, Evergreens, Feijoas, Palms, Roses and all kinds of trees, shrubs, vines, etc. Write for our new catalogue. Robertson Nurseries, Fullerton, Cal.

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Citrus Trees—All kinds, any quantity. Butler's Morning Side Nursery, Lamanda Park, Cal.

Citrus Nurseries, Murphy Oil Company, East Whittier, California. Selected stock for sale; inspection invited.

Quality Trees—Prune trees 10c each. Cash Nurseries, Sebastopol, Cal.

For Sale—1-year-old Sour Florida Seed bed stock. A. R. Klemm, Azusa, Cal.

WANTED

Foreman Wanted. A large successful and progressive citrus ranch desires to secure the services of an experienced foreman who has proven ability to head what is planned to be a model organization. Liberal salary is offered with interest in profits and the opportunity to gain a prominent place in the citrus industry. Address Box L., care Cultivator.

Wanted—Man in each California county to represent established California company. Should have rig or auto to get around. Good pay and several weeks' work to right parties. Address J. H. Yetter, Sales Department, 810 Santa Marina Building, 112 Market St. San Francisco, Cal.

Wanted—Farmers, orchardists, livestockmen to use classified liner advertisements like this. Thousands of people read every ad and the cost is only 3 cents per word per issue, minimum 35 cents. Extra lines of white space above and below cost only 16 cents per line.

Wanted Fifty sacks old potatoes suitable for seed, also garden stuff from Southern growers. Advise what you have. C. J. Frank, Ontario, Calif.

Wanted Position to take charge of Dairy by University trained man with experience. Box O, Cultivator.

SEEDS AND PLANTS

Giant Winter Rhubarb—Last chance to get extra fine subdivisions at special low prices; offer expires June 30. $673.70 from ⅝-acre first season. Grand prize San Diego Exposition. Booklet free. W. A. LEE, Covina, Cal.

Six Sacks Sudan Grass Seed—Absolutely pure. For quick sale 40 cents per pound. Imperial Valley Seed House, El Centro.

HORTICULTURAL PRINTING

Catalogues — Good Printing. Specialists in preparing nursery, seed, poultry and live stock catalogues and all kinds of commercial printing. For prices and information address WOLFER PRINTING CO., 115 No. Broadway, Los Angeles.

RABBITS

Raise Rabbits For Us—We sell you foundation stock and buy back what you raise, paying $1.75 and $2.00 each for them. Send 25c for our proposition, our book on rabbit culture and our supply catalog. Gilmore's Rabbit Farm, Dept. C, Santa Barbara, Cal. (The rabbit farm of international reputation.)

FOR LEASE

For Lease—2500 acres good grain land in Merced County, close to railroad; will lease to responsible tenant for share of crops or cash. Address C. H. Evans, 536 Title Insurance Bldg., Los Angeles.

MONEY TO LOAN

Money to Loan—On improved farms, city property or for building loans, also on cattle or cotton crops. C. G. Paul, 206 North Glendale Ave., Tropico, Cal.

HOGS

Chester Whites, the Billiken Brand—Bred sows and gilts. Every rancher should carry at least one good brood sow; are you going to help out our future meat supply? I have the following to offer, first class in every respect and priced low: 2 young tested sows to farrow in July; 6 spring gilts to farrow in September; 18 fall gilts to farrow in October. Weaned pigs, both sexes, to be delivered during the month of June; 4 young boars ready for service. Write for prices and circulars. C. B. Cunningham, Mills, Cal.

Grape-Wild Farm Berkshires — World's Fair Grand Champion Grand Leader 2nd heads our herd, not only himself a champion but the sire of champions. At the 1916 California state fair his daughters won all of the senior sow classes including the grand champion sow. At the 1916 Oregon state fair a Grand Leader sow was junior champion. We are offering a number of choice boars of exceptional breeding and are also booking orders for fall pigs. A. B. Humphrey, Escalon, San Joaquin Co., Cal.

Special Sale of weaned boar pigs of the famous Whitten Ranch Poland-Chinas. Get one and grow him out. He will put money-making qualities into your herd. Prices very low; satisfaction guaranteed. Send for free booklet, "Hogs for Profit". Packed with valuable information; tells how to become successful. Ranch in Tulare County, but address owner, R. H. Whitten, 610B Security Building, Los Angeles.

Large Yorkshires—Choice spring boars, gilts and weaned pigs from champion sow P.P.I.E. or from breeding of champion boar and sow Sacramento, 1916. If you see them grow you will like them. Riverina Farms, Paradise Road, Modesto, Cal.

Superba, World's Grand Champion Poland-China boar and one of the greatest sires of the breed. Spring boars ready for service, also few sows bred to this noted sire, reasonably cheap. Rough's Greenfields, Arlington Sta., Riverside, Cal.

Rancho Rubio Durocs. Only a few September gilts left. One corking good fall boar by Orion Model, son of the last International grand champion. Place your orders now for weaned boar pigs. Best I ever raised. Elmer Lamb, Ceres, Cal.

Large Type Poland-Chinas. Have ready for shipment three spring yearling boars, three fall pigs, spring pigs both sexes. Sired by Glenn Chief, a 1000-lb. boar, and out of prize winning sows. Cremer-Erikson & Co., Orland.

Duroc-Jerseys—Seven choice males, three months old, from litter of eleven. Guaranteed breeders. $20 each with pedigree. W. M. Taylor, Rd. 1, San Bernardino, Cal.

Big Type Durocs. Well grown out February and March pigs of either sex in any quantity. We ship only the tops and butcher the culls. F. M. Johnson, Napa, Cal.

Cholera Immune Duroc-Jerseys. Big type. Weaned boars and gilts from 500 to 700-pound sows. Prize winning stock. Derryfield Farm, I.O.O.F. Temple, Sacramento.

Duroc-Jerseys—Grand Golden Model, the premier Golden Model boar of the West. Peters Lamson & Walker, Devore, San Bernardino Co., Calif.

Crawshaw's California Chinas are prolific and profitable. Weanlings $15.00, boars $25.00. Dr. J. A. Crawshaw, Hanford, Cal.

Poland-China Swine Recorded. Stock for sale at all times. We please you or refund your money. W. A. Young, Lodi, Cal.

Most Money in Duroc-Jerseys. Bred sows and weanlings, either sex all the time. Delta Farm and Live Stock Co., Colton, Cal.

Choice Boar Pigs for Sale. Sired by Superba 220620, champion Poland boar at San Francisco. Prices right. C. R. Hanna, Riverside, Cal.

Large Yorkshires—The ideal hog for the progressive farmer. Service boars and fall pigs, both sexes, for sale. A. L. Tubbs Co., Calistoga, Cal.

Normandy Farms herd of Berkshires are now to be found at A-1 Ranch. Write for catalogue. Arlington M. Smith, Visalia, Cal.

One Large and two medium type boars, extra choice, 9 and 10 months old. W. Bernstein Ranch, L. C. Trewhitt, Mgr., Hanford, Cal.

Carruthers' Farm Berkshire Hogs. Our herd won Premier Exhibitor prize at the P. P. I. E. Exposition. Mayfield, Cal.

Berkshires—Two hundred pounds at six months. Ray C. Hannan, Corning, Cal.

Poland-Chinas—A few good breeding boars. S. F. Williams, Orland, Cal.

PATENT ATTORNEYS.

Patents that protect are secured through the PACIFIC COAST PATENT AGENCY, INC., Savings & Loan Building, Stockton, California; send for our little booklet on "PATENTS".

BEE SUPPLIES

For Sale—175 to 250 colonies Italian bees with extra equipment; in eight-frame hives; can remain in present location if desired. Geo. A. Sill, Watsonville, Cal.

FOR EXCHANGE

For Exchange—A 5-acre chicken ranch at Upland. 1200 White Leghorns. Chicken houses with cement floors. Good house, bath and toilet. Will take clear house Los Angeles or good nearby town. Mortgage $2000, nearly three years to run. A big snap, but must be turned quick. A. W. Richards, Claremont, Cal.

LIVE STOCK

D. E. Kelliher, importer and breeder of Hampshire sheep, Eugene, Cal., offers for sale a choice lot of Hampshire ram lambs, sired by Walnut Hall and Butterfield Rams, purchased at Salt Lake, August, 1916. Lambs ready for delivery after July 15th, 1917. Inspection and correspondence invited.

Butte City Shorthorns, Shropshires, Berkshires and Ponies. Stock of all ages for sale. Can supply one or a carload. Get our prices and descriptions before buying. Butte City Ranch, Box C, Butte City, Glenn Co., Cal.

At Last the Perfect Silo—the Stay Round. No hoops, no bolts. No experiments. Any one can erect. Close price. Address D. O. Lively, 125 Hobart Bldg., San Francisco.

Registered Shires — Blackhawk Stock Ranch. Importers and Breeders. Easton & Ward, Burlingame, Cal.

Pure Toggenburgs—One mature doe. 1 doe kid, 1 buck kid. H. W. Shepard, National City, Calif.

CATTLE

For Sale—Fine young three-year-old Holstein bull, registered, and five-year-old registered Holstein cow. Both in fine condition and have good pedigrees. Prices reasonable. Ben F. Thorpe, manager Canfield Ranches, Bonsall, Cal.

Registered Shorthorns—Milk and beef strains. Bulls and heifers for sale from record dams and sires, direct from the East. Catalog mailed free. Harrison, London Ranch, Glen Ellen, Cal.

D. O. Lively Stock Farm, Inc., 215 Hobart Bldg., San Francisco. Breeders of Hereford cattle. A few choice heifers for sale. We buy and sell live stock on commission. Farm at Mayfield, Cal.

Venadera Jerseys, the herd with official yearly records. Calves of both sexes for sale. Guy H. Miller, Route 1, Modesto, Cal.

N. H. Locke Co., Lockeford, Cal.—Choice young Jersey bulls for sale

For Sale, a fine dairy herd and lease. Address I. X. L., care Cultivator.

MACHINERY

WHY BUY NEW? SAVE HALF
Material guaranteed. It's 2nd hand after used few times, but not worn out.
PIPE PIPE
1000 ft. 7-in. galv. irrigating pipe 29c; 400 ft. heavy riveted 16c; 300 ft. 2 and 3-in. st. galv. pipe.
WINDMILLS
Let the wind do it. 8-ft., $25; 10-ft., $32.50 to $35; 12-ft., $45 to $55. Have three 16-ft. mills, $125 and $95, cost new $285. Pumps as much as 4 h.p. engine for nothing once installed, why buy gas?
TANKS—TANKS
New and used tanks guaranteed: 200-gal. redwood, like new, $7.50; 1500-gal. galv. with cover, $22.50; 10,000-gal. galv., $150; 16,000 $250; swell heavy 20,000-gal. galv. tank with cover, $275; 10,000-gal. redwood, $75. See who's cheapest.
ENGINES. PUMPS. PIPE.
Most all sizes—in good shape.
Centrifugal pumps; all size plunger pumps, $5 up; new pump jacks, $12.50; double-acting No. 3 Ames, $225, cost $660; Means double-acting deep well pump, $275; No. 8 Johnson turbine pump pumps 100 in. water at 140 ft. lift cost $1050, used 3 weeks, well went dry, our price $600; Large Addison double acting plunger pump complete with 85-ft. 10-in. pipe, 9-in. swell brass cylinder, double rods pumps 50 in. outfit cost $1500, snap at $475; 9 h. Foos, $135; 6-h. Stearns, $89. Many other first class engines very cheap.
Brass Cylinders. All Sizes.
Plunger rods, pipe, pipe fittings.
Ranch Machinery. Sundries.
Fine 2-gang mouldboard plow, $45; 3 or 4-gang disc tractor plow; alfalfa renovator, $25; 24-disc, 4-horse harrow, $38; mowers; buck rake, $20; feed cutter, $8.50; Bulldozer pump jack, $42; bone grinders, $6.50 to $12.50; feed mill $16.50; water trough, $4; cement mixer, $25; sprayer, $19.50; new discs, $1 each; SUNDRIES too numerous to advertise.
Wanted to buy first class material. No junk wanted. Pioneers in our line. DEMMITT CO., Upstairs, 120 N. Main. Yards, 816 Yale, Los Angeles.

Several new and slightly used engines at a bargain. Best makes. 1 to 35 h.p. Arnott & Company, Wholesale Machinery and Implements, 112 South Los Angeles St., Los Angeles, Cal.

FARM LANDS FOR SALE

160 Acres, nearly level, part damp land, first water right from stream; main country road through land, all fenced and cross fenced, ½ hog tight, 7-room house, large barn, family orchard, daily mail, near school and church, good neighborhood, fine climate, in Mariposa County, $4000 cash, no trades. 320 acres adjoining, all fenced and cross fenced, large house, barn, orchard, lots of good springs, 280 acres of plow land, partly cleared, $6500, half cash, balance on time. No trades. W. W. Baldy, Raymond, Madera County, Cal.

For Sale or Lease—1000 acres bean land, $75 per acre; on Santa Fe R. R. within 6 miles of ocean, near new government cantonment and within 100 miles of Los Angeles. Might divide or lease to responsible parties for beans. Plenty of water. Address for appointment, Owner, 1236 Citizens Bank Building, Los Angeles.

Fine Combination Property for sale—Farm, store, livestock and sawmill; 1280 acres, 200 farming, balance fine milling timber; stock, tools and machinery; crop included if sold now. For particulars write G. R. Wales, Milford, Calif.

For Sale—At a Bargain. ¾ acre in Civic Center, Atascadero, Calif.; lot 10, N. B. Paid $1060. In order to get needed money quick will sell for $530. Carl Storla, Paso Robles, Calif.

State, Government and Indian Lands. Bargains overlooked. Free New Blue Booklet. Joseph Clark, Sacramento.

LUMBER

AAA—Lumber, New and Second-Hand; rough, $10 M; finished, $15 A. R. W. shingles, 45c bundle. Dan P. Dolan, 1639 Mission St., San Francisco, Cal.

POULTRY

Baby Chicks from my carefully selected, thoroughbred flock of S. C. White Leghorns, June and July delivery at $9 per 100, $85 per 1000. A strong, thoroughbred chick at a reasonable price. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

Poultry Wanted—We pay the highest market price for all the local poultry we can get, no matter how large the quantity; also fresh ranch eggs. We remit immediately. National Poultry Co., 607 E. Third St., Los Angeles, Cal.

200-290-Egg Early Maturing Winter Laying White Leghorns, White Wyandottes, Rocks, Reds, Anconas, JUNE SALE. Eggs 60 per cent off. Few pens all breeds, half price. 8-week chicks. C. Beeson, Pasadena, Cal.

Model Poultry Farm, White Leghorn specialists. Baby chix and hatching eggs from heavy laying stock, bred by us for thirteen years. Our prices are right. W. C. Smith, Prop., Corning, Cal.

Baby Chicks—White Minorcas and Golden Buff Leghorn. Two popular breeds. Cockerels for sale. Sandridge Hatchery, Kerman, Cal.

Baby Chix — White Leghorns, White Rocks, "quackless" White Muscovy ducklings. White Star Hatchery, Kerman, Cal.

"Eastman's Bred-to-Lay" Barred Plymouth Rocks. Fairmead Poultry Farm, Fairmead, Cal.

White Guineas $3 per pair. M. J. MARTIN, Kerman, Calif.

MISCELLANEOUS

Free for Six Months—My special offer to introduce my magazine, "Investing for Profit." It is worth $10 a copy to anyone who has not acquired sufficient money to provide necessities and comforts for self and loved ones. It shows how to become richer quickly and honestly. Investing for Profit is the only progressive financial journal and has the largest circulation in America. It shows how $100 grows to $2200. Write now and I'll send it six months free. H. L. Barber, 430-28 W. Jackson Boulevard, Chicago.

For Sale—Pianos and Players. Several good used pianos—WEBER, EMERSON, SCHUBERT, DECKER, ELLINGTON, etc., and others, all in good condition, at prices ranging from $115, $135, $187 up to $215. New pianos for $228. New players from $395 up. Delivery free. Write today for complete list. Save agent's commission. Prompt service guaranteed. BARNES MUSIC COMPANY, 131 South Broadway, Los Angeles.

If You Have Transportation and irrigation problems or surveying, consult J. H. Knapp, Civil Engineer, 220 I. W. Hellman Bldg., Los Angeles. F7810. 25 years' experience in West.

Slacked Lime—Send for sample and information. Price right. Let me help you. H. B. Matthews, 350 Woodberry Road Pasadena.

To Reduce the high cost of living, send for our Wholesale to Consumer Catalogue. Smith's Cash Store, 112 Clay St., San Francisco.

AGRICULTURAL IMPLEMENTS

Large Assortment slightly used and agents' sample plows, harrows, cultivators, wagons. Call and see them before buying. Save 50 per cent on some. Four floors. Largest stock. Arnott & Company, Ranchers' Supply House, 112 to 118 South Los Angeles St., Los Angeles.

For Sale — Haines-Houser Harvester. Complete with cradle, 22-foot cut; in first class condition; sell cheap for cash. Address C. H. Evans, 536 Title Insurance Bldg., Los Angeles.

For Sale—Davenport roller-bearing steel wagon and bed, potato digger and feed chopper, cheap. J. F. Stewart, 625½ E. 21st St., Los Angeles.

DOGS

If You Raise or Handle Cattle, Sheep or turkeys, you need a DOG. Our Collies are the best. Pups just weaned for sale. Address John G. Mee, Breeder of Bronze Turkeys and Embden Geese. St. Helena, Cal.

Collie Dog Bargains—3 registered bitches and stud dog for $50. Pioneer breeder retiring. Shadeland Farms, Amity, Oregon.

For Sale—Six thoroughbred English fox hounds $20 each. Best hunters on coast. Allan Hendry, Santa Barbara, Calif.

Have Few Shepherd Puppies left. Only $3.00 each. Box 32, Encanto, Calif.

CAPRI FIGS

Capri Figs ready now. Place your order at once. Early and late varieties. Price $6.00 per thousand. Quality good, satisfaction guaranteed. L. C. Collins, Smyrna Park, Ceres, Calif.

Capri Figs Ready July 5th to August 10th. Well colonized. Tribble Bros., Elk Grove, Calif.

GREAT SHORTHORN CONGRESS

Secretary F. W. Harding of the American Shorthorn Breeders' Association made the announcement at the recent Chicago sales of a Shorthorn congress to be held at Chicago the third week of February next. This event is to be nation wide in its scope. It is the purpose to hold shows each forenoon, sales in the afternoon and Shorthorn meetings, conferences, banquets, etc., each evening. The fourth day will be devoted entirely to the milking Shorthorn interests.

Three hundred and fifty to four hundred cattle, to be selected on the basis of individual excellence, will be offered in the sales, and the show entries limited to these animals.

Los Angeles Market

LOS ANGELES, June 27, 1917.

BUTTER

Wholesale prices:

Rcts. wk. ending June 26, 378,814 lbs.

California extra creamery 37

Extr. Cry. Exch. past wk.

June	20	21	22	23	25	26
'17	.38	38	38	38	36	37

CHEESE

Brokers' prices:

California fresh, lb. 24

Oregon Longhorn 27½

Tillamook Trip. 26

EGGS

Exchange quotations:

Rcts. wk. ending June 26, 2276 cs.

Fresh extras 33

Case count 31

Pullet 30

Fresh Ranch Exch. past wk.

June	20	21	22	23	.25	26
'17	.32	32	32	32	32	33

POULTRY

We quote from growers:

Broilers .....18@21

Fryers 24

Hens—Leghorns 10-12; Heavy Col'd...21

Roasters 25

Ducks, lb. .....15@17

Squabs, doz. .....3.00@4.00

Roosters, old 10

Turkeys .....21@24

LIVE STOCK

We quote cwt. f.o.b. L. A.

Cattle—

Beef steers, av. 1000 to 1100 lbs.....9.00

Heifers, good 7.00

Cows, good .....6.50@7.00

Fair .....6.00@6.50

HOGS—

Av. 125 lbs. 12.50

Av. 150 lbs. 13.50

Av. 175-200 lbs. .....14.00@14.50

Rough, docked 20 lbs.; piggy sows, 40 lbs., stags, 40 per cent.

Prime wethers .....9.50@10.00

Ewes .....9.00@9.50

Lambs 13.00

Yearlings .....10.00@10.50

POTATOES

Wholesale selling price:

New, lug .....1.20@1.25

ONIONS

Wholesale selling price:

Crystal Wax, cr. 1.25

Bermuda, cwt. .....1.25@2.00

VEGETABLES

Wholesale prices:

Artichokes, doz. .....50@75

Asparagus, lb. .....10@11

Beans—Wax, 6@6½; string 5

Limas, lb. 9

Ky. Wonder .....6@6½

Beets, sk. 2.00

Cabbage, lb. .....1@1¼

Carrots, sk. 2.50

Chicory, doz. .....40@50

Cauliflower, doz. 1.00

Celery, doz. .....75@1.35

Corn, lug 1.00

Cucumbers, lug .....80@85

Eggplant, lb. 20

Horseradish, rt. lb. 15

Lettuce, doz. 30

Leeks, doz. 30

Mint 40

Onions, green, doz. 25

Okra 15

Oyster Plant, doz. 45

Peas, lb., Telephone .....6@6½

Peppers, Chili, lb., 25, Bell 20

Parsnips, doz. 45

Parsley 20

Radishes, doz. 17½

Rhubarb—Strawberry 1.25

Romaine, doz. 45

Spinach, doz. 17½

Squash, Summer, cr. .....45@50

Turnips, doz. 40

Tomatoes, cr. .....1.70@1.75

FRUITS

Wholesale prices:

Apples—

Newtown Pippin, Yellow 3.00

Avocados, doz. .....6.00@10.00

Apricots, lb. .....4½@5

Bananas, lb. .....5¼@5½

Cantaloupes—

Standard .....1.80@1.90

Pony .....1.50@1.65

Cherries, lb. .....10@14

Crab Apples, lug 1.5

Currants, cr. 1.25

Figs, bx. 1.25

Loganberries, bskt. .....5@6

Loquats, lb. 7½

Peaches, lug. 2.00

Plums, lb. 6

Blackberries, basket 6

Raspberries, basket .....7@8

Gooseberries, lb. .....8½@9

Srawberries, basket 6

Pineapples, lb. 8

Watermelon, lb. .....2½@3

CITRUS

Lemons .....$3.75@4.25

Juice 2.25

Grapefruit .....3.00@3.25

Limes, basket 1.00

Valencias .....2.75@3.40

Navels .....2.50@2.75

HONEY

Wholesale prices:

Extr. White 11; W.W. 12½

Comb., case. W. 3.75; W.W. case....4.00

Beeswax, lb. 32

NUTS

Peanuts, raw 12

Pine Nuts 20

Pecans 19

BEANS

Wholesale Prices:

Lady Washington 14.50

Limas 14.50

Pinks .....11.00.

Manchurian Reds 11.00

Baby Mex. 10.00

Garbanzos .....9.00@10.00

Small White 14.50

Blackeyes 8.00

Tepary 7.00

Lentils 18.00

HAY

Quotations by Nichols-Loomis Company. Wholesale prices to grower f.o.b. L. A. carlots.

We quote ton f.o.b. L. A. to producers:

Tame Oat .....17.00@19.00

Volunteer Oat .....13.00@15.00

Wheat .....13.00@16.00

Barley .....15.00@18.00

Alfalfa .....14.00@17.00

Straw 8.00

GRAIN AND FEEDSTUFFS

Wholesale cwt. f.o.b. L. A.

Alfalfa Meal 1.65

Alfalfa Molasses 1.75

Barley, Rolled 2.50

Barley, Recleaned, Whole 2.55

Barley, Hulled 3.00

Beet Pulp 1.80

Bran, Heavy 2.95

Cocoanut Meal 2.80

Cottonseed Meal 2.50

Corn, Yellow 2.70

Corn, White 3.80

Corn, Cracked 3.75

Corn, Feed Meal 3.80

Corn, Egyptian 3.70

Middlings 2.85

Milo 3.70

Oat Chop 2.10

Oats, White 2.70

Oats, Rolled White 2.75

Oats, Hulled 4.60

Oats, Rolled Chicken Groats.....4.70

Oilcake Meal 3.30

Wheat, No. 1 .....4.10@4.15

Wheat, Cracked, No. 1.....4.50

Rye 4.45

Blood Meal .....5.10@5.20

Bone, Green .....2.65@2.75

Bone, Dry .....2.85@2.95

Charcoal, 50-lb. sk. .....2.55@2.65

Clam Shell .....70@95

Grit, Granite .....65@75

Oyster Shell .....1.25@1.35

Sunflower Seed .....4.10@4.20

Soya Bean Meal .....3.30@3.40

Scratch Feed .....3.80@3.90

San Francisco Markets

SAN FRANCISCO, June 26, 1917.

BUTTER

Dairy Exchange quotations, lb.:

Rcts. wk. ending June 25, 650,500 lbs.

Fresh extras 35½

Prime firsts 35

Extra. Cr'y. Prod. Exch. past wk.

June	19	20	21	22	23	25
'17	.37½	37	36	37	36½	35½
'16	....	24½	24½	24½	24	....

CHEESE

Dairy Exchange quotations:

Cal. Flats ....19½@20 Y. Am. ....23@24

EGGS

Rcts. wk. ending June 25, 21998 cs.

Dairy Exchange quotations:

Fresh extras 30

Firsts 29½

Select Pullets 28

Firsts 27

Fresh Extr. Prod. Exch., past wk.

June	19	20	21	22	23	25
'17	.32	31½	30	30	30	30
'16	....	24½	24½	25	25	..

POULTRY

We quote from producers, lb.

Hens, large 25@26; Leghorns .....17@19

Small Colored .....22@24

Fryers, lb. .....22@27

Broilers .....22@23

Roosters .....30@33

Squabs, doz. .....2.00@3.50

Ducks .....16@18

Geese .....19@20

Belgian Hares, live 14@15; dr.....17@18

LIVE STOCK

Prices gross weight:

Cattle:

The following prices are for grass fed stock. Hay fed bring ½ to ¾c more.

Steers, lb., 6½@8¾; cows and heifers, 4@7; calves, 7@9½.

Sheep:

Wethers, 11; shorn, 1½@2c less; ewes, 10; lamb, lb., 12@12½.

Hogs:

Hard grain fed, wt. 100 to 150 lbs., 13; 150 to 300 lbs., 14¾@15; 300 to 400 lbs., 14¼@14½.

POTATOES

Wholesale seling prices at wharf:

Burbank, old, cwt.....3.25@3.50

New, lb. .....2@2½

ONIONS

Wholesale selling price on wharf:

New Red, sk. .....1.10@1.25

New Green, bx. .....50@75

Garlic, lb., New .....2½@4

VEGETABLES

Wholesale selling price:

Asparagus, Fy. Wh. lb. .....6@7

Beans, String, lb., 10@12½; Limas....6@9

Corn, Green, doz.—

Brentwood, 50@60; Winter, sk.2.00@2.50,

Cucumbers, lug .....75@1.00

Okra, lb. .....12½@15

Egg Plant, lb. .....10@20

Peas, Halfmoon, sk. .....2.25@2.50

Peppers, Bell, 20@25; Chili.....-15@20

Rhubarb, bx. .....1.00@1.50

Squash, Summer, bx .....75@1.00

Italian, bx. .....40@50

Tomatoes, bx.:

Merced .....75@1.00

Southern .....1.25@1.65

FRESH FRUIT

Wholesale selling price:

Apples—Newton Pippins .....2.50@2.75

New, Green .....60@85

Apricots, crate .....1.00@1.35

Bananas, bunch .....1.25@2.50

Cantaloupes—

Standard .....1.50@1.75

Pony .....2.00@2.25

Black, lb. .....5@8

Bings .....9@10

Figs, Mission, bx. .....2.00@2.50

Currants, chest .....4.00@5.50

Strawberries, chest .....6.00@9.00

Plums, Tragedy, cr. .....1.25@1.50

Clyman, cr. .....50@75

Blackberries, chest .....6.00@8.00

Gooseberries, lb. .....5@10

Loganberries, chest .....5.00@6.00

Pineapples, doz. .....3.00@4.00

Raspberries, chest .....3.00@10.00

CITRUS FRUIT

Wholesale selling price:

Lemons .....3.50@6.00

Lemonettes .....1.50@2.50

Limes, Mex., cs. .....4.50@5.50

Grapefruit .....1.75@3.25

Navels, bx. .....2.50@3.50

Valencias .....2.50@3.50

Tangerines, half orange box....1.75@2.00

BEANS

Jobbers' prices, cwt. recleaned:

Limas .....14.50@15.00

Bayous .....10.60@10.75

Garbanzos .....6.25@6.50

Small White .....15.00@15.75

Mexican Red .....11.00@11.25

Large White .....15.00@15.75

Pinks .....11.00@11.25

Black Eyes .....9.00@9.50

Red Kidneys .....14.00@15.00

Cranberry 12.00

NUTS

Peanuts, Jap, 7@7½; Eastern 7½

Pecans .....19@20

Pine Nuts .....15@17

HONEY

Jobbers' prices:

Comb, lb., W.W., 13@15; A., 8@10c; Lt. A. .....11@12

Ex. Fy. W. lb.....13c; Lt. A.....11

Beeswax, lb. 38

RICE

Price to growers:

Cal. Rough cwt. .....3.00@3.25

Lower Grades .....2.00@2.75

HAY

Under date of June 23 Scott, Magner & Miller say:

Arrivals week ending today, 1511 tons. Old hay is cleaned up and practically all of above arrivals consisted of new crop. It was necessary for dealers to go into the fields and make a few small purchases here and there to supply the present light requirements. Many producers are asking prohibitive figures. The abnormally high figures of old hay were brought about by scarcity of pasture the past season. Second cutting alfalfa is coming into the market, selling at about the same figure that prevailed for first cutting. Our prices given below are on new hay only.

We quote today wholesale prices in carload lots as appear from dealers' transfers upon the market. For prices to consumers charges of cartage, commission and handling expenses must be added.

Wheat, Fy., lt. bales.....20.00@21.00

Wheat or Wh. and Oat, No. 1.19.00@19.50

Wheat or Wh. and Oat, No. 2.17.50@18.00

Oats, Choice Tame 19.00

Other Tame .....16.00@18.00

Wild Oat .....14.00@16.00

Barley .....15.00@16.50

Alfalfa, first cutting.....14.00@15.50

Stock Hay, new .....10.50@12.00

No. 1 Barley Straw, Baled.....1.00@1.10

GRAIN

Grain Exchange prices, ctl.

Wheat—Nominal.

Corn, California Yellow .....3.25@3.50

Corn, Eastern Yellow .....3.25@3.30

Corn, Egyptian White .....3.60@3.65

Oats, White Feed .....2.45@2.50

Barley, Feed .....2.12½@2.17½

FEEDSTUFF

Wholesale prices per ton:

Bran .....38.00@39.00

Cornmeal .....72.00@73.00

Cracked Corn .....72.00@73.00

Cocoanut Meal .....37.50@38.50

Middlings .....49.00@50.00

Alfalfa Meal, carlots .....33.00@34.00

Shorts .....42.00@43.00

Rolled Barley .....45.00@46.00

SEEDS

Prices in round lots, lb.:

Millet, recleaned .....3¼@4

Alfalfa .....20@21

Flax .....5@6

Citrus Fruit Market

LOS ANGELES, June 27, 1917.

Better grade navels are practically all cleaned up at Eastern end, the few remaining selling at low prices and the fresher Valencia stock coming in commanding much higher price. Valencia shipping has been rather slow during the past week because of fruit softening during hot spell. The Fourth of July has also stimulated trade and large purchases have been made in anticipation. The slight car shortage and shortage of shook has also complicated the shipping situation.

Lemons are commanding exceptionally fine prices and 1500 cars in storage in Southern California houses will all command long prices.

Shipments

Shipments of oranges from Southern California to date since November 1, 1916, 31,094 cars, lemons 4788, total 35,882; to same date last year, oranges 24,747, lemons 4772, total 29,519. From Central California to date this season, oranges 4649, lemons 164, total 4813; to same date last year, oranges 5390, lemons 146, total 5536. From Northern California to date this season, oranges 845; to same date last season, oranges 610 cars, lemons 1.

FROM THE AUCTION

June 25

New York: 57 oranges, 4 lem. Val. higher. Nav., $1.75@3.70; Val., $3.00@4.60; Sweets, $2.45@3.60; lem., $4.15@5.75.

St. Louis: 11 cars. Val., $3.15@3.45, Nav., $2.15@2.45; lem., $3.95@5.05.

Boston: 31 cars. Val., $3.90@4.75; lem., $2.50@5.20; Nav., $1.85@4.10.

June 26

New York: 45 oranges, 2 lem. Nav., $1.90@3.75, Val., $3.00@4.60, Sweets, $1.90@3.30, St. Louis, $2.50@3.70; lem., $3.15@5.00.

Boston: 24 cars. Val., $3.20@4.50; Nav., $1.50@3.60; Sweets, $3.00@3.90; lem., $3.80@4.90.

Philadelphia: 13 cars. Val., $2.25@4.45; lem., $4.50.

WEATHER CONDITIONS

For the Week Ending June 25, 1917

	W.	Rain	Sunsh.	Temp Max.	Temp Min.
Eureka	.00	2.00	45.00	68	48
Red Bluff	.00	1.26	25.00	106	64
Sacramento	.00	1.05	29.00	100	56
San Francisco	.00	1.78	22.27	80	50
San Jose	.00	1.02	70.70	96	46
Fresno	.00	7.35	9.02	108	58
San Luis Obispo..	.00	23.03	20.51	100	48
Los Angeles	.00	15.28	72.1	106	58
San Diego	.00	10.13	70.01	86	60

THE IMPLEMENT BLUE BOOK FREE

The Midland Publishing Co., St. Louis, Missouri, has left over a few copies of the 1916 Implement Blue Book, one of which it offers to mail free of charge to any subscriber of this paper who will send 25 cents to pay the packing, postage, etc. The book has nearly 500 royal octavo pages and contains complete classified descriptive lists of all farming implements, tractors, tractor plows, vehicles, wagons, and kindred goods made in the United States, with names and addresses of manufacturers.

DAVENPORT'S ORCHARD CULTIVATOR

Made in Los Angeles

The Davenport Combination Orchard Cultivator is unsurpased for efficiency and general construction. It is made of high carbon steel throughout and everything that it is desired to do in flat orchard Cultivation can be done with this cultivator. Lift is easy and high. Simple adjustment. Spring tooth, rigid tooth, alfalfa tooth or furrowing shovels.

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Manufacturers and Jobbers, Hay Balers, Bean and Beet Tools, Full line of Disk Harrows.

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Machinery, Supplies, Pipe and Fittings

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We can make prompt deliveries of

Steam Bone Meal
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Contract Early Before Prices Advance

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ALFALFA LAND

20 Acres and up planted in Alfalfa for dairying; also first-class Orchard Land.

Brentwood Irrigated Farms

In Contra Costa County—63 Miles from San Francisco
Easy terms of payment. For prices, etc., address
BALFOUR, GUTHRIE & CO., Land Dept., 350 California St., San Francisco

No. 1 No. 2

You'll Like These Attractive Gingham Frocks at $1.95

—"DOTTY DIMPLE" dresses—models which women will find practical for wear around home.
—Made of fine gingham in plain shades, stripes and plaids of nearly every color and color combination.
—We picture two of three styles: No. 1, in pretty plaid, has wide girdle of white galatea supported by shoulder straps of gingham, and big novelty pockets. Open front style.
—No. 2, a V-neck slipover model, is in plain colors and stripes, with collar, girdle and V-shape patch pockets of contrasting color.
—A third has vestee of white pique. Some of the dresses have embroidery on collar and cuffs.
—All cut full and well made. In sizes 36 to 44.
—We pay parcel postage on these dresses.
—You'll find it satisfactory to buy from The Broadway Department Store by mail. We guarantee every purchase and will cheerfully exchange sizes and adjust errors.
—Experienced shoppers will give your order the same careful attention which you yourself would receive if you came to the store.
—Write for quotations on Women's Overalls, Khaki Outing Apparel, or, in fact, for anything you may require in dry goods or household needs.
—Ask for information regarding our big July Furniture Sale.

ARTHUR LETTS
The Broadway Department Store
LOS ANGELES, CALIFORNIA

Household Department

COME INTO THE GARDEN, MAUD

(With apologies to Mr. Tennyson)

Come into the garden, Maud,
For the black bat, night, has flown,
Come into the garden, Maud.
I'm tired of working alone.
Bring the garden hose and the rake and the hoe,
And don't mind about your hair;
There's a lot to be done before breakfast, you know,
And we're not the first to be there.

Come into the garden, Maud.
The gophers are taking the peas.
Quick, into your peggy jeans!
This isn't the time for ease.
Bring the new box trap and the gopher-go
And the cat with her kittens three.
We must wage a war on our burrowing foe,
As real as that on the sea.

Come into the garden, Maud.
The linnets are eating the corn;
The quail have nibbled the melon vines;
They were out at the first streak of morn.
Bring father's old coat and brother's old hat,
And hang them where all can see;
The impudent things may scare at that.
They don't care a rap for me.

Come into the garden, Maud.
The hoe has virtues rare;
'Twill bring the pink to your cheek
And a cunning curl to your hair.
'Twill send the blood through your veins with a whirl,
And stretch every muscle taut.
The healthy glow of the gardening girl
Is something that can't be bought.
—Jean A. Koethen in Riverside Press.

SAVING BY THINKING

Written for California Cultivator
By Mrs. D. W. C.

NO two households are just alike, so each housewife must meet her problems in her own way; yet about the same work is to be done in each home, and it is worth one's time to find the easiest and quickest way to do it.

Decide what is really necessary for the comfort and happiness of your family, and if some things can be left out, do so. Have certain days for certain tasks as much as possible, but not at the expense of your health. Try doing all the work in one part of the house before going to another. Then stop a moment and think what you need to take with you, that needs to be put away or you need in doing the work to which you are going.

On washing and cleaning days try having something on hand that can be quickly prepared for lunch, so your work need not be interrupted.

In a home with a baby a great labor saver is a baby bed on wheels that is small enough to go through doors. Ours is a homemade affair and quite inexpensive. While about my morning work I put what I shall need for baby's bath in the foot of his bed, and at bath time need only wheel him to where I bathe him. I take him to the porch to sleep and to the sewing room when I sew, taking his bottle and what I shall need along. We have the sides high enough so that baby is safe. He almost lives in that bed and I carry him very little. Try hanging baby's pads on the line and turning the hose on them. They need be scalded only once or twice a week, and I rinse them with the hose even then. It saves lifting them. I rinse all quilts and extra heavy pieces in the same way.

Surely everyone has stopped ironing bedclothes, especially in summer time, when they can be put on the bed fresh from the line. Many hospitals do that now, saying it rests the patients.

Crepe tablecloths can be bought now; also made by neatly whipping two lengths of a heavy crepe together. White oilcloth is still less work, but the crepe cloths can be used for dinner anyway and somehow one enjoys a dinner more with a pretty tablecloth on the table.

I find the dark riplettes very nice for children's clothes, the little aprons, petticoats, bloomers and rompers. One must keep the children clean and well enough dressed to command self-respect, but fancy clothes are unnecessary. Get material that doesn't fade. It lasts longer and saves much washing.

Let the children help. They want to. It will teach them valuable lessons and save you. Give them the lower drawers of dressers so they can soon fold away their clothes, also get them when needed. Have their stockings and shoe bags low so they can reach them; also the laundry bag so they can put away their own soiled clothing.

Give each a place in the closet, having low hooks so they can hang away and get their own clothing.

Teach them to throw back their beds, put away night clothing, wash and brush their teeth before coming to breakfast. It soon becomes a habit (with a little reminding).

A low stool kept under the kitchen sink saves many steps for mother. Drinks can be gotten, also things from the cupboard, and it serves a good purpose for the little girl to stand on while washing dishes.

Give them tasks to do that they like, even if mother must touch things up a bit. Dusting and dishwashing grow monotonous. Mine love to wash vegetables, whip eggs, stir things, make toast, etc.

Keep the children rested and contented. A story read after lunch time, having them lie quietly while reading, will, if it does not put them to sleep, rest them, and they will be more pleasant in the evening, which is often a trying time for little folks and grownups as well.

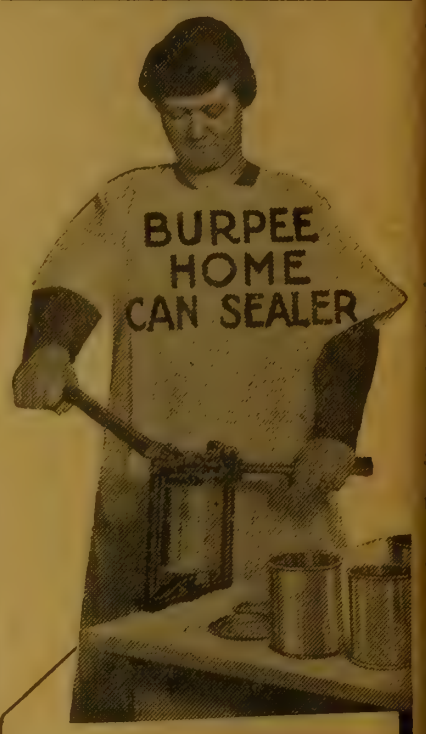
Take time to rest. A rest of 15 minutes in a darkened room makes one feel like new. It is often the quickest way to get one's work done. The best housekeeper is the one who economizes both her time and her strength and does not waste them on unnecessary tasks, always remembering that her health is a more valuable asset than a spotless kitchen, rich dishes on the table, or fine clothes.

SAVING STRENGTH

Written for California Cultivator
By Mrs. May Buerkle, Whittier.

YOU ask Culitvator housewives to tell how they save strength doing their work. I am not much of a writer, but will try to tell you some of the things which have proved great helps to me.

I think the greatest help is to use your head. There are eight in our family, five young children, seven to 14 years, grandma, who is a helpless invalid, my husband and myself. I have a 12-room house to care for besides the washing, ironing, cooking, baking, sewing, etc., necessary to care for such a large family. I do all my own work with the help of my two girls out of school hours. I try to plan my work ahead The children are taught to open their beds on rising (windows are always open), so only one trip upstairs is necessary to make beds, dust floors and straighten bathroom. I have bare floors with small



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Don't throw your surplus fruits and vegetables to the hogs. Turn them into profit. Can them with a BURPEE HOME CAN SEALER. Then sell them at top prices, or keep them for your own use.

No Solder Needed!

No solder nor acid are required with the BURPEE HOME CAN SEALER. Seals sanitary cans absolutely airtight. So simple a child can use it. So cheap that no home can afford to be without it. It's the greatest canning device of the age. Clamps to any kitchen table. Satisfaction absolutely guaranteed or money back.

Send for Free Book

It tells all about the simple, easy method of canning fruits, vegetables and meats. A book of recipes compiled with the assistance of U. S. Dept. of Agriculture is sent free with each sealer.

Write for full information.

BURPEE & LETSON, LTD.,
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MAIL THIS COUPON TODAY

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So. Bellingham, Wash.
Dear Sirs:—Please send free illustrated folder on BURPEE HOME CAN SEALER.
Name .....
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Install a PRIVATE GENERATING PLANT and have ELECTRICITY FOR LIGHT AND POWER. The Uni-Lectric system generates the standard 110-volt direct current, which will operate from 1 to 50 lights. It will run your sewing machine, electric iron, vacuum cleaner, churn, washing machine, etc.

NO BATTERIES---NO SWITCHBOARD

High speed gasoline motor, generator and automatic governor, all complete. Uses standard lamps and fixtures. Can be used for one or more houses.

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by a patented water absorption process which cannot fail. It works according to an established LAW OF NATURE.

Write for interesting catalogue and prices.

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Built Especially for California Conditions

THE FARQUHAR VIBRATOR SEPARATOR

Guaranteed by "The House of ARNOTT"
Ask The Grower Who Owns One
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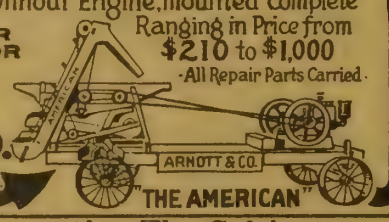
Past the Experimental Stage
Eleven different models, with or without Engine, mounted complete
Ranging in Price from $210 to $1,000
-All Repair Parts Carried-



"THE AMERICAN"

ARNOTT & CO.
BEAN THRESHER HEADQUARTERS
112-118 So. Los Angeles St. Los Angeles

rugs which are easy to clean. A broom, dustless mop and dustpan are kept upstairs.

Have a place for everything and teach the children to keep things in their proper places. I had a row of hooks placed low in the closets so the small children can hang up their clothes and get them down easily. This saves having to pick them up from a chair or floor and put them away myself. Before making a trip upstairs, down cellar or into the yard, I always try to think if there is something I can take along which would save another trip in the same direction.

I serve my family very little pastry, making simple puddings, jellies, junket in various forms, or having fresh fruit for desserts. They are much less work to prepare, are more wholesome and are enjoyed by all. When I do bake pie I bake a couple of extra crusts to be filled later with lemon or cream filling.

The fireless cooker is a great help. The food, when prepared and placed in the cooker, needs no more attention until ready to serve the meal.

I use an electric iron and vacuum cleaner, which I consider two of my greatest helps. Many who live in the country do not have electricity, but not having it I should use a good hand vacuum carpet sweeper and an iron heated with oil or gasoline. I have a small, triangular dustless mop with which I do most of the dusting. Being small, it is light and its long handle makes it unnecessary for me to stoop to dust chairs, etc., and I can reach with equal ease to tops of doors, windows and picture frames.

When I begin to feel too tired I stop all and lie down for five or ten minutes, with every muscle relaxed. This does wonders toward saving one's strength. Don't worry; try to keep a pleasant frame of mind and take things as they come, one at a time. I am afraid my letter is too long now, but hope you can use part if not all of it.

LABOR LIFTERS

Written for California Cultivator
By Elinor Rives, Burbank

THE most important one in our household is a washing machine. It runs by hand power, but with its aid I can do a washing for five—three children and two adults—in two hours, which would take an experienced "wash lady" a whole day; and the clothes are clean, too. Very few spots have need of a final rub on the washboard.

When the clothes are dry I fold towels, bed linen, etc., which I do not iron—except the company ones—then taking the hose I turn the nozzle down to a fine spray and sprinkle the remaining clothes on the line. A little practice and one can get the right degree of moisture as well as with the hand.

Ironing day I bake bread as well and utilize the fire.

Every day when I come in tired from the garden or chicken yard, or get warm over the housework and begin to feel sorry for myself because there is so much to do, I drop into a chair, the easiest one in the living room, and take up the "Cultivator" or some other good magazine, and forget my troubles for a while. In a few minutes I am rested and can "take up the labor of life again" with a new viewpoint.

During the warm summer months we have simple desserts, fresh fruit, bread pudding, etc. They are better for the children as well as easier.

While ironing I cook a big soup-bone; this supplies us with meat for three dinners, soup, potpie and hash.

I have a little oil stove in the basement where I can do my canning, thus keeping the kitchen clean and the house cool. The recent warm days we spent outdoors, as anything akin to camping "makes a hit" with my family. We laid a few bricks on top of each other with a piece of sheet iron over all, and lo! a stove where one could cook a three-course meal—all but baking. With a small table under the pepper tree we were perfectly comfortable the warmest day.

I have found that one good way to save one's strength is to "make things fly" while one is at it, too. One doesn't get any warmer or any more tired, and so much more is accomplished.

And then sometimes when we are through supper and the children hustled off to bed I "call it a day," stack the dishes in the sink and turn water on them and sit down and read the evening paper with my husband.

Above all, I try to keep sweet, for "it's worry, not work, that kills."

SAVING STRENGTH SYSTEMATICALLY.

Written for California Cultivator
By Mrs. Geo. H. Pettengill

SINCE childhood I have been a lover of the great outdoors and the vast open spaces, and likewise, when I open one of our 19 magazines, do I search out the article on the "vast open spaces." Hence this little speech of mine will be given in tabulated and tabloid doses, to save your strength and mine.

Thou shalt not stoop, squat nor stretch, but shalt have thy pots, pans and other paraphernalia within comfortable reach of thy hands.

Thou shalt gather up all the fillers of the ice box and not convey them thither in solitary state.

Thou shalt "tidy up" thy living room by standing beside the main catch-all and arranging in huge piles the debris belonging in the four (or 40) other corners of the house, and then going thereto with thy spoils.

Thou shalt have a dustless mop with a two-foot handle, with which to dust the high and lowly.

Thou shalt break some of thy useless bric-a-brac before thou breakest thy back burnishing it.

Thou shalt have a two-plate gas burner, elevated two feet from the floor, and nestled up close to the end of the wash tray, that the clothes may be lifted directly from the boiler into the tub.

Thou shalt sweep less and vacuum more.

Thou shalt vacuum more and dest less.

Thou shalt not spend hours in preparing elaborate dishes at the expense of thy disposition and thy family's digestion.

Thou shalt not sweep on "sweep day" if thou art physically unfit; the heavens will not fall.

Thou shalt not forget to train thy children to wait on thee; otherwise thou wilt soon be their slave.

Thou shalt apportion the household duties, else they will all be thy portion.

Thou shalt train thyself and thy family in the ways of quietness, for from thy nerves thou must daily exact untold service.

Thou shalt go about thy daily tasks with a song on thy lips or in thy heart.

Thou shalt not sacrifice thy strength to nonessentials.

Thou shalt not neglect thy dentist, thy oculist nor thy physician.

Thou shalt jealously guard thy health and strength, for they hold the key to thy disposition and the dispositions of the whole family take their cue from thee.

Thou shalt not neglect thy God, for "The way of the Lord is strength to the upright." (Prov. 10:29.)

STRENGTH, HEALTH, HAPPINESS

Written for California Cultivator
By Mrs. Laura Dickson, Fontana

WORRY is the greatest drain on strength and the hardest to overcome. But one can with persistence work wonders.

First of all, have plenty of fresh air in the sleeping room, or sleep out of doors.

Begin the day early and take a few minutes' rest in the middle of the forenoon. Complete relaxation for 15 minutes is necessary.

Wear comfortable shoes, with commonsense heel. Clothes to fit snug, but not tight, and take physical culture or common sense beauty exercises while doing the morning work.

Straighten the back, elevate the chest, breathe to the bottom of the lungs; step squarely on your feet and see how much easier the sweeping will be.

You will soon find that many of the exercises can be put to work to save strength. Rubbing on the washboard is the best exercise to straighten the shoulders. Have the tub high enough to work comfortably; stand firm on both feet, breathe deeply, and it will bring all the muscles in your body to work together.

Save all the steps you can and sit down to every task that you possibly can. Arrange the ironing board so as to sit comfortably while ironing.

Start the bread sponge at noon and mix into a hard loaf at night after the children are asleep and put it into the pans in the morning before they are awake.

Give the children a light supper and put them to bed as soon as the twilight is over. Let everything else drop and give them their bedtime stories and lullabys. Then you and father can have the long, quiet evenings to yourselves.

Your shoulders will begin to straighten, the tired, dragged-down look disappear, and the old light will come back to husband's eyes as well.

MY PET LABOR SAVINGS

Written for California Cultivator
By Mrs. F. C. Stunden, San Fernando

PERHAPS my greatest labor-saving is in washing dishes. I have a large tray I carry to the table after meals, also a rubber-bladed plate scraper. The plate scraper also saves soap, as it scrapes the dishes practically clean. After scraping and piling dishes they can all be carried in one or two trips. Now a soap shaker saves time and uses up scraps of soap. I stack dishes in a wire dish drawer as fast as I wash them, then pour boiling water over them, set the drainer in a draft of air, and only the silver and glasses need wiping. It is, of course, best to wipe

COOLNESS

There's nothing so cool as an oil stove for summer cooking. All the heat is concentrated on the cooking and not radiated about the kitchen.
Cooks everything any wood or coal range will cook, and cooks it better, because of the steady, evenly-distributed heat.
Use it all the year 'round—more convenient than a wood or coal stove, and more economical.
The long blue chimneys prevent all smoke and smell.
In 1, 2, 3 and 4 burner sizes, with or without ovens. Also cabinet models. Ask your dealer today.

NEW PERFECTION OIL COOK-STOVE

STANDARD OIL COMPANY
(California)

We Close Out Our Entire
RUG SECTION

Whittall's Anglo-Persian Wilton, 11.3x15, $141.00, for.. $117.00

Whittall's Royal Worcester Wilton, 11.3x15, $106.00, for $88.25

Whittall's Body Brussels, 11.3 x15, $67.00, for $55.75

Whittall's Anglo-Persian Wilton, 9x12, $82.50, for.....$68.75

Whittall's Anglo-Indian Wilton, 9x12, $69.25, for $57.70

Whittall's Royal Worcester Wilton, 9x12, $61.75, for.....$51.45

Whittall's Body Brussels, 9x12, $40, for $33.35

Axminster Rugs, 9x12, $37.50, for $31.25

One-piece Brussels Rugs, 9x12, $25.00, for $19.85

Coulter Dry Goods Co.

215-229 So. Broadway 224-228 So. Hill St.
LOS ANGELES, CAL.

Make Coulter's Your Headquarters for Shopping When in Los Angeles for the Week-end Trip.

the silver and glasses while hot.

I always put pots and pans to soak, then wash with a wire sink brush. Get a brush of fine wire made like a broom. It does not injure enamelware.

In sweeping I have a pail of hot water into which I often dip the broom, knock out all water possible and use broom damp, not wet. It saves both mopping and dusting.

For washing I use both a washing machine and wringer. What per cent of your clothes do you iron? Why do you iron them? Because Mrs. Jones does or because it is "the way to do"? We iron for two reasons—appearance and to give the article a smooth surface, so it will not catch dirt easily. I never iron knit underwear, hose, everyday towels, sheets or overalls. In fact, two-thirds of my ashing goes unironed. Things should be taken down thoroughly dry and folded and put away at once. The wrinkles are mostly accumulated while jammed down in the clothes basket.

PRIZE WINNERS

The cash prizes have been awarded: $2.00 to Mrs. D. W. C. for "Saving by Thinking"; $1 to Elinor Rives of Burbank for "Labor Lifters." All others published this and folowing weeks are given a year's extension of subscription for which $1.00 would pay, but really don't you think it is worth more?

The articles, all of them, are splendid, fine and helpful, with a cheery "go at it, get it done and enjoy it" spirit that is an inspiration to us all.

JULY CONTEST

"Keeping Cool, Outside and In," will be the July contest topic. Does it bring visions of ice and darkened rooms, cool porches, a living room under a shady oak, fireless cookers, "early to rise" and a siesta at noon? That's the outside; how about the in—in these long days of heat and stress, physical, financial and mental?

If the past months' contests mean anything they mean that our Cultivator housekeeper contributors will tell us all these things next month.

There's good reading in these columns these days; many a compliment comes to this desk on the quality of the contest contributions. Next month's will be eagerly read.

Prizes Offered.

For best article $2.00 cash; for second best, $1.00; all others published, entitle sender to extension of year's subscription to California Cultivator unless such extension has been already given in 1917.

With your article send name and address of one to whom you wish extension credited.

All contributions should be addressed to Household Department, California Cultivator, Los Angeles, and be mailed in time to reach this office by or before Thursday morning, July 19. They will appear in the issue of July 28. Please write on one side of paper only.

PATRIOTISM.

The other night
I went to the theater
With a lowbrow friend.
And the orchestra played
"Litle Brown Jug."
And he thought
It was the national anthem
And he stood up.
And I did, too,
Darn him.—L. A. Herald.

SAFETY FIRST

A visitor at the capital was accompanied by his small son. The little boy watched from the gallery when the House came to order.

"Why did the minister pray for all those men, papa?" he questioned.

"He didn't. He loked 'em over, and prayed for the country," was the answer.

A MALICIOUS SLANDER

"Why do you folks on earth say that war is hell?" asked Satan as he welcomed a newly arrived Shade.

"Well, it is, isn't it?" asked the Shade.

"It is not," asserted Satan. "Why, there isn't room enough in hell to accommodate this one."

POULTRY INSTITUTES

The three-day institutes held at Van Nuys high school and at Pomona high school under the direction of J. E. Dougherty, assisted by E. J. Hauser of University of California extension service, were entirely successful in point of attendance and interest shown by poultry people. Contrary to expectations the Pomona meeting was not as largely attended as that at Van Nuys. Pomona poultrymen, especially those who were members of the committee who had worked for the Pomona institute, were somewhat disappointed, but there is easy explanation of the lack of attendance in that the heat of the preceding week had been such that practically every poultryman was needed at home to provide for the comfort of his stock. Those who did attend used note books and pencils freely and took away much information on housing and yarding, feeding, incubation, brooding, price of breeding, and how to select and cull the layers. The Pomona meeting ended with a most sucessful picnic in Ganesha Park.

CONTRADICTORY

"What did Blank say about me?"

"That you owed him $10."

"Why, the lying scoundrel! Well, he can just whistle for his money now. I won't pay him one cent till I get good and ready."—Boston Transcript.

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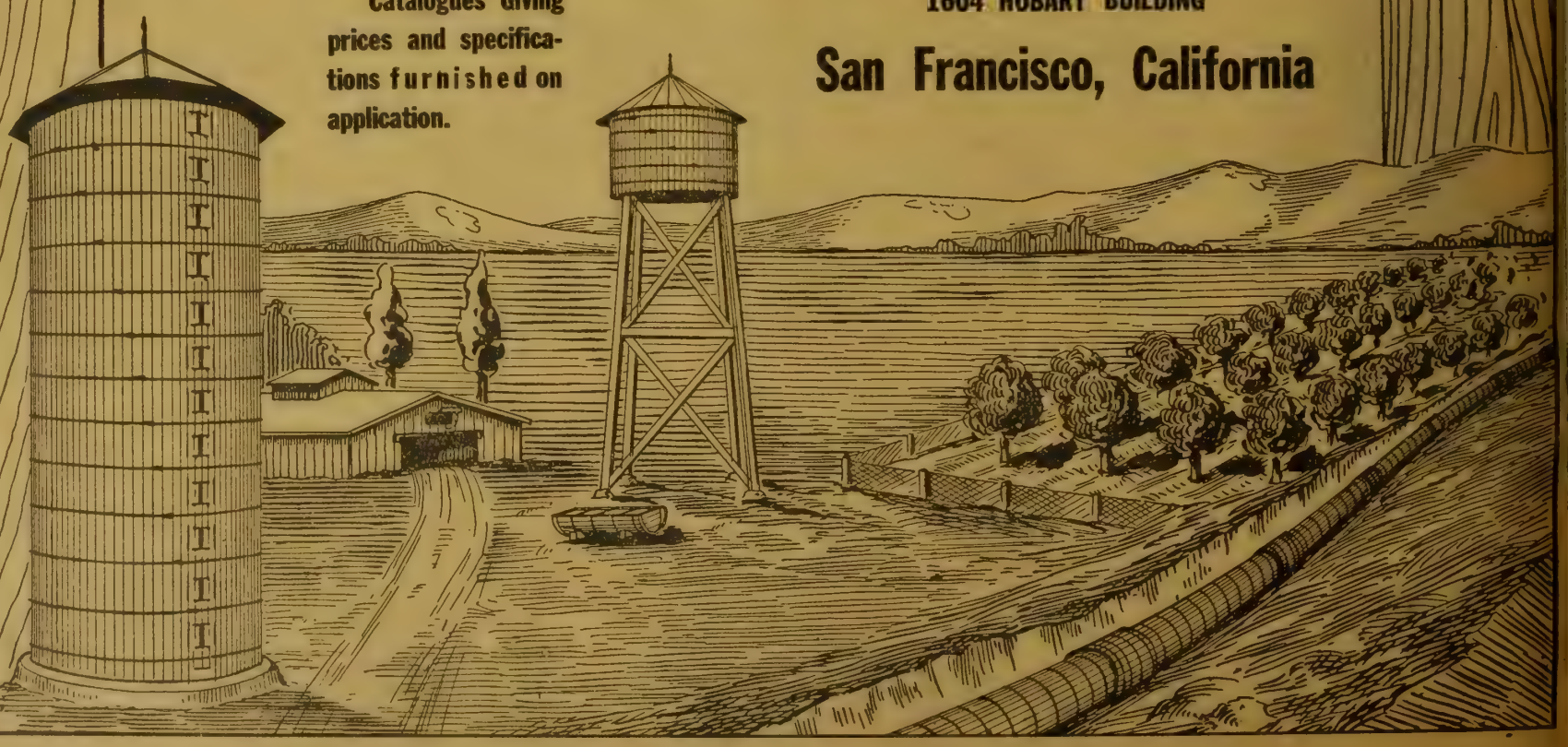

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